



Compilation of stakeholder input for the March 2, 2017 public listening session
 “Visioning of United States Agricultural Systems for Sustainable Production”

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The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA.



Executive Summary

On March 2, 2017 a listening session on “Visioning of United States Agricultural Systems for Sustainable Production” was held by USDA-OCS; Federal Registry notice <https://www.federalregister.gov/documents/2017/01/24/2017-01506/visioning-of-united-states-us-agricultural-systems-for-sustainable-production-stakeholder-listening>. This session featured 22 stakeholder and six invited speakers from across public and private sectors to discuss strengths, weaknesses, opportunities and threats in the long-term future (to 50 years) of U.S. agricultural production systems; especially focusing on how to leverage new technologies and scientific knowledge. Participants included 86 in person, 58 by phone, and 50 by Web (with some crossover), from across crop, livestock, landscape, food, sustainability and science backgrounds, traveling in person from as far as Hawaii and California. Participant breakout groups during the listening session developed additional interesting points to be considered. Many different approaches and technologies that could improve agricultural sustainable production with new or additional research were presented and discussed.

Major comment themes arising in the in-person listening session generated included:

- USDA is seen as a well-respected and as a leader in many areas of agriculture;
- There are large data management and data coordination needs emerging that USDA need to provide leadership on;
- Major systematic issues are not being addressed due to a lack of integration across agricultural species and disciplines (i.e. silos, and not treating systems or research as holistic enough);
- Missing opportunities because research lacks longer-term (>7 years) funding and longer-term performance metrics (e.g. breeding perennial grain crops takes seven to 30 years; soil quality can take 10 to 15 years to show improvement).

In addition to the in person session, requests were made in the Federal Registry notice for written comments. In total there were 112 written comments received, totaling nearly 200 raw pages, from 142 unique email addresses with over 178 signatories. There was some overlaps between written comment with the oral comments of attendees, especially around building of soil and more research needed on holistic organic systems. Comment themes in the written comments were very diverse, however, there appeared also to be an organized campaign of responses that centered around two major topics:

- Agricultural systems that are focused on first protecting the soil;
- Suggestions that USDA is needed to provide a research leadership role to counterbalance large corporations believed to be making many of the decisions for farmers and society.

As this was a public listening session, all presentations given and comments received were intended to be made public posted as is being done in this report. ***The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA.***

Next steps involve the production and dissemination of a synthesis report.



Definition of Sustainable Agriculture

The definition of sustainable agriculture, for USDA and the purposes of this listening session, was described by Congress in the 1990 Farm Bill:

The term "sustainable agriculture" means an integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- Satisfy human food and fiber needs;
- Enhance environmental quality and the natural resource base upon which the agricultural economy depends;
- Make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;
- Sustain the economic viability of farm operations;
- Enhance the quality of life for farmers and society as a whole.

The oral presenters and attendees were made aware of both the definition and the focus on research activities needed for the listening session in advance.

Public nature of the listening session regarding comments

Because this was a public listening session, the session was recorded and participants were told to expect that all comments could be used in all possible forms (print, web, email, audio, etc.), edited for brevity or in full including their name, organization and date. However, we would endeavor to not release personal information (i.e. email addresses, phone numbers or other personal contact information); to prevent accidental release of materials, it was asked that participants and submitters avoid including personal information in any materials presented or submitted.



Final agenda for March 2nd

Thursday, March 2, 2017 8:30 – 4:30 USDA South Building Cafeteria rooms 1,2,3

	7:00 AM	Cafeteria Opens	Food and coffee for purchase
	8:30 AM	Sara / Seth	Meeting info. / ground rules
	8:40 AM	Ann Bartuska	Welcome from Acting USDA-REE
1	8:50 AM	Elise Golan	Sustainability
2	9:00 AM	Charles Walthall	Remote sensing and precision agriculture
3	9:10 AM	Mitch Tuinstra	ARPA-E/ robotics/ automation / phenotyping
4	9:35 AM	Laurie Flanagan	dclrs
5	9:40 AM	Tom Martin	EnviroCirc
6	9:45 AM	Rebecca Dudley	Accenture Federal
7	9:50 AM	Matthew lange	UC Davis and UC Davis Health System
8	9:55 AM	Kristina J. Owens	Phytobiomes
9	10:00 AM	<i>Sara Scherr</i>	Moderated questions and discussions
10	10:20 AM	Break + networking	
11	10:40 AM	Sara Scherr	Landscapes
12	10:55 AM	Diana Jerkins	Organic Farming Research Foundation
13	11:00 AM	Alexis Baden-Mayer, Esq.	Organic Consumers Association
14	11:05 AM	Kathleen Delate, Ph.D.	Iowa State University
15	11:10 AM	Ann Bybee-Finley	Cornell Graduate Student
16	11:15 AM	Bruce Goldstein	Farmworker Justice
17	11:20 AM	Jerry Glover	Perennial cropping systems
18	11:35 AM	<i>Seth Murray</i>	Moderated questions and discussions
19	12:00 PM	Lunch/ Breakout #1	
20	1:20 PM	George W. Smith	Michigan State University
21	1:25 PM	Peter Bachmann	USA Rice
22	1:30 PM	Helen Spafford	University of Hawaii, Manoa
23	1:35 PM	Max Fisher	National Grain and Feed Association
24	1:40 PM	<i>Jimmy Bramblett</i>	Moderated questions and discussions
25	1:55 PM	Juli Obudzinski	National Sustainable Agriculture Coalition
26	2:00 PM	Mitch Hunter	Penn State Graduate Student
27	2:05 PM	Marcia S. DeLonge	Union of Concerned Scientists
28	2:10 PM	Montague Demment	Association of Public & Land-grant Universities
29	2:15 PM	<i>Jimmy Bramblett</i>	Moderated questions and discussions
30	2:30 PM	Break + networking	
31	2:50 PM	Paul Shapiro	The Humane Society of the United States
32	2:55 PM	David E. Starling	American Veterinary Medical Association
33	3:00 PM	Tad Sonstegard	Recombinetics
34	3:05 PM	Joanna Grossman	Good Food Institute
35	3:10 PM	<i>Jeff Vallet</i>	Moderated questions and discussions
36	3:25 PM	Breakout #2	
	4:10 PM	Wrap up	
	4:30 PM	End	



Attendees in person at March 2nd listening session

Person	Employer	Person	Employer
Andy Andrews		Gary Matteson	Beginning, Small Farmer Programs and Outreach The Farm Credit Council
Peter Bachmann	USA Rice	Jude Maul	USDA-ARS
Alexis Baden-Mayer	Organic Consumers Association	Ingrid Mezo	Food Chemical News
Ann Bartuska	USDA-REE	Chelcy Miniati	USDA- OCS
Ryan Bennett	National Milk Producers Federation	Tessa Mork	YMCA OF METROPOLITAN WASHINGTON
Jimmy Bramblett	USDA-NRCS	Seth Murray	USDA-OCS
Ann Bybee-Finley	Cornell Graduate Student	Juli Obudzinski	National Sustainable Agriculture Coalition
Amy Cahn	Philadelphia Food Policy Advisory Council	Kristina J. Owens	Phytobiomes Alliance
Kevin Cain	Association of American Veterinary Medical Colleges	Stephanie Pearl	AAAS / NIFA
Harold Chase	NSF International	Karen Perry Stillerman	Union of Concerned Scientists
Bryan Combs	USDA-NASS	Gregory Pilchak	Strategic Conservation Solutions
Dylan Cross	National Pork Producers Council	Deborah Press	ASPCA
Carla Curle	Beyond Pesticides	Sarah Reinhart	Union of Concerned Scientists
Kathleen Delate	Iowa State University	Nadine Reinthaler	fooddirectionsdc
Marcia S. DeLonge	Union of Concerned Scientists	Dawn Rittenhouse	DuPont Government Affairs
Montague Demment	Association of Public & Land-grant Universities	Guy Robertson	USDA-FS
Rich Derksen	USDA-OCS	Lillie Rosen	DC Greens
Leah Douglas	New America	Philip Sambol	goodfoodmarkets.com
Rebecca Dudley	Accenture Federal	Sara Scherr	Ecoagriculture Partners
Oliver Edelson	Union of Concerned Scientists	Robin Schoen	National Academies of Sciences, Engineering, and Medicine
Steve Etko	National Organic Coalition	Timothy Schoonhoven	Strategic Conservation Solutions
Max Fisher	National Grain and Feed Association	Erin Fitzgerald Sexson	dairy.org
Laurie Flanagan	dclrs	Paul Shapiro	The Humane Society of the United States
Erin Foster-west	USDA-NRCS	Aggarwal Smita	syngenta.com
Jerry Glover	USAID, NSTC, Nat. Geo. Explorer	George W. Smith	Michigan State University
Elise Golan	USDA-OCE	Tad Sonstegard	Recombinetics
Bruce Goldstein	Farmworker Justice	Helen Spafford	University of Hawaii, Manoa
Joanna Grossman	Good Food Institute	David E. Starling	American Veterinary Medical Association
Tom Hebert	Bayard Ridge Group LLC (NCGC)	Michael Stein	Organic Farming Research Foundation
William Hoffman	USDA-NIFA	Susan Stein	USDA-FS
Sara Hopper	DuPont Government Affairs	Elizabeth Stulberg	Tri-science societies (CSSA, ASA, SSA)
Mitch Hunter	Penn State Graduate Student	Ed Thomas	The Fertilizer Institute
David Inall	unitedegg.com	Katherine Thomas	US Senate Ag, Nutrition Forestry Committee
Dr. Diana Jerkins	Organic Farming Research Foundation	Damon Thompson	USDA-OSEC
Kim Kroll	USDA-NIFA/ SARE	Ann Marie Thro	USDA- OCS
Lisa A. Landsman	independent	Mitchell R Tuinstra	Purdue University
Matthew Lange	UC Davis and UC Davis Health System	Robert Turnbull	Iowa State University
Clara Lau	National Cattlemans Beef Association	Jeffrey Vallet	USDA-ARS
Dena Leibman	Future Harvest CASA.	Charlie Walthall	USDA-ARS
Gabriele Ludwig	Almond Board of California	Bill Wenzel	U.S. PIRG
Loretta Lynch	USDA-ERS	Scott Yager	National Cattlemans Beef Association
Tom Martin	EnviroCirc	Ron Young	Ag intern at ag.senate.gov
Caitrin Martin	USDA-FAS		



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"Visioning of United States Agricultural Systems for Sustainable Production"



Participant breakout comments
Made at USDA-OCS "Visioning of United States Agricultural Systems for
Sustainable Production" listening session
Held March 2, 2017



Participant breakout comments on flip chart pads

10 Breakout groups were assigned randomly to each attendee’s nametag. Some breakout groups coalesced quickly and provided lots of comments on the included flip chart pads, and worked on these questions, while other groups rapidly disbanded and did not make flip chart comments.

At the first breakout, after lunch, they were asked to address three of the following questions by their choosing.

- *What are the major strengths of current agricultural systems that are important to maintain in future systems?*
- *What are the major weaknesses of current agricultural systems that could be improved on in future systems?*
- *What are the major opportunities for agricultural systems of the future? How can technology and scientific findings facilitate these?*
- *What are the major threats for agricultural systems of the future?*
- *What research will be needed and how can this be accelerated?*
- *What infrastructure will be needed?*
- *What changes will be needed for new systems to succeed?*
- *How can we educate the next generation to solve these challenges?*

At the second breakout, near the end of the day, they were asked to address one question (primarily)

- *What didn’t you hear?*

After which they were encouraged to answer any of the previous questions if their group finished this early.

Next steps

All participant breakout comments written on the flipcharts at the end of the breakout session were compiled and typed into a MS Word document by Seth Murray. Comments in brackets “[]” indicated what Seth Murray believed the context to be of a participant breakout comment to be, or if a participant breakout comment was illegible, based on his interacting with the groups. Comments were then compiled by question from across all groups. These compilations are presented below.

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA.



- What are the major ***strengths*** of current agricultural systems that are important to maintain in future systems?
 - Cross sectoral communication
 - Diversity – size, crop, geography, producers
 - Soil mapping → future
 - Region to region differences can result in sharing of ideas (if open source) – both strength and weakness
 - Public research
 - Extension
 - ARS can do long term (LTAR)
 - Food produced cheaply and safely (nontoxic) for consumers
 - Consumers know about and demand organic and grassfed → farmers are responding to meet this consumer demand
 - Agricultural system has ability to take technology and make farming more efficient (e.g. GIS, genetics, sensors)
 - But are current data and technology applicable and usable at all scales?
 - Strong cultural/traditional agricultural practices that can inform sustainable agricultural
 - Lots of data
 - Willingness to adapt technologies to improve production
-



- What are the major weaknesses of current agricultural systems that could be improved on in future systems?
 - Diversity [presumably, too many topics, niches, etc to solve with broad brush strokes]
 - Flight of capital [\$] in agriculture
 - Region to region [differences] and sharing same funds
 - Lack of metrics that focus on outcomes [most focus on outputs]
 - Short term grants
 - Extension maintenance
 - Infrastructure: buildings falling part
 - Not cheap or safe for producers, food chain workers
 - “Overnutrition” Problem (obesity) with costs of healthcare, loss in productivity
 - Food access problem
 - Agricultural production going to fuel
 - Agricultural production (grain) going to meat production
 - Research and technology are not scale neutral
 - Despite growth of organic sector, the research money is disproportionately small
 - Outside research agendas are driving research because of lack of funding
 - Virtually no environmental regulation on industrial food animal production
 - Must push to sustainable practices in this system
 - Lack of diversity in all production systems
 - Focus on short-term rather than long-term → on-farm research anprojects
 - High reliance on external inputs for soils, pests, feed
 - Disconnect in society between food source and consumer
 - Agricultural pest and disease bioterrorist risks
 - Weak agricultural investment finance (role of private)
 - High speed access in rural locations
 - Organic technology transfer
 - Federal understanding of organic issues and information
-



- What are the major ***opportunities*** for agricultural systems of the future? How can technology and scientific findings facilitate these?
 - Big data
 - a) Farmer vs. ownership of others data vs. open source
 - b) Immediate benefit for a 50yr return \ framework|financing|support
 - Ecological insurance
 - 1. Breadth of crops
 - 2. Traditional
 - 3. Urban / rural
 - Microbiome
 - 4. Catalog
 - 5. Library
 - 6. "Human genome"
 - Landscape-scale management
 - Microbiomes
 - Precision agriculture – cell phone bases
-



• *What are the major **threats** for agricultural systems of the future?*

- Validation tools – measurement
- Academic
 1. Interdisciplinary speed
 2. Data posting
 3. Communication
- Speed of Adoption
 4. E.g. perennials
 5. Track key indicators

- Low Ag literacy
- Urban – rural disconnect (cultural divide)
- Climate change
- Minimum of 10 years needed to achieve usable research results, particularly with respect to sustainable agriculture
- Health – need to look at agriculture through a health lens
 - How/what is produced
 - Impact on people and environment

Threats to future

- Crops that we use have low genetic diversity which makes them susceptible to pests and diseases; lack of adaptability for environmental changes (for crops and livestock).
 - Seed and lineage resources are not publicly available but are held privately
 - Landscape level breeding is not occurring
 - Loss of small license holders – seed, pesticides, fertilizers
 - Disconnect between animal and grain production → More waste → where we need
 - Foreign diseases
 - Climate issues
 - Narrowing germplasm
 - Agricultural alarmism
-



- *What research will be **needed** and how can this be accelerated?*

Incentivizing things other than yield / price

Interdisciplinary research and training

Funding mechanisms that do not depend on industry matching funds from industry, but that is innovative

Global perspective

Produce more with less



• *What infrastructure will be needed?*

Research infrastructure

Faculty

Facilities

Brain-drain – need to renew interests

Metadata for food

Cyber-physical (System security) infrastructure (including satellite, survey data, pluggable)

Knowledge infrastructure – internet of food, tractable food systems, international standard

Natural infrastructure – agency interface



- *What changes will be needed for new systems to succeed?*

Research needs to be

- Long term
 - Scalable
 - Systems level/not in silos, but interdisciplinary (but we are constrained by funding streams)
 - Farmer driven (informed by/with participation of/benefiting farmers) → currently not
Driven by small farmers
 - Host resistance to disease adaptability to environments for both animals and plants
 - No systems for matching livestock and forages
 - Economics and social sciences of sustainability
 - viewed sector-wide innovations
 - U.S. farmer innovations
-



• *How can we **educate** the next generation to solve these challenges?*

- Integrate agriculture into core curriculum/ reintroduce ag. education into schools
- Farm visits
- Virtual reality
- Job opportunities
- Major opportunities
 - Big Data (What to collect/ organize)
 - Technology in extension
 - Social Network (e.g. "Farm Hacks", between farmers and to others)
 - Growing consumer interest
- Areas of Research: Integrated
 - Socioeconomic

Basic education in food systems from elementary school onwards with hands-on activities in schools, community gardens, urban and good examples of nutrition in school lunches, etc. Integrated educational programs that teach basic reading, writing, math and sciences in the context of agriculture and food systems.

- IT technology literacy
 - On-line education (away from fixed building) → scale
 - Plus interactive learning by doing
 - Systems, integrative mentality/ framework → blend a new profession
 - Food system
-



- *What changes will be needed for new systems to succeed?*

“Missing” topics from Listening Session

- Urban agriculture
- Race/Ethnicity –
 - o Global
 - o Underserved
 - o Farmworkers
 - o land
- Who are the next generation of farmers? How are they entering into farming? What is needed to assist them?
- Economic relationship between producers and buyers/distributors (e.g. meat industry) – power dynamics of producer/buyer relationship results in economic uncertainty for producer
- Farmland preservation/land loss
 - o Family and small farmers
 - o Black farmers
 - o Urban farmers
- True cost of food – tensions between affordability/living wages/quality
- Data and technology – assumptions that we know how.
 - o Is science as good as it should be?
- Pollution management and mitigation
- Alternative food animals (including animal agriculture)
- Precision agriculture for animals
- Livestock productions and feed systems
- Incorporating animal and cropping systems
- Tree crop alternatives, agroforestry
- On-farm bio-security
- Food safety at household/ restaurants (e.g. on site monitoring of pathogens)
- Applications of rapid detection, nano-sequencing technologies
- Ecological monitoring
- Breeding for diversified agricultural landscapes
- Market innovations to provide incentives for diversity
- Design of programs to support farmer innovation
- Antibiotic resistance and environmental protection
- Developing rapid-adaptation farming systems (shocks, opportunities)
- New market and food industry trends
- Retail point of purchase innovations
- Payment for ecosystem services
- Plant physiology innovation
- Reconceiving the values and purposes of farmland
- Improved water and hydrological systems in agriculture
- Food distribution systems



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Written Comments
Made at USDA-OCS "Visioning of United States Agricultural Systems for
Sustainable Production" listening session
Held March 2, 2017



All written comments were received at the email address seth.murray@osec.usda.gov in response to the Federal Registry notice citation 82 FR 8174, document number 2017-01506.

These comments were submitted by the public to the United States Department of Agriculture's Office of the Chief Scientist (USDA-OCS) and do not necessarily represent or relate to the opinion of USDA. USDA does not verify or endorse any third party website links provided here, links out are strictly at your own risk.

All emails and any attachments written to be responsive for the request are included here compiled by Dr. Seth Murray (seth.murray@osec.usda.gov) and are [numbered chronologically in the order received](#). The email reply function was used to copy and paste so that the email header could be included. Email addresses and specific contact information were removed from each submission, as were any large images and reference attachments. Text from any attached MS Word or PDF was copied and pasted into an MS Word document and formatting might have changed, along with some symbols and words; any changes were unintentional. Submissions with PDF document text are noted below. Once compiled, the entire document was changed to a uniform font and extra line breaks and paragraph spacing were modified to reduce the overall size and increased the readability of the document.

Any comments that were missed, copy and paste mistakes or other errors were unintentional and I apologize. Thank you, Seth

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA.

*Comments Submission #112
Received 3/16/2017*

From: Mitch Hunter

Sent: Thursday, March 16, 2017 9:39 AM

To: Murray, Seth - OSEC

Subject: Written submission

Hi Seth,

Here is my paper and a related op-ed that highlights some of the main points I addressed in my talk at the listening session.

Good luck compiling the comments.

Best,

Mitch

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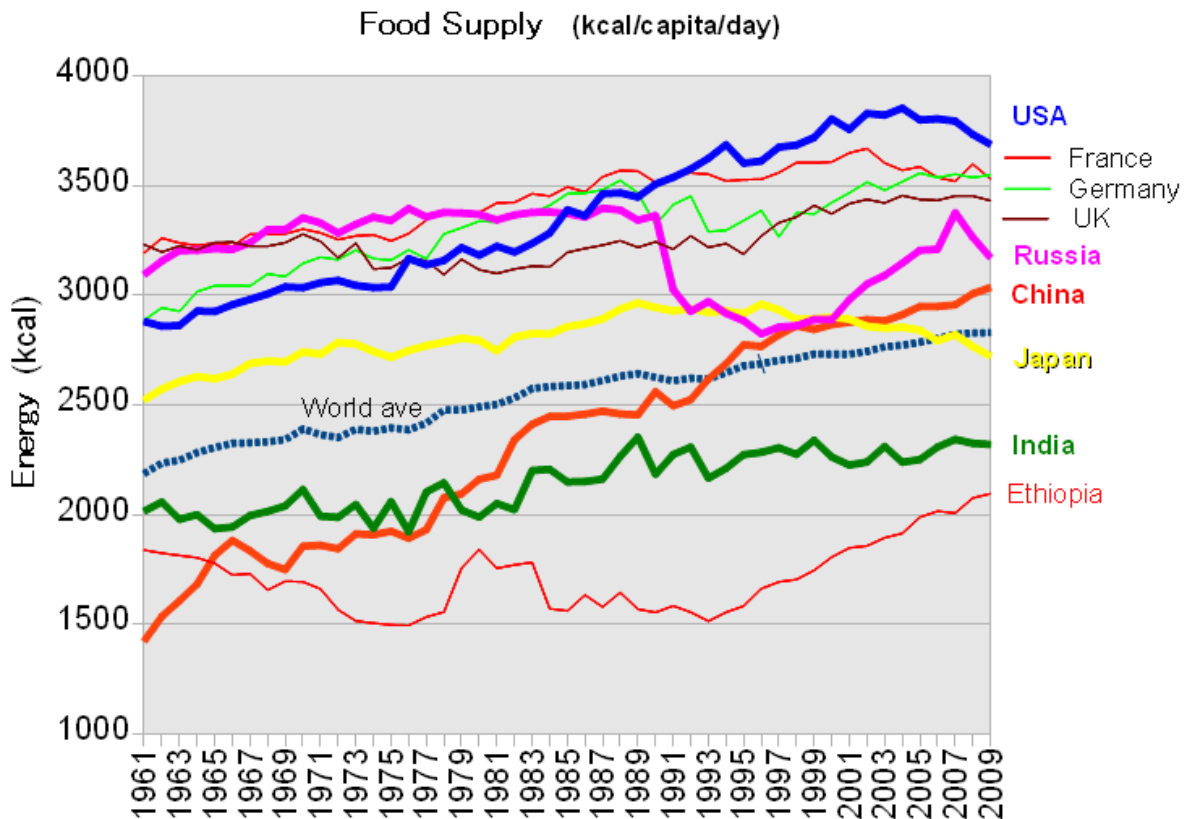
Mitch Hunter

Penn State University

www.ecoagronomy.org

For decades, American agriculture has been a paragon of productivity, churning out record crops at a steady clip. We have exported both our farm products and our way of farming around the world, and global production has risen relentlessly.

Yet now there is concern that even this is not enough. The United Nations [projects](#) that the global population will increase from 7.3 billion in 2015 to 9.7 billion in 2050. This growth will be concentrated in the world’s poorest countries, where standards of living are set to rise rapidly, increasing demand for resource-intensive meat and dairy products. Together, these trends are heightening fears that the world’s cupboards may run bare in the coming decades.



Food availability is higher in wealthy countries than in developing nations. The U.N. Food and Agricultural Organization considers 2700 kcal/capita/day a satisfactory level of food supply. [Masaqui/Wikipedia, CC BY-SA](#)

This scenario leads to the nearly ubiquitous assertion that we must double world food production by 2050, which is widely repeated by [agribusinesses](#) and [scholars](#) alike. This claim is often coupled with calls to [reduce impacts on the environment](#) even as food production ramps up. The common prescription is for a “[sustainable intensification](#)” of agriculture that both increases yields and reduces the harmful side effects of tilling and fertilizing billions of acres of land.

But do we really need to double food production? And what will it take for agriculture to be sustainable?

In an [analysis](#) published in *BioScience*, my coauthors and I offer a recalibrated vision of sustainable intensification. We conclude that food production does not need to double by 2050,



which would require unprecedented growth, but instead needs to continue increasing at roughly historical rates. We also highlight quantitative goals that indicate the scope of agriculture’s environmental challenges.

Lower food production targets

Our analysis updates the two most widely cited projections of food demand, one by [U.S. scholars](#) and the other from the [United Nations](#), using the most recent available [data](#). Both of these studies used a baseline year around 2005, which made sense at the time they were published, but global cereal production jumped 24 percent between 2005 and 2014. So, we updated the baseline to 2014. We also factored in the most recent U.N. population estimate for 2050, which is higher than the estimates used in the original studies.

Based on our projections, the world will need only 25 percent to 70 percent more crop output in 2050 than was produced in 2014. This includes grain used to feed livestock and, to some extent, grain used for ethanol production.

We did not question the approaches of the original studies. Indeed, the differences between the two studies’ approaches reflect some of the main uncertainties inherent to these long-term projections, including different scenarios of future economic growth and different assumptions about how growing wealth will affect human diets.

Food production will still need to keep growing to meet our updated goal of a 25 percent to 70 percent increase, but at an annual rate that is closer to the historical average. Hitting these lower targets will put much less strain on the global agriculture system – and the land, water and air that supports it – than doubling production. To double output, we would have to boost food production more rapidly than ever before, driving increases in soil tillage, fertilizer and pesticide use, and water withdrawals for irrigation.

New focus on environmental goals

This additional breathing room may be critical, because our analysis also shows that agriculture’s environmental footprint must shrink drastically to safeguard the ecosystems that humans rely on. We reviewed quantitative goals for agriculture’s environmental performance that are tied to specific outcomes for ecosystem function.

For instance, [worldwide greenhouse gas emissions from agriculture](#) are crawling steadily upward. Scientists have called for reducing these emissions [by at least 80 percent by 2050](#) to avoid temperature increases greater than 2 degrees Celsius.

Nutrient pollution, mainly from farms, forms a huge dead zone in the Gulf of Mexico every summer.

Similarly, [nutrient pollution in the Mississippi River Basin](#) creates a massive dead zone every year in the Gulf of Mexico, suffocating aquatic life and impacting commercial and recreational fishing. Reducing the dead zone will require cutting this pollution – which predominantly comes from agriculture – [to about half of its historical baseline](#). Despite decades of effort by farmers and conservationists, annual nutrient loads remain stubbornly high.



Given these challenges, it is good news that the world’s appetite in 2050 may not be as voracious as some estimates have indicated.

The path forward

Our revised food production and environmental goals are just the beginning of a new approach to sustainable intensification in agriculture.

More research is needed to refine the projections of food demand in 2050 and [identify options](#) for flattening the demand curve while enhancing human health. Regional studies are also needed, so that areas poised for rapid population growth can plan for their future food needs. And new research can draw clearer links between environmental impacts and ecosystem outcomes, so that farmers and the public can make informed decisions about the costs and benefits of different ways of farming.

Meeting both production and environmental goals will be a monumental task, especially in the face of new challenges such as [water shortages](#), [pesticide resistance](#) and the [changing climate](#). However, clear targets may help farmers, researchers and policymakers focus on the right long-term challenges.

Congress has [just begun hearings](#) on the 2018 farm bill, which will set policy for five years of agricultural production, conservation and research. The new bill can support research efforts aimed at refining and achieving agriculture’s long-term goals. Just as important, it can begin transforming farm subsidy, crop insurance and conservation programs to help farmers make changes on the ground.

With our lower food demand projections in mind, there is an opportunity to start providing incentives for farming practices that keep soils covered with living plants year-round, store more carbon in the soil and prevent nutrients from entering waterways. More broadly, these lower targets create space for a new conversation, one focused not on doubling production, but on developing a [new food system](#) that keeps people fed while focusing just as much on keeping ecosystems healthy.

*Comments Submission #111
Received 3/10/2017*

USDA Office of the Chief Scientist
Sustainable Agricultural Production Listening Session
March 2, 2017

Presenter: Associate Professor Helen Spafford
Chair, Department of Plant and Environmental Protection Sciences
College of Tropical Agriculture and Human Resources
University of Hawaii, Manoa

Title: The challenges for sustainable production in Hawai’i



Hawaii is a group of islands in the Pacific Ocean. As an isolated land mass with approximately 1.4 million people there are some unique challenges in terms of sustainable agriculture and food security that we face. Relative to other areas of the US, Hawaii produces unique tropical fruits and nuts for export, but we are not currently able to sustain our population with local agriculture. We import an estimated 90% of our food. Imported oil is our primary source of energy and we are entirely dependent on rainfall for our water. The 10% of food produced locally is supplied by growers who are, on average, approximately 65 years of age. We are also experiencing loss of expertise in State and Federal agencies and declining land and infrastructure that support agriculture. In addition, food production is plagued by a suite of insect pests, plant pathogens and weeds with an increasing burden of 17-20 new insect species introduced every year. Clearly, agriculture, in its current state in Hawaii is not sustainable.

These are well-recognized issues and in response, Governor Ige has developed a series of recommendations to promote sustainability in Hawaii (<http://governor.hawaii.gov/sustainable-hawaii-initiative/>). The College of Tropical Agriculture and Human Resources has a number of research and extension programs that are actively engaged in sustainable and food security initiatives and work with other organizations and growers across the state on these initiatives.

For Hawaii to become sustainable we must have fewer new pest incursions. For this we need better biosecurity mechanisms and coordination. The recent interagency biosecurity plan for Hawaii could be a model for interagency cooperation in other States (https://governor.hawaii.gov/wp-content/uploads/2016/09/Biosecurity-Draft-Plan-Executive-Summary_FINAL.pdf and <https://hdoa.hawaii.gov/wp-content/uploads/2016/09/Hawaii-Interagency-Biosecurity-Plan.pdf>). One method to reduce new incursions would be to have a higher proportion of all shipments, mail and packages inspected rather than maintain the current level of 5%.

Thus, we need investment in and development of scanning technologies and early detection monitoring systems in addition to rigorous risk assessment. We need better coordination between Federal agencies and between Federal and State agencies. Everyone has a stake in biosecurity and prevention of pest damage is more cost effective than long-term management.

Newer technologies for pest management are being developed and many could be easily applied and implemented. The tools are out there: from genetic technologies that target specific pests, newer varieties of plants that are more tolerant to pest damage and novel biological and selective pesticides that have reduced non-target impacts. We need continued investment in these technologies and efforts to make them affordable and easily adopted by growers.

Food production, not just in Hawaii but across the US, needs to occur locally. Consumption of food from local growers reduces the probability of new pest incursions and some of the costs associated with distribution. We can produce food in urban settings and we need better infrastructure and educational programs to encourage and support this. We need to promote purchase of locally produced foods for example Hawaii has a 'Buy Local' program that is gaining traction (<http://hdoa.hawaii.gov/add/md/buy-local-it-matters/>).



We need a major shift in our approach to agriculture including reconsidering what commodities we produce and consume. For example insects are a concentrated source of protein and could be farmed with reduced impact on the environment than our current protein sources. There are a lot of different foods we can eat, we just aren't producing them or distributing them. We need investment and research into innovative foods. Furthermore, we waste a lot of food that is grown simply because it does not meet shipping or grading requirements in addition to waste due storage pests and spoilage.

We need farmers and households to grow food. This can be achieved through school farm programs, farmer training programs and fundamental education from preschool to college on food production and nutrition. There are programs in place like GoFarm in Hawaii (<http://www.gofarmhawaii.org/>).

The pressures against sustainable food production in Hawaii are significant but provide lessons and incentive for change. The ultimate goal is for Hawaiian residents to be producing their own food with no new pest incursions and minimal impact on the environment.

Can this be a vision for the US?

Can we make agriculture a topic of conversation for every person in this country?

*Comments Submission #110
Received 3/10/2017*

From: Delate, Kathleen [HORT]

Sent: Friday, March 10, 2017 2:47 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: Re: Presenters FAQ for March 2 USDA listening session

Hi Seth-Sorry for the delay. Attached please find my (much reduced) written comments :>)

Have a good weekend and THANKS for hosting!—Kathleen

Future possibilities for U.S. agricultural systems
and the research needed to develop these systems

Kathleen Delate, Professor, Depts. of Agronomy and Horticulture, Iowa State University, Ames, IA
Energy-efficient farming

When envisioning a flourishing agriculture of the future, the focus should be on research needed to utilize nonrenewable resources more efficiently while developing on-farm renewable resources capable of integrating natural biological cycles and controls, as set forth in the USDA definition of sustainable agriculture. Although research has documented the 30% reduction in fossil-fuel-based energy in organic systems relying on locally produced compost and cover crops for nutrient provisioning (Pimentel et al., 2005), efforts are needed to achieve even lower carbon footprints and indeed, move the entire farm to be a carbon sink. For example, photovoltaic power generation, combined with farm based bio-fuels, such as bio-diesel, can be used for tractors, combines and new equipment. At Iowa State University, we are working on Autonomous Robotic Weeders (ISU, 2013) that are capable of killing weeds with minimal soil disturbance



and compaction, and no chemical applications, thus addressing the increasing concern regarding herbicide resistance in the U.S. This technology mirrors the research we heard about today where a robotic/camera approach is used to achieve rapid assessment and identification of traits needed for improved crop varieties that remain productive under induced stress from elevated carbon dioxide levels, mimicking the potential future agricultural climate.

Advanced plant breeding techniques

Research on rapid assessment for improving crop selection includes the spontaneous haploid genome doubling process, which is useful for organic systems, along with marker-assisted plant breeding techniques (ISU, 2010). Plant breeding research at public Universities, which has been severely reduced over the last ten years, needs to be supported to facilitate accessibility to improved germplasm for farmers and seed companies working with limited resource farmers, and to ensure a long-term public supply of germplasm for new cultivar development.

Diversification of the landscape and eco-system services valuation

Agriculture currently uses 70% of our water supply worldwide. With pressure from drought and temperature increase, water retention and maintenance of water quality will require continued research in irrigation technology and in methods to prevent polluting contaminants from reaching water supplies. At Iowa State University, we are researching on-farm prairie strips and bio-filters to trap contaminants, and in a more proactive stance, diversification of the farm landscape with perennials to filter excess nutrients prior to their delivery into water supplies (Cambardella et al., 2015). This requires research into which suite of practices – cover crops, extended crop rotations, rotated pasture – will provide the greatest eco-system services in terms of carbon sequestration and improved water quality. Farmers need to know the time to rotate livestock into their cropping systems in order to obtain optimal animal performance, and ideally, higher crop yields. In addition, organic no-till – leaving cover crop residue on the soil surface to enhance soil health and mitigate energy-intensive tillage for weed management – is still in its infancy and for it to become a viable alternative, research on RTK systems with rollers to crush the cover crop is needed.

Included in the mix must be consideration of the benefits derived from diversified farm landscapes that take into account, for example, soil and water quality and pollinator habitats. While there may be automated pollination systems in the distant future, research is needed now on methods to increase native and introduced bee species through farm diversification, and on alternatives to harmful pesticide usage which can damage pollinator communities.

Finally, it would be a step forward to attach a marketable value to eco-system services, sometimes referred to as green payments, for carbon sequestration practices, efficiencies gained from integrated crop-livestock systems, measurable on-farm water quality improvements and greenhouse gas reductions. Organic practices have been associated with an increase in soil carbon sequestration (Delate et al., 2015), and rewarding farmers for these practices will help ensure a viable soil system in the future (Singer et al., 2012).

Consumer-focused agriculture

The rise of consumer labels foreshadows a future where food will be grown with the end-user driving pre-harvest decisions, including the extent and type of fertilizer and pest management



applications. Farmers will be required to match environmental sustainability with production goals through the use of metrics, which must be developed. Demand for organic products in the U.S. far outstrips supply, and foreign imports will continue to fill the demand unless barriers to transitioning to organic are removed. As an example, we imported 303,645 MT of organic corn from Turkey and Romania in 2015, a three-fold increase over 2014. The cumulative effect of research on these practices and systems will be a marked increase in the efficiency of organic and conventional farms while improving the agricultural environment in terms of soil quality, nutrient retention, water quality and energy efficiency.

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doi:10.1017/S1742170511000408.

***Comments Submission #109
Received 3/10/2017***

-----Original Message-----

From: mary jo finsterwalder
Sent: Friday, March 10, 2017 12:10 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comment submission on future sustainable agriculture

Dear Sir,

Our mandate as a nation needs to be the provision Of wholly nutritious food for everyone that comes From non-exploitation of animals, land, water. Factor Farming with CAFOs is abjectly unspeakably cruel To both animals and workers due to the greed for Astronomical profits from food production - feeding A population with the real goal of health for everyone Has no place being a business who's primary motive Is excessive profit that encourages soil degradation absent replenishment, overuse and waste of fresh water, carcinogenic chemical contamination



Purposely saturated into the food supply at every Level. Our vision needs to turn away from these Dangerous chemicals and instead organically Replenish soil, support and invest back into small Farms putting people to work with stewardship of Animals and the land. Handing over seed production yo To corporations creating genetically modified crops Whose seeds are sterile so farmers cannot store and Plant with their own well cared for and nurtured crop s Seeds - then dousing these crops with carcinogens That kill every living thing that isn't GM is a sad and Cynical ploy to put complete control of the food Supply in the clutches of a single source dictating What will be produced and consumed with no choice This confinement of plants and animals for profit and Machines and no human participation is contrary to A sustainable real life-giving food supply for a Population

Sent from my iPhone

*Comments Submission #108
Received 3/10/2017*

From: Melody Stewart
Sent: Friday, March 10, 2017 12:01 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production

Dear Mr. Murray,

Where should U.S agriculture go over the next 50 years? U.S. agriculture needs to go back 50 years! Back before the heavy use of GMO crops; back before the reliance on glyphosate, this nation was able to raise nutritious crops in a kinder manner that was compatible and hospitable to the natural world. We need to bring farming back to the old ways of doing things. By bringing back old farming methods and techniques, we can return to raising crops and livestock that are wholesome and beneficial to the end user. As it stands, current methods are bringing nutritionally deficient and disease-causing products to market. This practice needs to end.

As far as using 'new technologies and scientific discoveries' to create a holistic food supply, this can mainly occur in the analysis, testing and reporting of the purity of the food system. Further use of new technologies and scientific discoveries would help in finding uses for organic crops to replace artificial and chemically-produced materials, as well as, clean up the waste caused by the petrochemical industry. Moving toward protecting and keeping the soil organic, our crops non-GMO and chemically-free would be the best management of agricultural practices. We need to go back to the good old days before all of the new technology and science created the problems that we are facing today.

Sincerely,
Melody Martin
Magee, Mississippi

*Comments Submission #107
Received 3/09/2017*



From: Satya Vayu
Sent: Thursday, March 09, 2017 10:17 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comment ts to Visioning of U.S. Agricultural Systems

Dear Mr. Murray,

The three interrelated challenges facing agriculture over the next 50 years are soil loss, diet-related disease and climate change. Each of these problems has a common solution: encouraging the right crops and creating healthy soil.

The best way to reverse soil loss, sequester carbon and grow lots of nutrient-dense food is to continuously cover the soil with a diverse array of living plants. This feeds the microbial communities that perform 90 percent of soil function, including carbon storage.

The plants that we (or grazing animals) eat give the carbon those plants generate through photosynthesis to soil microorganisms, which in turn provide plants with water and nutrients. This process works best when there are lots of different plants exchanging lots of different nutrients with lots of different microbes.

Plant biodiversity is the key to soil carbon sequestration. It's also a great way to grow more food than conventionally thought possible on less land than we use now. . Plus, food from healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases. Especially if we also encourage a more plant-based diet among the populace, and reduce the amount of meat eaten, and the amount of land allocated to grazing animals.

I think this is the future of agriculture—not GMO monocultures that strip soil of nutrients, and of its natural ability to draw down and sequester carbon. Most of these are grown to feed grazing animals, which is a huge waste of precious arable land which could create much more food (and healthier food) if it was used to grow a variety of plants for human consumption.

Thank you,
Satya Vayu
Portland , OR

*Comments Submission #106
Received 3/09/2017*

From: Carol Saalbach
Sent: Thursday, March 09, 2017 9:46 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: i want a regenerative food and farming system

Hi Seth Murray,

I received an email saying that I could write to the USDA to tell them what I would like agriculture to look like in fifty years. The page that the link sent me to said that



"Comments: Written comments are due by March 9, 2017. Written comments must be submitted electronically to the Contact Person identified in this notice."

and your name and email address were the only contacts that I saw, so I am writing to you.

I want a world wide regenerative food and farming system. Everyone needs and deserves to have healthful, clean food, without things that do not belong in food. I have sent the following two letters to many persons which outline why I think this is important. Thank you very much for your attention.

Hi Senators Toomey and Casey,

Thank you very much for responding to my concern about gmo's in our food supply and the new law enacted by our political representatives to label food. I would like to send a letter that I wrote to my "local" grocery store about the issue of healthful food. I am also sending excerpts from a letter that I wrote to persons that I thought would be interested in my concerns. Finally, I heard a gentleman speak this season at Chautauqua Institution who was a former political representative and who is now trying to have a serious public debate to encourage lawmakers to get corporate money out of elections and the political process. Big money should not decide the fate of what is considered food in our society. This has serious health implications to our entire population. Thanks very much for your attention.

Hi there, Giant Eagle,

I have shopped at the Giant Eagle since I was ten (I am now almost sixty) and worked in the bakery in a Giant in Sunbury, Pennsylvania. I prefer shopping in food co-operatives because the quality is consistently higher and the "food" that is sold is actually food (with nutrients and usually without additives, antibiotics, hormones, pesticides, etc). However, Giant Eagle is closer to my home.

I am writing this note for several reasons. Frequently when I shop in your stores I see so many items sold in your store that are not even vaguely nutritious [I would suggest that AT LEAST 50 - 75% of "food" sold there would fall into this category. There is so much sugar, fat, salt, natural flavours and other non-food ingredients in processed food, and many pesticides, hormones, antibiotics, etc. in vegetables, meat and dairy products.] So many items are marketed for a financial impact on companies (sodas, for example) but have no nutritional value and often serious negative health impacts. I watched two Irish television series two years ago (My Big Fat Diet Show and Doctor in the House) which discussed the many harmful health effects of the many processed "foods" as well as high sugar and fat contents. Also, so many foods have an ingredient called "natural flavouring," but when I have written to ask what that may be I have never gotten a clear answer [I have suggested that it may be some type of glutamates, which may be both addictive and cause obesity].

It seems to me that a major responsibility of a grocery store is to supply its customers with the best possible food high in nutrition. Most people expect that you are doing this. I am not so sure.



Last year I went with someone when they went to see the doctor. This person takes six different medications. I expressed my concern to the doctor and he told me that the average for persons of the same age is taking nine medications. I suppose that this is financially appealing to certain corporations, but I think that it is very concerning from a health standpoint. It is no wonder that two of the most successful businesses in Pittsburgh are UPMC and Giant Eagle. The relationship between food and health is of paramount importance. I hope that you are able to use your buying power to create better food education and a higher standard of food for residents of Pittsburgh and surrounding areas.

Thank you.

The following is an investment letter that I have been sending out for the past twelve years. I preface the letter with:

"When I first began sending this investment letter twelve years ago, only one person from one of six or seven mutual fund companies (the president of the company) called and spoke to me directly. This person told me that it is not financially "lucrative" to do what I suggest (solve problems)."

The letter now includes copies of two articles, one from the 2007 edition of YES! Magazine (Go Local) "Economics of Life in Balance" and an article from the October 2009 Mensa Bulletin entitled "Money Talks." My current financial letter no longer includes the section of where I do not wish to invest money, and most things that I do wish to invest in have a FREE in front of them. Also, I recently read a lovely children's book (Princess Academy, by Shannon Hale). In the story, the "Rules of Diplomacy" are outlined. The last rule concerns giving an estimated time for the completion of a shared outcome. I think that the changes that I outline in my investment strategy should be made through 2016 and then finalized in 2017. There is a window of opportunity and global poverty and climate change need to be addressed NOW.

I feel that it is very important that our financial investments reflect what is truly valuable in our world. I just recently had a very interesting insight: I have always thought of myself as very practical, but also very idealistic; and I was never sure how these two ways of looking at the world could synthesize. Recently it occurred to me that something can only be ideal if it can be put into practice, otherwise it wouldn't work, and how could that be ideal? I sent the following letter to representatives of [] in August. It is my hope that investment firms will co-operate in this venture.

Yesterday, somewhere around 12 -1 Eastern Standard Time, I spoke to a representative on the phone (I also spoke to (someone) today at approximately 11:15 in order to get your name. As all calls are recorded, you could refer to these, if desired). I expressed my interest in making sure that my financial investments are environmentally friendly and socially responsible. I am currently on a committee in my church which will present to our congregation why this is important, and I have suggested that this program - The Seventh Principle Project sponsored by the Unitarian Universalist Service Committee, <<http://www.uuaspp.org>> - be used by other



organizations (Chautauqua Institution, Ceifin in Ireland, and several others). The program could be implemented anywhere.

I was very surprised to hear that social responsibility is not a criterion when (mutual fund company) chooses financial investments. I am a loyal (though small) monetary investor, and would prefer to stay with (mutual fund company), but if you are unable to meet my needs, then I will change my financial investment strategy. The following are a few thoughts on what I would like my investments to support:

- Sustainable, local, organic and small farming businesses
- Sustainable, local, off the grid energy sources
- Good public transit systems
- Good quality education programs
- Good quality health programs
- Natural healing GOOD NUTRITION
- Organizations which are working for social justice, equality, and meeting the needs of persons worldwide
- Organizations protecting our air and water, and companies that are promoting healthy foods (without pesticides, preservatives, or genetic alterations)
- Development companies that are rehabilitating current buildings or that are improving current structural, aesthetic, environmental, or efficiency standards (water, heat, light, air flow) within present structures
- Good organizations that are rehabilitating persons with drug, alcohol, mental health, or criminal issues
- The Arts and crafts, and the teaching of art and craft
- A shorter work week, and more imaginative, creative and fulfilling work opportunities
- Global peace through kindness and respect
- Simple technology that helps us to do our work (meeting the needs - healthy food, clothing, shelter, beauty, community and love - for all)

Hopefully you can see my concerns and values, here. I am not interested in high profit margin, but am incredibly interested in sustainability and in investing for the future of my children.

I do not want to invest in:

- Any company that does not treat its employees fairly
- Environmentally unfriendly companies or technologies
- Plastics
- Nuclear power
- Ozone-depleting industries
- Industries involved in deforestation
- Unsustainable farming practices
- Industries that are wasteful (with natural or human resources)
- Corporations that supply products that are unhealthful (weapons, cigarettes, pesticides, toxic chemicals, batteries, television shows that are demoralizing, etc.)
- Genetic engineering and stem cell research
- Companies that are cruel to animals



Gambling industries
Pornography
Military spending, unless it supports the training of ambassadors of peace, or the disarming of weapons
Mass media conglomerates, unless they are using their ability to reach large audiences in a positive way
with positive values
Canned music industry
Development companies that are bulldozing green space to put in malls, gambling complexes, car dealerships, housing developments, skyscrapers, etc.
Fluoridation of water supply
Inequitable financial wealth distribution
Prisons
Mining, especially coal, diamonds, gold (unless it involves landfills)
Advertising targeting/exploiting children (of all ages)
Patenting of ideas, technology, cells
Technology which dehumanizes individuals
Legal/Illegal pharmaceuticals/drugs unless they are NECESSARY
The Space program, until such time as solvable human dilemmas - poverty, hunger, housing, and environmental and species degradation are addressed and healed
Oil drilling (especially but not limited to, wilderness areas), natural gas production and fracking

If you are interested in creating a product that will meet my current needs, please let me know. I would like to see (mutual fund company) moving in this direction with all of its funds in the future. I understand that a change of this impact will take time and be an ongoing, though finite, process. If, however, you are unwilling to help me with my financial investment strategy, then I will invest my money elsewhere.

I hope that (mutual fund company) uses the experience of the past to look forward towards a brighter and more responsible future.

Thank you for your attention in this matter.

Best Regards,
Carol M. Saalbach

*Comments Submission #105
Received 3/09/2017*

-----Original Message-----

From: Alison Lee
Sent: Thursday, March 09, 2017 7:00 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comments on the USDA Listening Session Meeting

Dear Seth Murray,



In the long run, I'd like to see more funding and support for plant breeding for organic growers that do not include genetically modified seeds. I'd also like to see more encouragement for Integrated Pest Management as an alternative to extensive pesticide usage.

In the animal industry, I hope to see a shift away from the CAFO system in the next 50 years. Many of the problems associated with CAFOs have been shown to negatively affect human health and disproportionately, lower income communities who might reside near CAFOs. Waste management is currently not handled well, especially on hog and cow concentrated lots, and antibiotic usage has become too prevalent in this system. Moreover, the intensity of CAFOs has also given rise to the methane production within the agricultural system, which must be addressed in order to address climate change as well.

Moreover, I hope to see more encouragement of conservation practices in the long run. As very few conservation projects are funded through the Farm Bill, and less money is actually directly each year to these programs than originally mandated in the Farm Bill, I believe that many of the forward strides that sustainable agriculture has made may be counterbalanced and negated by the reduction of these conservation programs. I'd specifically like to see more land set aside and preserved as their natural grasslands and forests and taken out of extensive agricultural practices.

Thank you for your time,
Alison Lee
Duke University '18

*Comments Submission #104
Received 3/09/2017*

From: Louisa Brown
Sent: Thursday, March 09, 2017 6:22 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Nina F Ichikawa
Subject: March 2nd USDA Listening Session Comments

Dear Seth Murray,

On behalf of Nina F. Ichikawa and the Berkeley Food Institute, please find written comments for the USDA Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session attached.

All the best,
Louisa

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Louisa Brown
Communications Specialist
Berkeley Food Institute

Office of the Chief Scientist



US Department of Agriculture
Jamie L. Whitten Building
Washington, DC 20250

Attn: Seth Murray, Senior Advisor
Seth.murray@osec.usda.gov

Dear Mr. Murray:

On behalf of the Berkeley Food Institute at the University of California at Berkeley, I am pleased to submit comments for consideration for the Visioning of U.S. Agriculture Systems for Sustainable Production. Berkeley Food Institute (BFI), a partnership between the UC Berkeley schools of Law, Public Policy, Natural Resources, Public Health, Business, Environmental Design, and Journalism, works to catalyze and support transformative changes in our food system. Key to BFI’s mission is making the research of our over 130 affiliated faculty available as a resource to policymakers and the general public. We do not represent the official position of the University of California.

Our 50-year vision for agricultural systems that will improve economic and environmental outcomes includes:

- **Prioritize biodiversity** as both a successful approach to farming and an ecological solution
- **Link urban and rural economies and cultures** through symbiotic exchanges of products, waste, information, capital, and human talent
- **Consider organic agriculture “the norm,”** in recognition of the booming market for organic products and its proven returns for farmers, society, and the environment

To achieve this vision, research and development are critical. In particular, we see a need for increased research on the following key areas:

- **Soil health** and its relationship with water retention, crop yield, pest resistance, carbon sequestration, and other co-benefits, and the financial impacts of these co-benefits
- **Native pollinators** and their existing and potential role on farms of all sizes
- **Market impact of voluntary third-party certification schemes** reflecting consumer interest in issues like labor conditions, animal welfare, etc.
- **Economic impacts of rising wages** across the food supply chain

At the same time, the public infrastructure supporting sustainable agriculture is in dire need of construction and re-construction in order to meet the challenges of the next 50 years.

Strategies to combat these challenges include, but are not limited to:



- **Publicly funded seed breeding.** Some of these challenges are listed in the proceedings from the Summit on Seeds and Breeds for 21st Century Agriculture, a publication of the Rural Advancement Foundation International (RAFI), based in Pittsboro, NC
- **Public processing and distribution facilities** to enable new and smaller farmers to access markets, including institutional markets
- **Public research facilities** available for use by land grant and non-land grant university communities
- **Public higher education funding** to enable the next generation of agricultural innovators to achieve their dreams and contribute to American agriculture at the vocational, undergraduate, and postgraduate levels

We sincerely appreciate the opportunity to participate in this effort and look forward to seeing the final result.

Respectfully,

Nina F. Ichikawa
Berkeley Food Institute

*Comments Submission #103
Received 3/09/2017*

From: Bill Wenzel
Sent: Thursday, March 09, 2017 5:16 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Written Comments - Sustainable Production

Hello Dr. Murray,

First, let me congratulate you on a excellent stakeholder meeting. I thought the presentations were great and I applaud the wide variety of opinions that were allowed expression during the course of the day.

I have been traveling extensively since the meeting and have not been able to find the time to develop my written comments. Is today's (3/9) deadline for submission hard and fast? If possible, can that deadline be extended to Monday to give me a chance to prepare my remarks?

Either way, I appreciate your consideration.

Best,
Bill

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Bill Wenzel
Food & Farming Systems Program Director
U.S. PIRG & U.S. PIRG Education Fund



600 Pennsylvania Avenue SE - Suite 400
Washington, DC 20003

*Comments Submission #102
Received 3/09/2017*

From: Lindsey Haynes-Maslow
Sent: Thursday, March 09, 2017 4:10 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Carolyn Dunn
Subject: March 2nd USDA Listening Session Comments

Dear Dr. Murray,

Please find the Department of Agricultural and Human Sciences at NC State's University's written statement attached to this email.

Let me know if you have any questions or concerns.

Thank you!

Lindsey Haynes-Maslow, PhD, MHA
Assistant Professor & Extension Specialist
Department of Agricultural and Human Sciences
North Carolina State University
Email:
Office:
Seth C. Murray, Ph.D.
Senior Advisor of Agricultural Systems and Technology
Office of the Chief Scientist
U.S. Department of Agriculture
1400 Independence Ave. S.W.
Washington DC 20024

March 9, 2017

Dear Dr. Murray,

The Department of Agricultural and Human Sciences in the College of Agriculture and Life Sciences at NC State University aims to improve the health and well-being of youth, families, and their communities through extension and engagement, research, and teaching. We seek to:

- Develop, implement and evaluate evidence-based programs and interventions that improve education, health, an economic well-being.
- Conduct applied research directed at the needs of youth, families, and communities.
- Train experienced and emerging professionals to work with youth and family in community-based organizations through an online master's program in Family Life and Youth Development.



- Prepare students to teach agriculture and be Future Farmers of America advisors in public and private K-12 schools or to work with Cooperative Extension through the undergraduate program in Agricultural and Extension Education
- Offer students in-depth knowledge of school-based agricultural education or non-formal education that is focused on extension, youth development, rural development, international education, and family and consumer sciences through a master’s and doctorate program in Agricultural and Extension Education.

Research shows a strong relationship between food, health and well-being. Consuming diets high in sodium, sugar and saturated fat and low in fiber and minerals increases the risk for diet-related chronic disease such as obesity, Type II diabetes, heart disease, and stroke.^{1,2} According to the Centers for Disease Control and Prevention, nearly 70 percent of U.S. adults and 30 percent of children are overweight or obese.³ It is estimated that obesity-related healthcare costs in the United States account for \$210 billion annually, or 16.5 percent of the country’s total healthcare costs.⁴ Diabetes rates among adults have more than tripled since the 1980s and approximately 11 percent of adults have been diagnosed with diabetes.⁵ In 2012, the total estimated cost of diagnosed diabetes in the U.S. was \$245 billion.⁵ People diagnosed with diabetes have medical expenditures approximately 3 times higher than people without diabetes.⁶ In 2010, direct medical costs related to heart disease totaled \$273 billion, accounting for 30 percent of Medicare expenditures and 12 percent of Medicaid expenditures.⁷ In addition to healthcare costs associated with diet related chronic disease, there also are indirect as well, including productivity losses—earnings foregone due to illness or premature death.⁸

Despite decades of evidence supporting the connection between food and health, federal policies have not always reflected the research – Americans still lack a healthy diet, and subsequently high rates of chronic disease. The Department of Agricultural and Human Sciences at NC State University believes that healthy families are the cornerstone of a healthy society. We have spent over 100 years designing evidence-based programs and conducting translational research to demonstrate how food can be used to improve health behaviors. Our innovative programs, implemented in collaboration with Cooperative Extension, employ research-based strategies to assist families as they manage resources, practice good nutrition, develop healthy relationships, and support sustainable communities. Our programs include Eat Smart, Move More, Weigh Less⁹⁻¹⁰; SNAP-ED Steps to Health¹¹⁻¹³; the Expanded Food and Nutrition Education Program¹⁴⁻¹⁵; and Faithful Families Eating Smart and Moving More.¹⁶ The programs have demonstrated outcomes, including sustained weight loss and improved eating and physical activity patterns.

We welcome future policies that promote healthy diets and acknowledge the connection between food and health. Making this connection is the first step to improving the public’s health.

Department of Agricultural and Human Sciences
College of Agriculture and Life Sciences
North Carolina State University

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Comments Submission #101
Received 3/09/2017

-----Original Message-----

From: Amy Cahn
Sent: Thursday, March 09, 2017 5:26 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>; Sarah Wu
Cc: Ashley Richards; Nancy Kohn
Subject: Re: March 2nd USDA Listening Session Comments

Dear Seth,

In addition to our letter, I am sharing with you two final comments that came in under the wire.

- 1) On toxic trace metals. Expand the research that created the EPA 503 Rules to include field commodity and specialty crops over a span of at least 7-10 years.
- 2) From a Rodale presentation last week at Philadelphia Society for Promoting Agriculture. Include credit for cover crop in crop insurance rules so that growers using cover crops are not penalized by reduced yield calculations for payout because of a perceived reduction in growing time and yield maturity of insured crop

Many thanks!

Amy Laura Cahn
Staff Attorney
The Public Interest Law Center

Comments Submission #100
Received 3/09/2017

From: Marcia DeLonge [
Sent: Thursday, March 09, 2017 5:42 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: RE: Presenters FAQ for March 2 USDA listening session

Dear Seth,

Thanks for this note – I am so glad to hear that the response to the session has been positive. I certainly enjoyed the experience, and have heard a lot of positive feedback from other participants and viewers as well. Thanks again for all of your effort in organizing this.

Also, please find attached the written comments from my team at UCS, for submission.

Please let me know if there are any questions or concerns.



All the very best,
Marcia
March 9, 2017
Seth C. Murray
Senior Advisor of Agricultural Systems and Technology
Office of the Chief Scientist
US Department of Agriculture
By email: seth.murray@osec.usda.gov

Dear Dr. Murray:

The Union of Concerned Scientists (UCS) was pleased to take part in the US Department of Agriculture’s March 2 listening session to discuss research and policy needs for the long-range viability and sustainability of US agriculture. And we appreciate the opportunity to elaborate on our in-person presentation with more detailed written comments.

Although the focus of the session was on scientific opportunities rather than on policy, we note that the listening session came just as the USDA is anticipating the arrival of a new Secretary of Agriculture, and as Congress is beginning work on to reauthorize the federal Farm Bill. And ultimately, the USDA can only produce the best science for tomorrow’s agriculture if it has sufficient policy and funding support today.

In this document, we therefore reiterate areas with significant scientific opportunity while also offering a number of high-level recommendations that we believe would strengthen the sustainability of US agriculture. These recommendations are relevant for the USDA, Congress, and other stakeholders, including land-grant universities, at this time of transition and opportunity. Throughout, we provide brief summaries and findings of relevant UCS analyses and links to the original documents on our website for your convenience.

RECOMMENDATION #1: FULL FUNDING FOR PUBLIC AGRICULTURAL RESEARCH PROGRAMS, WITH A HIGH PRIORITY GIVEN TO PROMISING AGROECOLOGICAL RESEARCH

As our Senior Scientist Marcia DeLonge made clear in her presentation on UCS’s behalf, we view the growing scientific field of agroecology, which values and fosters not only agricultural productivity but also positive social and environmental outcomes, to be the best hope for the long-term sustainability of agriculture ([DeLonge & Basche 2017](#), [Reganold & Wachter 2016](#), [Foley et al. 2011](#), [Hunter et al. 2017](#)). Agroecological farming systems offer a science-based alternative to today’s industrial model that is eroding out soils, polluting our waterways and drinking water, contributing to climate change, making farmers more vulnerable to environmental changes, and threatening the long-term viability of farming itself. By adopting innovative and sophisticated agroecological approaches, we can transform the way we produce our food in a more sustainable direction, with benefits for the health of farmland, farm workers, the environment, the climate, and the public

But a [2015 analysis by UCS and partners](#) shows that the USDA is not sufficiently investing in agroecological research and education. Our study analyzed projects initiated in 2014 with competitive funding from the National Institute of Food and Agriculture (NIFA), the USDA agency that provides support for research conducted by land-grant colleges, universities, and partner organizations. We assessed these NIFA grants (totaling \$294 million) to see how much support was going to sustainable agriculture in general and agroecological systems in particular.



We found that less than 15 percent of funding went to projects that included any element of agroecology. Even less—just 4 percent—went to potentially transformative projects that paired agroecological practices with socioeconomic innovations. A substantial portion of the NIFA grants went to projects working to increase efficiency or replace harmful practices with better alternatives (23 percent). While research on efficiency and substitution can certainly lead to incremental progress, what is urgently needed is science that can facilitate a transformation that includes bringing diversity back to agricultural lands and strategically designing agroecological landscapes. Of course, such science can and should include cutting-edge technologies related to measurement, analysis, and modeling tools.

Increased and sustained research is needed to support implementing agroecological systems across the enormous range of crop varieties, climates, and other conditions that American farmers face. And farmers who want to adopt agroecological approaches need education and technical assistance to make the transition. Recognizing this need, a growing number of scientists and agricultural experts—now nearing 450—have added their voices to a statement attesting to the benefits of agroecological research and calling for increased public investment in this area.

In general, providing research, education, and technical support for advances in agriculture that benefit the public has long been a key part of the USDA’s mission. The Smith-Lever Extension Act of 1914, which created the USDA’s agricultural extension service, described this part of the agency’s mission as “to aid in diffusing...useful and practical information on subjects relating to agriculture.” It is particularly important for the USDA to support innovations that serve the interests of farmers and the broader public, but are unlikely to attract private-sector funding. Because one of the key outcomes of agroecology is reducing farmers’ dependence on goods and services sold by private industry (such as fertilizers and pesticides), agroecology falls squarely into this category.

To boost agroecological research and education to needed levels, we urge the following actions:

- The USDA should use its authority and budget to prioritize and scale up holistic agroecological research, extension, and education programming. Systems-based research requires significant support over several years, so consistent priorities and substantial awards are essential. The USDA should encourage projects that maximize public benefit through knowledge sharing and cooperation.
- Land-grant colleges and universities, as well as the extension service, should expand research, education, and extension programming on agroecology and sustainable food systems, and they should foster the exchange of agroecological knowledge. To enable large-scale change, programs should seek to combine agroecological practices with socioeconomic support mechanisms.
- Congress should significantly increase funding to the USDA and partner agencies for agroecological research, and it should do so through the annual budget and appropriations process. A concentration on systems-based research that brings together ecological and socioeconomic sustainability is vital.

For more information, see:

Union of Concerned Scientists. Counting on Agroecology: Why We Should Invest More in the Transition to Sustainable Agriculture (2015),

<http://www.ucsusa.org/sites/default/files/attach/2015/11/ucs-counting-on-agroecology-2015.pdf>



DeLonge, M.S., A. Miles, and L. Carlisle. 2015. *Investing in the transition to sustainable agriculture*. *Environmental Science & Policy*, <http://www.sciencedirect.com/science/article/pii/S1462901115300812>
Union of Concerned Scientists. *Scientist and Expert Statement of Support for Public Investment in Agroecological Research*, http://www.ucsusa.org/our-work/food-agriculture/solutions/advance-sustainable-agriculture/scientists-call-public-investment-agroecology#.WMA-53_HrrQ

DeLonge M, Basche A. *Leveraging agroecology for solutions in food, energy, and water*. *Elem Sci Anth*. 2017;5:6. DOI: <http://doi.org/10.1525/elementa.211>

RECOMMENDATION #2: EXPANSION OF PUBLICLY-FUNDED CLASSICAL BREEDING PROGRAMS, WITH A SPECIAL FOCUS ON PLANT VARIETIES NEEDED IN AGROECOLOGICAL SYSTEMS

In concert with a sustained commitment to publicly-funded agroecological research, the farmers of tomorrow need renewed investment in taxpayer-supported classical plant breeding. Decades of research and experience show that the technology of classical plant breeding is effective and efficient, achieving its goals—including increased productivity and profitability, resistance to disease and pests, efficient use of nutrients, and tolerance to drought and other adverse climatic conditions—at a fraction of the cost of more expensive technologies. But the few remaining publicly funded classical breeding programs, found in our nation’s farms, universities, and agricultural research centers, are starved for resources.

In fact, recent studies have found that classical breeding programs have shrunk by more than 30 percent over the past 20 years (Carter et al. 2014). Even widely grown crops have few remaining public breeders. The decline of public breeding programs has resulted in an overreliance on a few genetic lines for some major crops. This threatens our nation’s food security because low genetic diversity makes it easier for crop diseases to spread quickly and widely.

Publicly funded breeding programs are particularly crucial to the development of sustainable farming systems. As described above, agroecological approaches hold great promise, but they can have maximal effect only when appropriate cultivars are available. Classical breeding is critical for developing the cultivars needed for agroecological systems, as it is generally cost effective and can be tailored to the specific current and future needs of diversified and sustainable farming systems in diverse regions across the country.

In particular, we recommend the following:

- Congress and the USDA should sustain and increase public research funding for classical breeding, especially for agroecological systems. The appropriate lead agency, with the mission and capacity to support this effort, is the USDA’s National Institute for Food and Agriculture.
- The USDA should make development of publicly available cultivars suited to agroecological systems a distinct and high-priority category in competitive research grant programs.
- Because field breeding programs tend to run on a 15-year cycle—the typical amount of time needed to produce new cultivars, regardless of the technologies used—policy makers should focus on sustained long-term investments.

For more information, see:

Union of Concerned Scientists. *Seeds of the Future: How Investment in Classical Breeding Can Support Sustainable Agriculture* (2015), <http://www.ucsusa.org/sites/default/files/attach/2015/03/ucs-seeds-of-the-future-2015.pdf>.



RECOMMENDATION #3: A SHIFT IN TAXPAYER-FUNDED USDA SUBSIDIES, INCENTIVES, AND TECHNICAL ASSISTANCE TOWARD IMPLEMENTING ECONOMICALLY AND ENVIRONMENTALLY VIABLE FARMING PRACTICES AND SYSTEMS, BASED ON AGROECOLOGY

The USDA’s commitment to agroecology research and development can be best leveraged, and better informed in the long run, in coordination with programs that help farmers implement new practices. In order for farmers to take advantage of the benefits of agroecological practices and systems, they need support to overcome several practical barriers in the way of transition. Financial incentives and technical support are essential in this process. At present, such programs are underfunded and oversubscribed, while the bulk of federal farm subsidies continue to encourage farming practices that lead to unsustainable erosion, water pollution, and other adverse outcomes. UCS has been working to document how these perverse taxpayer-funded incentives in turn costs the public additional billions due to unintended consequences, and how this system could be shifted.

In recent and forthcoming analyses, UCS has identified specific experimental cropping systems that—if appropriately incentivized—could be adopted widely by farmers, with large payoffs:

- ***The STRIPS project:*** Researchers at Iowa State University have shown that “prairie strips”—narrow strips of native perennial plants integrated into crop fields—could go a long way toward reducing the nitrogen pollution impact of Iowa agriculture while also bringing numerous co-benefits, such as greater biodiversity. The researchers found that by planting prairie strips on just 10 percent of farmland, farmers could reduce nitrogen loss in rivers and streams by 85 percent, phosphorus loss by 90 percent, and sedimentation by 95 percent ([Helmets et al. 2012](#)). Prairie strips can even rebuild soil on degraded areas of a farm, eventually making those areas profitable again. UCS analysis based on this research looked at the economic impact of two scale-up scenarios: one in which prairie strips were planted on 10 percent of farmland only in Iowa, and another in which they were planted across the entire Corn Belt. In both scenarios, the savings to taxpayers, farmers, and businesses far outweighed the costs. In the Corn Belt scenario, net annual savings could top \$850 million.
- ***Marsden Farm:*** Since 2003, Iowa State University’s Marsden Farm study has demonstrated that transitioning Iowa farm acres from today’s dominant corn-soy system to a more diverse rotation involving three or four crops can increase crop yields while maintaining similar per-acre profits. Average corn yields were 2 to 4 percent higher and average soybean yields 10 to 17 percent higher compared with the two-crop system, and the longer rotations were just as profitable as corn-soy alone. Such a shift also reduces soil erosion, decreases runoff of pollutants that threaten drinking water supplies in downstream communities, and limits the release of heat-trapping gases to the atmosphere. The most recent findings demonstrate that diverse rotations also cut herbicide use by 25 to 51 percent, reduced herbicide runoff in water by 81 to 96 percent, and reduced total nitrogen fertilizer application rates by 12 to 14 percent compared with corn-soy ([Davis et al. 2012](#), [Hunt et al. 2017](#)). Forthcoming economic analysis from UCS will further show that these rotations could be feasibly scaled up over millions of acres in Iowa, as a start.

To enable farmers to take advantage of systems such as these, we recommend the following actions by Congress and the USDA:



- Congress should reduce federal crop insurance premium subsidies that encourage monoculture cropping systems, and strengthen crop insurance coverage for diversified farms through improved promotion of the Whole Farm Revenue Protection Program.
- Congress and the USDA should increase funding for financial incentives, demonstration projects, and technical assistance to encourage on-farm conservation practices, or even make their adoption a condition for receiving federal farm subsidies. This involves increasing funding for existing conservation systems, improving enforcement of conservation compliance, and facilitating adoption of innovative systems (like prairie strips and diverse crop rotations) through USDA conservation programs.

For more information, see:

Union of Concerned Scientists. Subsidizing Waste: How Inefficient US Farm Policy Costs Taxpayers, Businesses, and Farmers Billions (2016),

<http://www.ucsusa.org/sites/default/files/attach/2016/08/Subsidizing-Waste-full-report.pdf>.

RECOMMENDATION #4: GREATER TAXPAYER-FUNDED INVESTMENT IN LOCAL FOOD SYSTEMS THAT ADVANCE ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY IN RURAL AND URBAN COMMUNITIES

Midsize family farms—historically the backbone of rural economies in the United States—have been disappearing for almost two decades, replaced by large, industrialized farms. When they disappear, many jobs evaporate with them. Once-vibrant rural communities are at continued risk as the loss of jobs and business opportunities represented by midsize farms continues.

The good news is that the solution to this problem may lie close to home: when large-scale food buyers such as supermarkets and hospitals purchase their fruits and vegetables from local farmers, they create a market niche that midsize farms are ideally suited to fill. Policies designed to help midsize farms thrive and connect them with these buyers could reverse the decline of the midsize family farm and give rural communities a much-needed economic boost. They could also serve to return diversity and long-term sustainability to agricultural landscapes that are currently mono-cropped.

In a recent report, we used Iowa as a test case to show how recent research supports this idea. In Iowa, research suggests that consumers are often willing to pay more for local food. And there is great potential for growth in the local food market: Iowans spend more than \$8 billion on food each year, and only 10 percent of that food is produced locally. Iowa could keep more of its food dollars in-state if more institutions (such as schools and hospitals) and "intermediate markets" (such as grocery stores and restaurants) bought food from local farms. This is already starting to happen: A 2008 study showed that local food purchases in eight Iowa counties had grown from 3 institutions spending \$111,000 in 1998 to 25 institutions spending \$1.8 million in 2008.

These large buyers could help keep diversified midsize farms in rural communities—or bring them back—in Iowa and elsewhere. Intermediate and institutional buyers require both large volumes and a diversity of foods. Neither small farms (which lack the capacity) nor large farms (which lack the flexibility) can meet this demand in places like Iowa. This leaves midsize farms as untapped resources in the local—and potentially more sustainable—food movement.

Using data from surveys of intermediate and institutional buyers conducted by the Leopold Center at Iowa State University in 2012 and 2013, we estimated that increased local buying could generate up to \$3 billion in economic activity in the state and create thousands of jobs.

To help farmers and communities achieve these benefits, we recommend the following actions:

- The USDA should increase investment in research and technical assistance to help farmers optimize midsize, diversified farming systems.



- Congress and the USDA should expand financial incentives to help beginning and transitioning farmers grow the foods institutional and intermediate buyers want, along with investments in infrastructure and coordination to get healthy, sustainable foods from farm to market.

For more information, see:

Union of Concerned Scientists. Growing Economies: Connecting Local Farmers and Large-Scale Food Buyers to Create Jobs and Revitalize America's Heartland (2016),
<http://www.ucsusa.org/sites/default/files/attach/2016/01/ucs-growing-economies-2016.pdf>.

Comments Submission #099
Received 3/09/2017

From: Timothy Crews
Sent: Thursday, March 09, 2017 4:10 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Fred Iutzi
Subject: March 2nd USDA Listening Session Comments

Dr. Murray,
Attached please find comments pertaining to the USDA Listening Session of March 2nd. Thank you for facilitating this process.
With best wishes,
Tim Crews and Fred Iutzi

--

Timothy Crews, Ph.D.
Director of Research
Ecologist
The Land Institute
Salina, KS 67401

and

Project Director
Perennial Agriculture Project
A joint project between the Malone Family Land Preservation Foundation and The Land Institute

Comments from The Land Institute, Salina, Kansas in response to the Agricultural Systems for Sustainable Production Stakeholder Listening Session, March 2, 2017.

Tim Crews, Director of Research
Fred Iutzi, President
March 9, 2017

Vision



Perennial ecosystems like native grasslands or perennial pastures have an unparalleled ability to supply ecosystem services like nutrient retention, carbon sequestration, and soil conservation, and do so at a relatively low input cost to farmers. For agriculture to achieve the next leap in ecological and socioeconomic sustainability, the advantages of perennials must be extended into grain and oilseed crop agriculture. We envision a long-term funding program with two central objectives: first, to breed multiple perennial cereal, pulse, oilseed and fiber crops, and second, to grow those crops in crop assemblies that optimize plant protection, resource use and productivity per area of land. Research progress already made by The Land Institute and its collaborators, such as the domestication of intermediate wheatgrass into Kernza® perennial grain, or the breeding of perennial rice through wide hybridization by researchers in the Yunnan Province of China, is beginning to provide proof of concept. Larger investments now in perennial crop research could dramatically alter the landscape – literally and figuratively – for increasing the sustainability of the grain and oilseed crops our food and agricultural systems are based on.

Breeding perennial crops

Two breeding approaches currently show promise for breeding perennial grain crops. One involves crossing currently existing annual crops with closely related wild perennial species in order to introgress the complex trait of perennialism into the annual. The other strategy is domestication, which involves repeated cycles of intermating and selection for desirable traits from large populations. Both of these approaches take considerable time, but both promise to benefit tremendously from the use of modern molecular tools. For example, the emerging methodologies of genomic selection are remarkably well suited for advancing perennial crops. The potential to select for genes in years one or two of selection cycles that maintain yields or resist disease in years four or five could advance the rate of crop development considerably.

Developing diverse perennial crop assemblies

Interdisciplinary research groups will be instrumental in developing highly functional perennial crop communities and associated soil microbiomes that resist disease and insect pests, and efficiently utilize soil nutrients and water resources through time. Plant and soil community ecologists collaborating with pathologists and entomologists would all contribute to formulating crop associations that support good stable yields over time through ecological intensification as opposed to input intensification which maintains current production systems.

Next steps for research

Breeding

- Identify and apply practical genomic selection strategies using models constructed with longitudinal phenotypic data to predict long-term yield stability and yield potential of perennial grains.
- Create data repositories for perennial grain breeders to store and share genomic and phenotypic data, which enable the creation of phenotyping and nomenclature standards, and that allow breeders to query the germplasm pool for individuals/families with phenotypes of interest or casual sequence variants for phenotypes identified in previous genetic studies.
- Initiate new perennial crop breeding programs including work on de novo domestications.
- Expand existing breeding programs to include new breeding targets such as adaptation to different climates and soil types, specific cropping systems (organic, rotations with annuals), or end-uses (e.g., cultivars developed for baking vs. brewing).



- Accelerate new and existing perennial crop domestication/breeding with advanced breeding technologies such as micro-propagation and ploidy manipulation protocols.
- Sequence and assemble the genomes of perennial crop species.
- Further develop methodologies for genomic selection.
- Develop affordable high-throughput phenotyping technologies for major domestication traits such as seed fertility, seed size, flowering time, lodging and plant height.
- Develop phenotyping technologies to enable selection on belowground traits and other traits involved in ecosystem functioning and resource use efficiency.
- Identify opportunities to increase the value of new crops by breeding or processing to enhance flavor, vitamin/antioxidant content, or to create bioenergy/animal feed byproducts.

Crop ecology and agronomy

- Experiment with the deployment of intra- and interspecific perennial crop diversity on the landscape to achieve crop protection and resource use efficiency goals.
- Conduct regionally specific agronomy research on perennial crop establishment and maintenance, including seeding rates, row spacing, planting times and nutrient requirements.
- Develop crop protection strategies for perennial agroecosystems utilizing combinations of resistance genes and intra and interspecific crop diversity.
- Measure and model soil C sequestration based on soil type, climate, crop species and management.
- Measure and model trace gas emissions from perennial agroecosystems, especially N₂O.
- Work on perennial crop replacement or succession while minimizing soil disturbance.
- Elucidate soil microbiome functions in later successional soils following the cessation of tillage.
- Develop dual-use perennial cropping systems that produce grain as well as forage or biofuel feedstocks.
- Evaluate the effects of including perennial grains in crop rotations with annuals to improve weed suppression and soil health indices.

Measurable benefits

Measureable benefits of perennial crops in diverse assemblies are expected to include:

- Greatly improved soil and nutrient retention which would reverse soil degradation and nutrient runoff that adversely affects both production fields and downstream freshwater and marine ecosystems.
- High levels of soil organic carbon sequestration which would reduce atmospheric CO₂ levels and improve farmland productivity.
- Increase soil health, and particularly a more functional soil microbiome that facilitates nutrient uptake, improvements in soil structure, and potentially disease resistance.
- More complete utilization of soil and light resources by crop vegetation that is established year-round. The result is increased productivity that can be allocated



specifically to grain or to overall plant biomass that could be used to diversify farm economies into forage or biofuel markets.

- Lower expenditures by farmers on fertilizer, pesticide and fuel inputs.

*Comments Submission #098
Received 3/09/2017*

From: Laurie Flanagan
Sent: Thursday, March 09, 2017 4:51 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Keith Jones
Subject: Listening Session Comments

Seth,

Thank you again for all of your work in organizing last week's listening session. BPIA's written comments are attached to supplement my oral presentation. Thank you.

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Regards,

Laurie-Ann Flanagan
Executive Vice President
D.C. Legislative and Regulatory Services, Inc.
Washington, DC 20005

ONLY PDF ATTACHED – FORMATTING MAY HAVE CHANGED DURING COPY AND PASTE

March 9, 2017
Mr. Seth Murray, Senior Advisor
Office of the Chief Scientist
U.S. Department of Agriculture
1400 Independence Ave, SW
Washington, DC
seth.murray@osec.usda.gov
Dear Mr. Murray:

Thank you very much for the opportunity to submit these comments as a follow up to USDA's March 2 "Visioning of U.S. Agriculture Systems for Sustainable Production Listening Session."

The Role of Biopesticides and Biostimulants in Future Sustainable Agriculture Systems

The biopesticide and biostimulant industry has experienced rapid growth in the past few years, fueled in large part by both growers' and consumers' demands for alternative products that offer the unique benefits that these products provide. There is significant investment and research in this sector because biopesticides and biostimulants are expected to play a larger and larger role in sustainable agriculture production for the next several decades. While biopesticides are often



considered for organic production, their greatest contribution, impact and growth is in the 99% of U.S. crop acres that are non-organic or conventionally grown.

There are several ways in which USDA can support the expanded use of these products, which will enhance the sustainability and productivity of both conventional and organic agriculture over the next several decades: 1) Recognize and integrate biopesticide and biostimulants in conventional integrated pest management programs as well as organic production research and programs 2) Increase funding for USDA’s Minor Crop Pest Management (IR-4) Program’s Biopesticide and Organic Support Program and other research programs related to pest control; 3) Add an industry seat to the National Organic Standards Board; 3) Clarify the definition of biostimulants and consistently apply that definition across all associated regulatory structures; 4) Encourage the use of biopesticides and biostimulants in USDA Conservation Programs; and 5) work with BPIA develop criteria for certifying biopesticides as USDA BioPreferred.

Biopesticides

Biopesticides are reduced risk pesticides that are naturally derived or synthetic equivalents of natural materials such as animals, plants, bacteria, fungi and certain minerals, generally posing little risk to humans or the environment. Growers use biopesticides to control plant disease, insects, weeds and other pests. Biopesticides are also used in food processing establishments to protect our food supply and in mosquito and tick control to protect the public from diseases like Zika Virus, West Nile Virus, Lyme Disease and other pest-borne illness. Biopesticides must comply with the strict regulatory guidelines that apply to all pesticides. They must demonstrate that they do not pose unreasonable risk to people, birds, fish, bees and other wildlife. However, because of EPA’s interpretation of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), biopesticides labels cannot bear any logo or designation, which implies safety. However, because the National Organic Program (NOP) logo is not considered a safety-based statement, its logo is allowed on FIFRA labeling to facilitate compliance with NOP standards. Although many biopesticides are designed so that their ingredients comply with the NOP, about 80% of biopesticides are used in conventional pesticide programs and this in the sector in which their further adoption will have the most significant, positive impact on sustainability. Growers seek biopesticides because of the benefits they provide, such as minimal requirements for personal protective equipment and least possible re-entry and pre-harvest intervals. Because of their modes of action and low toxicity to non-target organisms, they can be the backbone of an integrated pest management (IPM). They contribute to the maintenance of beneficial insect populations, break down quickly in the environment, and are effective in resistance management programs. In addition, biopesticides may play a critical role in protecting endangered species habitat.

Biopesticides provide the following benefits to growers:

- Biopesticides can play an important role in sustainability by allowing conventional growers to integrate reduced risk pesticides in their pest programs.
 - Biopesticides are important public health protection tools. They are used in food processing establishments to protect our food supply and in mosquito and tick control to protect the public from diseases like Zika Virus, West Nile Virus, Lyme Disease and other pest-borne illness.
 - Biopesticides fit with ecosystem-based pest control systems such as integrated pest management programs.
-



- Biopesticides allow greater flexibility when harvesting crops because they generally do not have long restricted entry intervals or waiting periods before individuals can enter a treated area.
- Biopesticides can be used as effective resistance management tools because of their alternative modes of actions.
- Biopesticides can be used as residue-management tools.
- Biopesticides allow organic growers to control pests while maintaining their certified status.

Biostimulants

Biostimulants, like biopesticides are derived from natural or biological sources such as bacterial or microbial inoculants, biochemical materials, amino acids, humic acids, fulvic acid, seaweed extract and other similar materials. These products improve agricultural sustainability and soil health. These products:

- Enhance plant growth and development;
- Improve the efficiency of plant nutrients, as measured by either improved nutrient uptake or reduced nutrient losses to the environment, or both; and/or
- Act as soil amendments, with demonstrated ability to help improve soil structure, function or performance and thus enhance plant response.

Increase Research Funding Will Further the Development of Beneficial Biological Products

Research into new biological solutions can be very costly and often without opportunity for manufacturers to re-coup the costs of research and development. Many biocontrol solutions are developed for particular minor and specialty crops. The agricultural community would be well served by expanding funding for USDA’s Minor Crop Pest Management (IR-4) Program’s Biopesticide and Organic Support Program.

The primary objective of the IR-4 Biopesticide and Organic Support Program is to further the development and registration of biopesticides for use in pest management systems for specialty crops or for minor uses on major crops. The program assists university researchers; government agencies and small businesses in obtaining EPA registration for biopesticides used in the production of specialty crops through a grant program that funds efficacy research on biopesticides and assists public sector scientists and small businesses in navigating the EPA registration process. The program has resulted in new innovative biopesticide tools for conventional and organic specialty crop growers. Increased revenues for the program will further the development of these innovative and sustainable tools for growers.

Supporting the Use of Biological Products in Organic Agriculture

The active and inert ingredients in many biopesticide products are approved for use in USDA’s National Organic Program. The National Organic Standards Board (NOSB), convened under the Federal Advisory Committee Act (FACA), advises USDA about which products can be used in certified organic operations. The National Organic Standards Act specifies the makeup on the NOSB, which does not currently include a biopesticide input provider. Adding such a representative to the advisory committee would provide for more meaningful decisions regarding the development timelines an impact of polices on the types of approved pesticides allowed in organic production, which will ultimately enhance the pest control tools available to organic growers.



As an example, the National Organic Program, based on recommendations from the NOSB, is looking at future criteria for determining which synthetic inert ingredients should be permitted in organic production since the Environmental Protection Agency (EPA) no longer maintains its List 4 –Inerts of Minimal Concern, which is currently used by the NOP. An NOSB/NOP/EPA Inert Ingredients Working Group has been working with EPA’s Safer Choice (formerly Design for the Environment) program to replace the current National List with the inert ingredients included on EPA’s Safer Chemical Ingredient List (SCIL). The work group has also suggested the need for a reasonable implementation timeline. The criteria and some of the substances on the SCIL list differ in many ways from the current National List, which is based on EPA’s List 4. Industry is in the best position to understand these differences, as well as the cost, timeframe and feasibility associated with potential product losses and reformulations that could result from such a policy change, yet industry is not represented on this workgroup.

All parties involved in organic production support the same goals of making sure growers have the tools they need to fight pests, while also staying true to the tenants of the National Organic Standards Act. Adding an input provider representative to the NOSB will provide meaningful insight as all stakeholders work together to promote organic agriculture.

Clarity Is Needed Around the Definition and Regulatory Status of Biostimulants

Biostimulants enhance plant and soil health and reduce nutrient runoff. Unfortunately, there is no nationally recognized definition of biostimulants. Some states consider biostimulants to be soil amendments and others classify them as fertilizer.

Europe’s experience in navigating this uncertainty has been instructive. As European industries and regulators worked together to develop standards, it became clear that the definition of fertilizer needed to be updated. The traditional way of thinking has evolved to include plant biostimulants in a much broader, more holistic approach to fertility that includes materials that aid in nutrient uptake, nutrient efficiency, tolerance of abiotic stress and enhanced crop quality as benefits of their use.

We recommend that the United States adopt of similar approach to Europe. Currently, U.S. regulators are constrained within existing legal and regulatory frameworks. Our hope is that within FIFRA, EPA and state regulators will exercise their statutory authority under the law to create a regulatory framework that enables a more holistic approach to biostimulants, as is in development in Europe.

Promoting the Use of Biological Products in USDA Conservation Programs

As USDA and states look to update best management practices and conservations measures, they should encourage growers to adopt the use of biopesticides and biostimulants because of their significant environmental benefits. The Organic Initiative under the Environmental Quality Incentives Program (EQIP) for example, should include additional information about biopesticides that are approved for use in organic agriculture, as well as information on the role biostimulants play in improving soil health, nutrient efficiency and stress tolerance. EQIP, the Conservation Stewardship Program and other conservation programs administered by the Natural Resources Conservation Service should recognize the role that biostimulants play in nutrient management plans and the improved environmental profile of biopesticides. USDA should



encourage states to provide growers with credits and cost share assistance when adopting these new innovative technologies.

Develop Criteria for Certifying Biopesticides and Biostimulants as USDA BioPreferred

BPIA would welcome the opportunity to work with USDA to develop criteria for certifying biopesticides and biostimulants as USDA BioPreferred. Biopesticides and biostimulants are derived from naturally occurring substances or their synthetic equivalents. Creating a specific category for USDA BioPreferred inputs will provide growers with additional information that they may want when making choices about pest control and fertilization. The USDA BioPreferred program has been encouraging and supportive in its interactions with BPIA. However, the current process used for setting criteria for biopreferred categories does not seem compatible with the wide variety of biological products on the marketplace. BPIA would like for the USDA Biopreferred program to consider any products approved as biopesticides by the EPA to qualify as meeting USDA BioPreferred qualifying criteria. Similarly, once a government sanctioned biostimulant certification or approval program is established for biostimulants, we would encourage the USDA BioPreferred program to also accept such certification as certification eligibility for the USDA BioPreferred program. Resolving current issues around the applicability of current USDA BioPreferred program criteria could encourage manufacturers and researchers to work to develop new biologically based products.

Conclusion

Thank you very much for the opportunity to submit these comments and for having the vision to examine policies and practices that will enhance the sustainability of American agriculture for decades to come. Biopesticides and biostimulants will certainly play a larger role in future sustainable agriculture systems. Adopting public policies that promote the research and development of new products and the use of them in agricultural systems will yield significant benefits for growers, consumers and the environment.

Sincerely,
Keith J. Jones
Executive Director

*Comments Submission #097
Received 3/09/2017*

From: Amy Cahn
Sent: Thursday, March 09, 2017 4:03 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>; Sarah Wu
Cc: Ashley Richards; Nancy Kohn
Subject: March 2nd USDA Listening Session Comments

Dear Seth,

Attached are the comments from the Philadelphia Food Policy Advisory Council for the Sustainable Production Stakeholder Listening Session. As promised, I have also attached a document containing notes from my breakout session at the Listening Session.



Thank you for the opportunity to participate. Please let us know if we can provide any additional assistance in this process.

Best regards,

Amy Laura

Amy Laura Cahn
Staff Attorney
Philadelphia, PA 19103
www.pubintl.org
www.groundedinphilly.org

Dr. Seth Murray
Senior Advisory
Office of the Chief Scientist
United States Department of Agriculture

Dear Dr. Murray,

On behalf of the Philadelphia Food Policy Advisory Council, we appreciate the opportunity to offer comment in conjunction with the Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session Meeting.

The Philadelphia Food Policy Advisory Council (FPAC) facilitates the development of responsible policies that improve access for all Philadelphia residents to culturally appropriate, nutritionally sound, and affordable food that is grown locally through environmentally sustainable practices. FPAC currently has 33 appointed members representing different sectors of the food system and ex-officio members from City government. Since FPAC's inception in 2011, we have made urban agriculture a priority. Our gardens and farms provide myriad benefits for Philadelphia residents and Philadelphians continue to declare the importance of urban agriculture for our neighborhoods by gardening and farming.

A representative of the Pennsylvania Department of Agriculture recently called Philadelphia a "national model" for urban agriculture. In fact, for generations, the City of Brotherly Love and Sisterly Affection has been home to vibrant gardens and farms. Our city's challenges and successes offer valuable lessons for researchers and other stakeholders in sustainable agriculture.

In September of 2016, the Philadelphia City Council held its first hearing devoted exclusively to urban agriculture. As FPAC shared with City Council members in its testimony, the city is currently home to at least 470 gardens and farms on almost 600 parcels. The majority of these spaces are food producing, distributed citywide, concentrated in historically disinvested neighborhoods, and rooted in the city's African American, Puerto Rican, immigrant, and refugee communities.



Philadelphia’s gardens range in size from a single row house lot to the eight-acre Eastwick Community Garden in Southwest Philadelphia. In 2008, a Philadelphia Harvest Report developed by University of Pennsylvania professors Domenic Vitiello and Michael Nairn estimated that Philadelphia’s gardens produced two million pounds of vegetables and herbs totaling \$4.9 million in worth.¹ Food from gardens is distributed through formal and informal networks, from “delivery at food cupboards through the [Pennsylvania] Horticultural Society’s City Harvest Program to handing out bags of vegetables after church, from inviting children to help plant and harvest to leaving baskets on front porches for neighbors and strangers.”²

Philadelphia also has at least 50 market farms throughout the city, including a robust set of nonprofit educational farming organizations, as well as entrepreneurial endeavors. These provide food through farmers’ markets, onsite farm stands, community supported agriculture and “pick your own” produce days. USDA has helped build Philadelphia’s farmer leadership and skills through Community Food Project and Beginning Farmer and Rancher grants.

Many of Philadelphia’s garden and farm spaces date back to USDA-funded programs of the 1970s and 1980s, having emerged as neighbors transformed abandoned places into vibrant community assets. Hundreds of these spaces are at risk of being lost because of land insecurity. Despite Philadelphia’s surplus of vacant land and its deep agricultural tradition, almost every person testifying before City Council in 2016 spoke about either an impending risk of a garden or farm losing its land or the difficulty of gaining land access at the outset. This simultaneous push pull of possibility and precariousness reflects the overall picture of urban agriculture today in Philadelphia.

Ongoing barriers to land access and preservation require not simply legal or policy solutions or additional financial resources—though all are necessary. To dismantle these barriers, we need commitment across sectors—in particular, at all levels of government—that access to food production is a priority for every neighborhood in our urban centers. That access must be distributed equitably with focus on the most systemically disinvested and food-insecure neighborhoods.

Although obstacles remain, support for urban farming in Philadelphia continues to grow. A new zoning code passed in 2012 recognizes urban agriculture as a land use category, which has made zoning restrictions less cumbersome to farmers, while state legislation has ensured that accessory agricultural structures are exempt from building code requirements. In 2014, the Philadelphia Parks & Recreation Department launched the Farm Philly program, which runs agricultural projects on parkland and coordinates with other organizations to protect urban gardens and farms. In 2017, the newly created Philadelphia Land Bank began acquiring tax delinquent properties for redevelopment, some of which will be devoted to community gardens and nonprofit and entrepreneurial farms. Additionally, an ordinance that went into effect in 2017 grants qualifying gardens a one hundred percent discount from storm water fees.

¹ Domenic Vitiello & Michael Nairn, 2008 Harvest Report 48, 52 (Oct. 2009) available at http://www.farmlandinfo.org/sites/default/files/Philadelphia_Harvest_1.pdf.

² Id. at 4.



While these are positive steps, a lack of agency coordination continues to be cause for concern. Witnesses at the City Council hearing have advised the creation of a central office to coordinate urban agriculture initiatives. Attendees also requested that City Council contribute capital and offer incentives for urban farming.

During the September hearing, advocates representing nonprofits, public agencies, students, grassroots organizations, and individual gardens and farms called on City Council to devise a comprehensive urban agriculture strategy for the city. In preparing to engage in an Urban Agriculture Strategic Plan for our city, FPAC has articulated a set of goals relating to the range of benefits provided by urban agriculture.

- 1) **Increase Access to Healthy Food:** Support new and existing urban agriculture projects to distribute and/or sell fresh, culturally appropriate, and affordable produce to local communities.
- 2) **Improve Public Health:** Promote gardening as a source of outdoor physical activity, stress reduction, cognitive stimulation, sense of pride and accomplishment, and retreat from the urban environment.
- 3) **Develop Urban Agriculture Workforce:** Encourage residents, especially youth, to learn about the provenance of food, agricultural processes, nutrition, and sustainability, and to develop new skills for wage-earning and entrepreneurial opportunities.
- 4) **Support Community Development & Education:** Expand urban agriculture programming that provides opportunities for strengthening community cohesion and intergenerational relationships, maintaining cultural heritage, catalyzing community organizing and broader community improvement, and increasing perceived sense of safety.
- 5) **Improve Environmental Health:** Support urban agriculture projects that increase biodiversity and pollinator habitat, manage storm water, sequester carbon, reduce greenhouse gas emissions from food transportation, filter pollutants out of the air, and combat the urban heat island effect.

The need for land underlies each of these goals because without land access and land security none of these goals can be accomplished.

Equity is also a core value imbued in each of these goals. Our commitment is to ensure that benefits are felt broadly, but are targeted toward our low income communities, communities of color, and immigrant and refugee communities, who have been long been both at the forefront of Philadelphia’s food production and face the ongoing systemic barriers of racial and economic inequity that continue to make this work so challenging.

In conjunction with this process we are also engaged in an effort to develop shared metrics to measure the progress our urban agriculture efforts make to achieve the above goals. In doing so, we are embarking on a project—with farmers and gardeners—to define the questions they see as reflecting their missions, values, and on-the-ground efforts.

Community engagement is essential for equitable, effective, and efficient agriculture policy. This is also true for research. At FPAC, we encourage that the USDA support farmer-driven and community-centered research in sustainable agriculture using the following guidelines:



1. Farming and gardening practitioners should participate in all stages of the research.
2. Farming and gardening practitioners should benefit from the research.
3. The research questions themselves should be defined in collaboration with farming and gardening practitioners.
4. Research itself should be scalable, able to benefit smaller, but still impactful, food producing enterprises.
5. Research should be interdisciplinary, recognizing that the benefits of sustainable agriculture themselves lie in its diversity.
6. Measurements of impact should reflect the diversity of benefits provided by sustainable agriculture to a range of social, environmental, and economic systems and should be geared toward promoting positive impact across these systems.

Finally, we offer the following recommendations for research and support that have been defined by stakeholders in our city.

Support for the development of equitable and sustainable urban agricultural efforts:

- We recommend that USDA fund research that places value on the ecological and social services performed by urban farms and sponsor the development of simple tools to allow gardeners and farmers to report such values as a way to establish long term viability in the constant push and pull between different potential land uses.
- We further recommend that USDA sponsor more critical analysis of existing urban agriculture policies, disseminate best practices, and educate municipal officials on farm functions and best support strategies.
- We recommend that USDA consider providing additional funds toward university research that is directed primary at urban agriculture.

Enhanced USDA support for urban agriculture efforts and integration in USDA's own data collection:

Currently, while people seeking agricultural advice in Philadelphia can rely on Penn State Extension and the Pennsylvania Horticultural Society, as well as other locally based resources, USDA's Natural Resources Conservation Service (NRCS), traditional agricultural outreach for crop production, and traditional agricultural services are not readily available in Philadelphia. Though NRCS in Harrisburg and Delaware are active in Philadelphia, they still do not have a "home base" in the city.

- We recommend that NRCS develop a presence in Philadelphia, particularly educational servicing.
- Moreover, we recommend that USDA do a survey of NRCS programs serving urban centers throughout the country.

Overall, urban farms are underrepresented in farm census data, which results in lack of access to USDA programs.

- We recommend that USDA do targeted outreach to urban farms to get them to register with farm services agencies and to receive a Farm ID number, so that farms become eligible for



NRCS programs, such as high tunnel programs, and are entered into the database to receive an agricultural census.

- We recommend that USDA consider dropping rural mandates for programs that could benefit urban farmers, for example Rural Development Agency cooperative formation and support programs.
- We further recommend that USDA provide guidance about the rate of production or a production baseline that could result in the provision of additional services to cities such as Philadelphia.

Enhanced support for the development of safe and healthy soils and growing sites:

Philadelphia possesses some of the state's most leaded soils placed with within the highest zones of poverty. Growers on city plots need access to free heavy metal soil testing that is convenient and not cumbersome. Drawing from FPAC's own report on *Soil Safety and Urban Gardening in Philadelphia*,³ we recommend support for the development of:

- A more affordable inductively coupled plasma (ICP) testing panel;
- A comparison of x-ray fluorescence (XRF) and ICP testing methods to determine a testing method that effectively balances affordability and accuracy; and
- Expanded and affordable opportunities to test for polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs), which are not covered by heavy metal testing panels.

We further need to understand the potential impacts of contaminated soils and develop methods to mitigate these impacts. We recommend that USDA support:

- Research into determining the scope of food production in potentially unsafe soils and research into the uptake of various contaminants into plant species.
- Establishment of contaminant concentration thresholds specific to urban agriculture in specified cities. Alternatively, identify appropriate third party contaminant concentration thresholds that are regularly updated for urban gardeners to reference.
- Development of systems for affordable remediation.
- Analysis of soil in existing gardens to determine how long-term gardening improves soil quality.

Enhanced support for urban agricultural land access and land tenure:

The precarity of farmland is a known problem in the rural context. This precarity is less documented, but no less present, with respect to urban agriculture. We recommend that USDA support:

- Incorporation of urban food production into its agricultural census, providing data by which to assess the current scope of urban agriculture.

³ Philadelphia Food Policy Advisory Council, *Soil Safety and Urban Gardening in Philadelphia: Process Report and Recommendations to the City of Philadelphia* (2015) available at <https://phillyfpac.files.wordpress.com/2015/10/soil-safety-process-and-recommendations-report.pdf>.



- Research into loss of urban farmland, in the context of shifting real estate markets, competing land uses, and historical and current federal and city land policies, including redlining and federal urban renewal efforts.
- Development of mechanisms and supports to permanently support affordable urban food production, modeled on community and agricultural land trusts.
- Development of incentive structures and policy mechanisms to enhance land access and land tenure.

We also incorporate by reference the research gaps identified by the Johns Hopkins Center for Livable Future in their 2016 report *Vacant Lots to Vibrant Plots: A Review of the Benefits and Limitations of Urban Agriculture*, authored by Raychel Santo, Anne Palmer, and Brent Kim, available at http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/research/clf_reports/urban-ag-literature-review.pdf.

We thank you for your opportunity to offer these written comments. Please feel free to be in touch if we can contribute further assistance or information.

Sincerely,

Amy Laura Cahn
FPAC Co-Chair

Nancy Kohn
FPAC Urban Agriculture Subcommittee Co-Chair

*Comments Submission #096
Received 3/09/2017*

From: Kirtrina Baxter
Sent: Thursday, March 09, 2017 4:01 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: March 2nd USDA Listening Session Comments

Hi Seth,

Thanks again for inviting us out to the listening sessions. Sorry I didn't get to meet you along with Amy Laura. You will find Soil Generations comments attached.

Warmly,

Kirtrina Baxter, Community Organizer
Soil Generation, Public Interest Law Center

Dr. Seth Murray
Senior Advisory
Office of the Chief Scientist
United States Department of Agriculture

Dear Dr. Murray,



Soil Generation would like to thank you for the opportunity to provide insight on the long-term sustainability of agricultural production in urban areas and provide comments for the Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session Meeting.

Soil Generation is a Philadelphia based coalition that is working to build a hyper-local food system in Philadelphia that promotes health and equity in historically marginalized communities and works toward the creation and preservation of safe, healthy and culturally-reflective neighborhoods. We do this through participation in local politics as well as on the ground in our communities. Very recently we have begun to create an urban agriculture cooperative that will forward the issues discussed below. The leaders of Soil Generation are first and foremost residents who participate in growing food for the communities in which they work and/or live. We are a black-led coalition, whose members range from young farmers to gardening elders and we come from communities of color, immigrant and refugee communities and disinvested neighborhoods.

We at Soil Generation feel like the most pressing issue of sustainable food production is equitable access to land. Access to and preservation of land suitable for agricultural production for marginalized people, who have sustained and maintained the US agricultural system since its creation, along with agroecological practices, would generate local food systems change and guarantee the life of a just agricultural system.

Soil Generation would like to frame the direction of long-term sustainable agricultural through an agroecological lens, agroecology asks us to engage in agricultural practices that imitate nature for the best possible results to sustain our living environment. Two key components of our natural ecosystem are, stimulating and preserving diversity and inter-dependence. As such, food and land justice for people of color, must be foundational to any long-term sustainable food systems, as is rural and urban agricultural production. The people who have historically and consistently worked in agriculture, have been people of color. Yet they are the largest populations; under-nourished, under-paid, suffering from food-borne illness and lacking in access to nutrient-dense foods, in our urban ecosystems.

We believe that when our food system recognizes, values and supports the work and contribution of communities of color, it will begin to be a sustainable endeavor. Regional food systems hubs that include rural and urban land is also key to our agroecology framework. Continuing to mimic natural ecosystems, agroecological food production should be, self-regulating, self-renewing, efficient and self-sufficient. This asks us to include and create community-determined and controlled, culturally-reflective production spaces that use innovative natural growing practices in our sustainable future.

The reality of our current agricultural system, which devalues labor, life and planet, being able to sustain its practices well into the future is unrealistic. To think about long-term sustainability, we have to think about justice for those folks who currently carry the work of our food system and regional and local food systems. If we want to provide people with nutrient dense, culturally-relevant food that is nourishing to people and planet, then we must adopt agroecology as a practice as well. So, beginning with the premise that our agricultural system should be providing



this, we in Soil Generation see the keys to long-term sustainable food production and systems as being three-tiered and therefore community-participatory and scientific research into these concepts is critical to understanding their long-term impacts. These tiers are:

- 1-Access to land by people of color for ownership, preservation, and stewardship, including collectively-owned land like Community Land Trusts
- 2-Maintaining and supporting the creation of infrastructure for urban and rural agroecological practices, including support for the creation and preservation of cooperatives
- 3-Connecting regional and local agricultural foodways through shared distribution, resources, and agroecological practices, including local and hyper-local food hubs

The urban environment continues to be a seedbed for innovative agricultural practices. It is here that we utilize agroecological practices that can contribute to an equitable local food system that will help mitigate global warming symptoms to make our cities more climate ready and sustainable. Through practices like crop interplanting, bio-remediation and no-till farming, along with organic agriculture and aquaculture, urban farming is building productive soil at an incredible rate. As well, we are easing the effects of urban life on our natural water and wildlife systems by filtering and capturing water through rain gardens, wildlife ponds and other innovative systems like water-catchment. Valuing the fact that these and other newly-adapted practices have roots in ancestral communities of color, makes for "culturally-reflective, growing practices" and contributes to food justice.

Supporting the creation of and providing technical assistance for community land trusts, that are centered on communities of color and low-income communities, could provide the key to many solutions for local sustainable agricultural food systems. Addressing the issue of heir property, providing multi-year agricultural development funding opportunities, and supporting community-driven, mixed use development for low-income areas to stimulate preservation of culture and economic growth are a few recommendations essential to this. We believe that supporting the existing urban agricultural ventures and organizations along with encouraging more through the establishment of cooperatives and community land trusts, that support low-income housing and urban farming, are necessary. As well, certifications that acknowledge the urban organic practices currently being used and encourage more of the same, for funding and marketing purposes, while prioritizing communities of color and those who have been historically disenfranchised, would be highly beneficial to the sustainability of our local food systems.

Sustainable agriculture practiced through agroecology is capturing the workforce of formerly-incarcerated folks as well as our young people. If these populations have access to land and resources, they could revitalize and stimulate a healthy and thriving food system as is already evident in the positive changes that urban agriculture organizations are having on young people in their programs. We see young people coming out of these programs with an interest and drive to be more civically engaged, more health conscious, and with a spirit of social entrepreneurship that has sparked initiatives like The Real Food Challenge and Soul Fire Farms in NY. More students are going into fields like urban planning, nutrition, public health and sustainable food



systems, and our communities need access to supports, jobs and initiatives to steer this talent back into local areas.

We also strongly suggest:

- Research into the possibilities of community-driven development and urban agriculture that centers on historically marginalized communities and considers the historical context of shifting real estate markets with regards to migration, immigration, city and federal land policies including redlining and urban renewal
- Including urban food production into the agricultural census
- Projections of urban land and labor distribution in agriculture considering the changing dynamics of the urban workforce and landscape including returning citizens, immigrants and gentrification, etc., can provide keys to an equitable and just local food system for the future
- Research on the benefits of Community Land Trusts in the future of sustainable agriculture, including rural and urban land.
- Support for infrastructure projects in urban agriculture
- Research into the benefits and applications of rural cooperatives and practices in sustainable urban agriculture cooperatives.

Thoughtfully submitted,
Soil Generation Policy Team

*Comments Submission #095
Received 3/09/2017*

From: Elizabeth Stulberg
Sent: Thursday, March 09, 2017 3:56 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: March 2nd USDA Listening Session Comments

Dear Seth,

I really enjoyed your listening session, and I learned so much! Here are the official comments from the ASA/CSSA/SSSA.

Best,
Elizabeth

Elizabeth Stulberg
Science Policy Manager



American Society of Agronomy
Crop Science Society of America
Soil Science Society of America

www.agronomy.org | www.crops.org | www.soils.org

March 9, 2017
Seth C. Murray
Senior Advisor of Agricultural Systems
Office of the Chief Scientist
U.S. Department of Agriculture
Rm 3866 USDA South Building
1400 Independence Ave. SW
Washington, DC 20024

Dear Dr. Murray,

Thank you for hosting the “Visioning of U.S. Agricultural Systems for Sustainable Production Stakeholder Listening Session” on March 2, 2017 and for accepting comments on today’s research, education, and extension needs to meet the agricultural needs of the future. The American Society of Agronomy (ASA), Crop Science Society of America (CSSA), and Soil Science Society of America (SSSA), represent over 18,000 scientists in academia, industry, and government, 12,500 Certified Crop Advisers (CCA), and 781 Certified Professional Soil Scientists (CPSS), as the largest coalition of professionals dedicated to the agronomic, crop and soil science disciplines in the United States. Our membership has a keen interest in promoting and preserving strategic investments in agriculture research and safeguarding the future of sustainable food production.

Climate change and population growth are the two most impactful factors affecting the world’s agricultural outlook.

While it is impossible to predict the future needs of farmers, it is certain that as the planet continues to warm and weather patterns change, myriad new challenges will confront farmers as they attempt to produce more food on less land while reducing carbon emissions and protecting air and water quality. In light of climate change, research priorities must support the development of new crops and varieties suited to changing conditions, new land management systems that improve water and nutrient efficiency, and data collection and utilization that promotes “smart” farms, employing data and precision agriculture to meet sustainability targets. Such systems must also be used to adapt to a growing population with changing food preferences.

Farms of the future will be “smart,” using the latest tools, seeds, systems, and data. We can start preparing for this future now by breeding resilient crops with resistances to diseases and pests in the face of fluctuating host ranges and investing microbiological tools that can be adapted and deployed to support crops faster than new varieties can be developed. Beyond crop improvement, new management methods for precision conservation of both irrigation and drainage systems must be developed to improve water efficiency while reducing nutrient runoff, thus increasing nutrient use efficiencies and farm profitability. Such management systems will



also address the economic impacts of hypoxia in downstream water bodies and of greenhouse gas emissions in every state.

There are many unknowns, especially when it comes to future farmer (and consumer) behavior, but this only underscores the need for agricultural resilience in the face of the changing climate and changing consumer preferences. One way farmers can achieve resilience is through the development of "smart" farms where farmers effectively utilize increased on-farm data collection and management tools, giving them real-time information about their crops' needs and enabling rapid and precise responses to site-specific needs through spatially and temporally informed decision support systems. This will be realized through investments in data management and standards, integration of on-farm data with research and products, and an agriculturally literate workforce of data and computer scientists. This "digital" or "smart" agriculture builds on existing geographical positioning systems, advances in crop and soil sensing, satellite systems, and increasingly powerful and miniaturized computing systems in smartphones, tablets, and laptops to provide data-based decision support automatically to farmers.

As the global population continues to rise and more people enter the middle class demanding a protein-rich diet, research must also prioritize long-term strategies for producing more animal protein without depleting natural resources. Site specific management systems should be developed that integrate livestock and forage production within crop production systems for the ecological and economic benefits that cover crops provide when paired with livestock production. However, to prevent a concurrent rise in obesity and its corresponding serious health repercussions, research investments in grain, feed, and livestock production systems must be paired with investments in crops that reflect the bulk of the U.S. government's own dietary recommendations.

Ecological and economic safeguards must be integrated into sustainable farming.

On-farm ecological efforts to conserve natural resources will become even more important as public awareness of and demand for clean air and water resources continues to grow, in part due to the visibility of pollution in the Northern Gulf of Mexico, Chesapeake Bay, and Lake Erie, and the water crises in California and Flint, Michigan. Water shortages, for example during the California drought, created significant tension between agricultural, rural, and municipal stakeholders. However, agricultural solutions to the challenges of conserving clean air and water must be economically sustainable for farmers. The resilient and ecologically sensitive farms of the future will need to employ internal ecological and economic safeguards to ensure they conserve and protect resources even as they remain economically sustainable.

Such safeguards include relatively well-established practices such as intercropping, diversification, and cover cropping systems, which provide farmers with extra sources of revenue while boosting productivity and protecting their land. Practices that require additional optimization include the development and use of perennial grain crops and plants bred for no-till farming, which will both preserve the soil and reduce costs. Readyng all of these methods for widespread use will require a targeted investment in scientific research to prove they are economically effective at the local level. Meanwhile, external economic safeguards, such as crop insurance and NRCS conservation programs, will also become even more important as



farmers face increasingly severe and unpredictable climate-related challenges, and such programs rely on agronomic and soil science research for accurate evaluation of cropping systems and valuation of ecosystem services like soil carbon sequestration.

Innovative federal support of agriculture research, education, extension, and technology transfer is essential.

Not only do the key research objectives outlined above, such as plant breeding for resilient crops, need to be supported, but the structure of this support must be revised. For example, cropping systems and plant breeding research projects often do not fit into short-term grant periods, so developing programs to fund longer-term grants would enable stability for such vital projects. Second, mechanisms for interdisciplinary funding would support the diverse teams of scientists necessary for developing advanced automated phenotyping, precision agriculture, and microbiome-based carbon sequestration, among many other goals. Third, mechanisms for funding public-private research partnerships that do not rely on matching funds will capture diverse talent in the service of longer-term challenges unsuitable for industry investment. A premier example of this is the Department of Energy's Advanced Research Projects Agency – Energy, which funds teams of interdisciplinary scientists from academia and industry to address pressing questions in energy crop development and to develop far-reaching technologies that are not feasible for individual universities or companies to manage alone.

Wisely, current investments in science and research are paired with support for education and extension. Funding for educational institutions, including land-grants, non-land-grant agricultural institutions, community colleges, and K-12 programs are necessary not only to sustain the pipeline of farmers, agricultural scientists, and educators, but also data scientists, engineers, and computer scientists prepared to tackle the unpredictable agricultural challenges of the future. Meanwhile, extension is necessary for communicating the latest best practices from academia to farmers' fields and promoting the rapid adoption of those practices. To support long-term agricultural goals, a broader commitment to education and extension is needed to create not only a pipeline for the agricultural workforce but an agriculturally literate community of eaters nationally. Such a population is essential for the continued support of agricultural progress.

The USDA's Small Business Innovative Research (SBIR) programs, which link research directly with industry, are an effective way to quickly bring new products and services to market. While some new practices can be communicated effectively through agricultural extension, other types of products or services can reach consumers more quickly through the rapid commercialization that these programs provide. Even though research objectives outlined here focus on long-term sustainability goals, it cannot be ignored that these goals will only be realized through smaller-scale, discrete successes that are widely and rapidly adopted. SBIR programs greatly increase the return on investment for agricultural research and will be important components of any long-term sustainability strategy.

USDA should support a balanced portfolio with an eye to the future.

The U.S. Department of Agriculture has a mandate to maintain farm profitability and encourage the recruitment of the next generation of farmers while supporting current farmers and rural communities as they attempt to satisfy global food and fiber needs, enhance environmental



quality, and sustain natural resources and rural economies. The ASA, CSSA, and SSSA commend USDA for its efforts to critically consider what investments should be made to ensure these formidable goals can be met ten, twenty, and fifty years from now. Prioritizing agriculture research, education, and extension that address the long-term needs facing agricultural production and sustainability in the face of imminent threats is a challenge, but a balanced portfolio of longer-term funding, interdisciplinary science, innovative funding mechanisms, collaborations with the private sector, and investments in students and outreach is in the nation's best interest.

Sincerely,
Ellen Bergfeld
CEO

*Comments Submission #094
Received 3/09/2017*

From: Carla Curle
Sent: Thursday, March 09, 2017 2:14 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Jay Feldman
Subject: March 2nd USDA Listening Session Comments

Hi Seth,

Our comments are attached as both Word and PDF documents. Thanks for your work on this important matter.

Best,
Carla

Carla Curle
Science Program Associate
Beyond Pesticides
Washington, DC 20003
www.beyondpesticides.org

March 9, 2017

Seth Murray
Senior Advisor
Office of the Chief Scientist
USDA South Building
1400 Independence Ave S.W.
Washington, DC 20024



**Re: Visioning of United States Agricultural Systems for Sustainable Production
Stakeholder Listening Session Meeting.**

These comments to the Office of the Chief Scientist of the U.S. Department of Agriculture are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers and farmworkers, Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that reduce or eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

We appreciate the opportunity to provide input on the visioning of U.S. agricultural systems for sustainable production. We applaud the Office of the Chief Scientist of the U.S. Department of Agriculture's efforts to bring stakeholders together to address the long-term health and viability of U.S. agriculture and improve the economic, environmental, and health benefits to the U.S. through agriculture over the next 50 years. Our organization works to address the pervasive problems of reliance on pesticides, degraded ecosystems, biodiversity loss, and climate change through regenerative, organic agricultural practices.

We have long supported organic land management as a systems approach that values healthy, biologically active soils to support plant life and provide critical environmental benefits, such as improved water infiltration, pest suppression, and carbon storage. It is through this soil-based systems approach that we will eliminate toxic chemicals in land management, which is a driver in soil contamination and loss of microbial and faunal diversity. Chemical-intensive agriculture also relies on synthetic chemical fertilizers that reduce soil fauna, flora, and organic matter, and contaminate waterways. USDA labeled, certified, organic agriculture, under the Organic Foods Production Act, does not permit the use of synthetic fertilizers and relies instead on organic compatible nutrient sources that are less soluble and more stable in the soil. The Act, at its foundation, recognizes that healthy soil supports soil biology that cycles nutrients naturally, making them available to plants over the long-term.

As requested of commenters, the questions below act as a guide to our long-term vision for sustainable agriculture in the United States.

- 1. What are the major weaknesses of current agricultural systems that could be improved on in future systems?*

While soil erosion and loss of organic matter is well documented and has been at the heart of the soil resource debate for decades, the detrimental effects of pesticide use on soil resources are often left out of this discussion. This is where biologically regenerative organic agricultural systems offer success and hope for the future.

For the originators of the organic system, it was and continues to be all about the soil. They understood that the soil must be regarded as a living organism, and organic gardening and farming grew out of the study of composting. As J.I. Rodale and the Rodale staff wrote in *The Complete Book of Composting*, "At the very foundation of good nutrition is the soil –soil that is



fertile and alive, that is kept in shape to grow plants as nature meant them to be grown. The life and balance in this soil is maintained by returning to it those materials which hold and extend life in a natural cycle, and aid in replenishing the nutrients needed to produce healthy, life-supporting crops."⁴ Organic systems have adopted important no-till practices that incorporate natural weed suppressing mats and cover crops that enhance soil microbiota, but these systems need more research and technical support from USDA.

Additionally, the lack of diversity, both at a crop level and an on-field level, is a major weakness of current conventional agricultural systems in this country. Biodiversity above ground and below ground are interrelated in ways only partially understood, however, the ecosystem service benefits⁵ are well-known and documented.⁶ Therefore, and for economic reasons as well, USDA must support biodiversity and the diversity of planted crops as integral to its programs across the board.

Numerous studies have found that pesticides have secondary effects not considered by the U.S. Environmental Protection Agency (EPA) or listed on the product label. In a 2016 study, researchers combined the results of approximately 1,000 observations for field studies across North America and Europe that had looked at the effect of neonicotinoid insecticide seed coatings on predatory insects. Predatory insects are reduced in study plots where coated seeds are planted, compared to the plots that are untreated by insecticides.⁷ Non-selective herbicides do not discriminate among plants, as they can kill or injure all plants that are present at the time of application, leading to an overall loss in biodiversity. In addition, the most widely used pesticide is the non-selective herbicide glyphosate, which is also an antibiotic that kills many soil microbes.⁸ Since non-organic no-till generally relies on glyphosate, such systems are counterproductive in terms of enhancing soil microbiota that feed the soil and maintain its integrity.

There are numerous examples of organic agricultural systems that can be replicated throughout U.S. agriculture and there is an important role for USDA in prioritizing a national shift to more aggressively support biodiversity in all forms. Organic farms that preserve and enhance biodiversity contribute to overall biodiversity in ways that go beyond the species living on the farm. Biodiversity in the soil food web of an organic farm leads to efficient cycling and retention

⁴ Rodale, J. I. (1971). *The complete book of composting*. Rodale Books.

⁵ European Academies Science Advisory Council. Ecosystem services, agriculture and neonicotinoids. 2015 http://www.easac.eu/fileadmin/Reports/Easac_15_ES_web_complete.pdf.

⁶ Losey, John E. and Vaughan, Mace. The Economic Value of Ecological Services Provided by Insects. *BioScience* 56(4):311-323. 2006. [http://www.bioone.org/doi/abs/10.1641/0006-3568\(2006\)56%5B311%3ATEVOES%5D2.0.CO%3B2](http://www.bioone.org/doi/abs/10.1641/0006-3568(2006)56%5B311%3ATEVOES%5D2.0.CO%3B2)

⁷ Douglas, Margaret R. Meta-analysis reveals that seed-applied neonicotinoids and pyrethroids have similar negative effects on abundance of arthropod natural enemies. *PeerJ*. Dec. 7, 2016; 4:e2776.

⁸ U.S. Patent number US7771736 B2. Glyphosate formulations and their use for the inhibition of 5-enolpyruvylshikimate-3-phosphate synthase. Aug. 10, 2010. <https://www.google.com/patents/US7771736>.



of nutrients, control of soil-borne diseases and increased water-holding capacity and infiltration. Similarly, biodiversity above ground creates complex food webs, so that predators and parasites of crop eating insects have shelter and alternative food sources. Predators help to control rodents, insects, and other larger organisms that may pose problems on the farm.

2. *What are the major opportunities for agricultural systems of the future? How can technology and scientific findings facilitate these?*

The opportunities for the future should include open source databases that incorporate data from farmers around the country to validate the practices that are most productive, ecologically and biologically active. To ensure that these systems are democratic and transparent, USDA should focus on building upon existing information systems and making the data openly available to all interested parties.

It will be important to employ ecology and ecosystem services to reduce the risk of setbacks to agricultural systems in times of uncertainty. Our way of thinking about agricultural systems of the future must focus on landscape scale ecosystem management that bolsters resiliency and productivity and reduces tradeoffs. This can be accomplished through a wide-scale shift to biologically regenerative agricultural practices that are already inherent in the Organic Foods Production Act.

We know that rhizosphere microbiota interact with plants. In return for exudates from plant roots, microorganisms assist plants in obtaining nutrients and provide defensive compounds that protect the plant from herbivores and diseases. We also know that agrochemicals and tillage disrupt the rhizosphere microbiota and that organic matter supports it.⁹ More research into specific combinations of crops, cover crops, mulches, and biological inoculants that encourage symbioses that lead to increased crop production would be helpful to facilitate this exciting opportunity.¹⁰

Pasture-based livestock and poultry systems also offer hope for the future. Confined animal feeding operations produce polluted streams, diseases that may threaten humans, and unhealthy, inhumane settings for animals. Research is needed into how to expand pasture-based systems for both mammalian and avian livestock. Questions to ask include the following: What breeds do better on pasture? What kinds of fencing and housing work best for various regions and sizes of operations? What practices build soil and discourage erosion in pasture-based systems? What incentives can be used to encourage the adoption of pasture-based systems that are ecologically and economically sound?

And finally, another major opportunity is the development and widespread adoption of organic no-till systems. The Rodale Institute has worked with growers across the globe to develop these

⁹ Berendsen, R.L., Pieterse, C.M. and Bakker, P.A., 2012. The rhizosphere microbiome and plant health. *Trends in plant science*, 17(8), pp.478-486.

¹⁰ Chaparro, J.M., Sheflin, A.M., Manter, D.K. and Vivanco, J.M., 2012. Manipulating the soil microbiome to increase soil health and plant fertility. *Biology and Fertility of Soils*, 48(5), pp.489-499.



systems and tools to implement them.¹¹ For the organic farmer and others, this method helps to solve several perennial problems. It can offer almost complete control of weeds and it greatly reduces the need for fertility inputs.

3. *What research will be needed and how can this be accelerated?*

There is a growing interest in, and necessity for, research on microbial communities and their role in soil health, water infiltration, and carbon sequestration. USDA can elevate and accelerate this research by creating an open source database on soil microbial communities, or adding to the Web Soil Survey, operated by USDA Natural Resources Conservation Service. These surveys, used for on-farm planning, include data on water capacity, soil reaction, yields for cropland, and limitations affecting engineering uses, amongst others.

Additionally, there are research gaps on the effects of improved land-management practices on soil quality and ability to sequester carbon and provide additional ecosystem services. As identified by an article in the *Soil Science Society of America Journal*, the priorities for soil science research can be consolidated into five key thematic areas.¹² These areas clearly identify the pressing needs for research going forward and point to the need for collaborative, inter- and cross-disciplinary work. According to this publication, which used surveys and criteria-based screening procedures, soil science research must focus on:

1. Soil as a key regulator of ecosystem functions;
2. Soil’s role in public health and human well-being;
3. Soil’s role in mediating nutrient cycling, transport processes, and plant-soil-microbial interactions;
4. Soil formation and degradation; and
5. Soil information systems.¹³

Technological advancements for measuring soil and other relevant indicators must also consider impacts of the application of synthetic herbicides, insecticides, fungicides, and other toxic chemicals to the cropping system. The adverse effects of pesticides on soil health are often overlooked, but must serve to orient research into organic practices that do not depend on these chemicals.

To address these issues, federal research programs should prioritize funding to soil science research in the five categories listed above, particularly in terms of implementing changed agricultural practices. The largest competitive grant research program at USDA, the Agriculture and Food Research Initiative (AFRI) should fund these projects to enhance domestic knowledge

¹¹ Moyer, Jeff. *Organic No-Till Farming*. Acres, USA, Austin, TX. 2011.

¹² Adewopo, J. B., VanZomeren, C., Bhomia, R. K., Almaraz, M., Bacon, A. R., Eggleston, E., ... & Moorberg, C. (2014). Top-Ranked Priority Research Questions for Soil Science in the 21 Century. *Soil Science Society of America Journal*, 78(2), 337-347.

¹³ Adewopo, J. B., VanZomeren, C., Bhomia, R. K., Almaraz, M., Bacon, A. R., Eggleston, E., ... & Moorberg, C. (2014). Top-Ranked Priority Research Questions for Soil Science in the 21 Century. *Soil Science Society of America Journal*, 78(2), 337-347.



of improved soil health and its role in mitigating the impacts of climate change. Additionally, USDA should use the regional Climate Hubs to continue to “support applied research and development and innovation partnerships for risk management and climate change response.”¹⁴ By incorporating research on the means of improving soil health to protect U.S. farmers from the effects of climate change and variability in climatic conditions while avoiding the use of synthetic fertilizers and pesticides, these Climate Hubs will ultimately improve our agricultural system.

The implications of synthetic chemical use are vastly overlooked in many discussions about sustainable agriculture. This comes at a time when pesticides are applied domestically on 100 million acres to kill insects, 286 million acres to kill weeds and brush, 14 million acres to kill nematodes, 35 million acres to control plant diseases, and 13 million acres to control growth, thin fruit, ripen crops, or defoliate crops.¹⁵ The consequences of these practices, as well as the impacts of synthetic chemical fertilizers, must be characterized in greater detail and the environmental harm from chemical intensive agricultural practices should be quantified whenever they are under consideration. Due to the known harm from the use of these chemicals to soil biota, USDA should direct research into practices that do not depend on them.

There are well-documented impacts from excessive and repeated tillage, and reduced tillage options offer hope. To address this, USDA should consider the exciting research on organic no-till and organic reduced tillage options.¹⁶ Cover crops are the key to organic no-till. In organic no-till, a dense cover crop is grown, then killed mechanically –the favored device is a roller-crimper. The cash crop is sown or transplanted into an opening in the thick blanket of mulch – sometimes at the same time as the rolling operation. As discussed above, this technology can offer almost complete control of weeds, and it greatly reduces the need for fertility inputs. Most of all, it offers a way to rapidly build up soil organic matter. It does all of these things while reducing the number of passes over the field to 2-3 per year, thus greatly reducing fuel costs and responding to the most persistent criticism of organic agriculture –its heavy use of cultivation.

Highly Productive Organic Systems are the Future of Agriculture

We encourage USDA to direct resources toward research on the potential of highly productive, management-intensive, biologically regenerative, organic agricultural systems to address issues of environmental quality, economic viability, while satisfying human food and fiber requirements.

We appreciate your attention to this important and urgent issue. Thank you for your consideration of our recommendations.

¹⁴ USDA. “Climate Hubs: Mission and Vision.” Available at

<https://www.climatehubs.oce.usda.gov/content/mission-and-vision>.

¹⁵ USDA National Agricultural Statistics Service. 2012 Agricultural Census. May 2, 2014.

Available at <https://agcensus.usda.gov/Publications/2012/>.

¹⁶ Rodale Institute. Organic No-till Reports and Publications. Available at <http://rodaleinstitute.org/our-work/organic-no-till/organic-no-till-reports-publications/>



Sincerely,

Carla Curle
Science Program Associate

*Comments Submission #093
Received 3/09/2017*

From: Thomas Gremillion
Sent: Thursday, March 09, 2017 2:03 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comments in response to Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session Meeting (USDA- 2017-01506)

Dear Dr. Murray,

I am attaching a letter from the Consumer Federation of America in response to USDA's above referenced request for comments on the long-term health and viability of U.S. Agriculture and improving the economic, environmental, security, and health benefits to the U.S. through agriculture over the next 50 years.

Thank you for considering these comments.

Sincerely,

Thomas Gremillion
Director, Food Policy Institute
Consumer Federation of America
1620 Eye Street N.W., Suite 200
Washington, D.C. 20006

**ONLY PDF ATTACHED – FORMATTING MAY HAVE CHANGED DURING COPY
AND PASTE**

March 9, 2017

VIA ELECTRONIC SUBMISSION

Seth Murray

Senior Advisor

Office of the Chief Scientist

U.S. Department of Agriculture

1400 Independence Ave., SW

Washington, DC 20250

Email: seth.murray@osec.usda.gov

Re: Docket No. USDA- 2017-01506, "Visioning of United States Agricultural Systems for Sustainable Production"

Dear Dr. Murray:



The Consumer Federation of America (CFA) appreciates the opportunity to submit these comments on the long-term health and viability of U.S. Agriculture and improving the economic, environmental, security, and health benefits to the U.S. through agriculture over the next 50 years. CFA is a national organization of more than 250 nonprofit consumer groups that was founded in 1968 to advance the consumer interest through research, advocacy, and education.

Transparency and meaningful engagement with consumers is critical to improving U.S. agriculture's economic, environmental, security, and health benefits over the next 50 years. With the appropriate information and safeguards, consumers can transform markets to support better practices with unparalleled speed and efficiency. Conversely, a lack of consumer confidence undermines investment in innovation, forcing responsible producers to compete on an unlevel playing field and incur unnecessary expenses to differentiate themselves from bad actors. The U.S. Department of Agriculture (USDA) should take action now to support better consumer engagement. We acknowledge USDA's preference for comments on "issues facilitating opportunities in the long-term for sustainable agricultural production" as opposed to "[s]hort term (less than seven years) and incremental solutions." However, no solution will be viable in the long-term without consumer support, and what USDA and other federal agencies do now will dictate to a significant extent what sustainable agriculture opportunities are available in 50 years.

A logical starting point for enlisting the help of American consumers in improving "the long-term health and viability of U.S. Agriculture" is devising a national food policy that recognizes and expressly seeks to advance the "environmental, security, and health benefits" of U.S. agriculture, rather than simply the economic gains of a dwindling number of ever larger firms. CFA supports a national food policy that assures sufficient, nutritious, and safe food for all; supports sustainable agriculture practices; supplies foreign assistance commitments; and encourages worldwide indigenous food production. National food policy should orient USDA and the other federal food agencies to prevent the federal government from working at cross-purposes with itself over the next 50 years.

Long-term success in fostering sustainable agricultural production will require food and agricultural programs that meet the safety, nutrition, and economic needs of consumers and the production sustainability needs of family farmers, while protecting and conserving the natural resources on which our food supply is based. Accordingly, sustainable agriculture should serve as a guiding principle for all federal agriculture programs including all research, extension, education, commodity, and marketing programs. The long-term success of these programs will also depend on their stability, with dramatic funding or organizational changes causing ripple effects far into the future.

Food Safety

Food safety may offer the clearest example of why informed consumer support matters. Foodborne illnesses impose significant costs on food producers even when they do not share responsibility for an outbreak.¹ In general, most foods have a high "elasticity of demand," meaning that consumers will make a substitution when they lose confidence in



a particular type of food product. For this reason, food companies have supported passage of the Food Safety Modernization Act and the U.S. Food and Drug Administration's implementation of the law, which includes much needed reforms, such as on-farm safety controls. Yet similar reforms for the meat and poultry products that USDA regulates have not been forthcoming.

In 2012 and 2013, two outbreaks of salmonellosis linked to chicken produced by Foster Farms led to 523 official reports to public health authorities in 29 states, and an estimated 15,000 illnesses nationwide that were not diagnosed. The outbreaks exposed weaknesses in USDA regulations and policies to assure the safety of meat and poultry.² In response, USDA has undertaken some targeted reforms, such as issuing performance standards for poultry parts in addition to whole carcasses. However, glaring deficiencies remain: the agency sets standards for salmonella contamination, but not on the basis of public health objectives; the agency lacks the authority to enforce standards for salmonella contamination, or to issue mandatory recalls; and controls on salmonella contamination before animals enter the slaughterhouse are nonexistent. The absence of these safeguards leaves consumers vulnerable to more frequent and severe outbreaks, and it encourages poor animal production practices that burden consumers with the task of neutralizing pathogens better controlled on the farm.

Worker Safety and Welfare

Safe workers make safe food. Unfortunately, injury and illness rates in the food manufacturing industry are among the highest in the United States, with workers too often fearful to report unsafe conditions and work-related injuries and illnesses due to employer retaliation. At USDA, Food Safety and Inspection Service (FSIS) inspectors should play a more active role in ensuring worker safety, alerting the Occupational Safety and Health Administration to any perceived risk to worker health or safety including hazards such as too-fast line speeds, unreasonable workloads, infrequent breaks, and inadequate safety and health training. In meat and poultry slaughter facilities, maximum line speed regulations should protect workers and FSIS should discontinue waivers of line speed restrictions under the HACCP Inspection Model Program (HIMP), pending a conclusive determination from the National Institute of Occupational Safety and Health (NIOSH) that such waivers do not increase injuries. Similarly, USDA should employ NIOSH to study the effects on inspectors and workers of the chemicals used by poultry producers to "sanitize and disinfect" chickens in processing plants, a practice likely to increase with faster line speeds and expansion of HIMP.

More broadly across U.S. agriculture, improving sustainability over the next 50 years will require a stable and professionally trained workforce. Building this workforce must start with rules that assure a dignified livelihood for the men and women that grow, harvest, and process food. CFA is proud to support the Equitable Food Initiative, which certifies the achievement of key standards for working conditions, pesticide use and food safety, and provides training and support to create mutual gains for workers and consumers. However, private sector efforts alone cannot transform the food system. In addition to creating market conditions that safeguard the integrity of labels like the Equitable Food



Initiative’s, USDA and other federal agencies must pursue policies that recognize the critical role of agricultural workers in producing safe food in a sustainable manner.

Antibiotics

Some of the most serious food safety threats have emerged as a result of inappropriate on-farm antibiotic use. Producers routinely give antibiotics to millions of animals through their feed and water, contributing to antibiotic resistance. This is an urgent and growing public health threat that costs the U.S. economy some \$55 billion, results in over 2 million illnesses, and leads to over 23,000 deaths annually, according to the Centers for Disease Control and Prevention (CDC). CDC estimates that 20 percent of serious resistance infections come from food and food animals. In just the last year, public health researchers have detected two new “superbugs”—carbapenem resistant enterobacteriaceae and colistin resistant bacteria with the mcr-1 gene—on U.S. farms and in U.S. farm animals. These findings raise concerns that a post-antibiotic future, where even drugs of “last resort” are rendered ineffective, could be closing in.

To preserve the efficacy of life-saving drugs over the next 50 years, producers will need to use fewer antibiotics and use them in ways that minimize the development of resistance. Better data on antibiotic usage are critical to begin developing a robust strategy for achieving the reductions in use necessary to protect public and animal health. Investment in animal agriculture facilities today will have long-lasting impacts, with animal housing and other equipment commonly assumed to be in use for ten to twenty years.⁴ For this reason, CFA has supported proposals such as the Animal and Plant Health Inspection Service’s request for approval to collect antimicrobial use data from beef and pork producers via the National Animal Health Monitoring Service survey program. These efforts should go further, however, to include collection of quantitative, granular, farm-level use data on all major production species and production classes. Adequate usage data will help researchers compare antimicrobial use patterns with antibiotic resistance data, corroborate other state and national data collection efforts (e.g., sales data), and identify high-risk uses, among other valuable functions.

Labeling

In recent years, significant changes in animal antibiotic use and other production practices have occurred as the result of consumer demand, rather than at the behest of regulators. USDA plays an important role in fostering a responsive food market by refereeing which claims producers may use to attract consumers. For example, the Poultry Products Inspection Act⁵ and Federal Meat Inspection Act⁶ give FSIS the duty to prohibit the sale of meat and poultry “under any name or other marking or labeling which is false or misleading.” Despite this mandate, FSIS approves animal raising and other labeling claims that are explicitly meaningless. For example, a company may sell chicken with the labeling claim “No hormones administered” so long as the claim is immediately followed by the statement “Federal regulations prohibit the use of hormones in poultry.”⁷ More troublesome, the agency approves claims without meaningful standards (e.g. “humanely raised”),⁸ and undercuts the viability of production practices that conform to reasonable consumer expectations.



Consumer demand for food grown in a way that improves economic, environmental, security, and health benefits for Americans can and should play a leading role in determining the future of the food system. However, USDA must create the conditions for markets to meet this demand. As we noted in previous comments to FSIS, more detailed definitions and standards for common labeling claims, increased requirements for third-party certification, and a publicly available online database of approved claims and supporting documentation would better protect consumers from misleading claims, and better promote production practices that actually conform to higher standards.

USDA should also build on the success of the National Organic Program (NOP) to leverage consumer power in improving the agricultural system. Consistent with the Organic Foods Production Act, certified organic farms and processors must follow a defined set of standards governing soil and water quality, pest control, livestock practices, and allowable food additives. USDA verifies producers’ adherence to those standards via annual onsite inspections by third parties.⁹ Consumer confidence in the NOP’s integrity has resulted in a rapidly growing, globally recognized standard, and a U.S. retail market for organic products valued at over \$39 billion.¹⁰ It has also led to pressure to dilute the standards for what qualifies as “organic.” Under the law, the National Organics Standards Board is tasked with defining “organic,” and while not perfect, the Board’s composition offers some assurance to consumers that the organic program will reflect considerations beyond mere profit motives. To ensure the continuing relevance of “organic” food for the next 50 years, USDA’s Agricultural Marketing Service should work to implement and enforce the board’s recommendations, first by finalizing the proposed rule to amend the organic livestock and poultry production requirements.¹¹

Biotechnology

Genetically engineered (GE) crops grow on millions of acres in the United States. Food from these crops appears to be safe, but new GMOs may contain allergens or pose other health risks.¹² GMOs remain controversial for other reasons as well. Widespread consumer demand for disclosure of ingredients from GE crops is rooted in legitimate concerns ranging from GE crops’ ecological impacts, to their role in a rapidly consolidating food system, to ethical objections to genetic modification itself. Consumers should have a right to know whether foods contain GE ingredients, and they should not have to shop in certain stores or have access to a smartphone to exercise that right.

CFA recognizes that many consumers are comfortable with genetically engineered ingredients, and that companies will continue to develop new GE crops. However, to ensure that this technology contributes to a better food system over the next 50 years, significant reform of the federal regulatory system for GE crops must take place. Currently, USDA, the Environmental Protection Agency, and the Food and Drug Administration conduct a fragmented, incomplete review of GE organisms. A mandatory pre-market approval process for GE crops should certify that they are not just free of allergens and otherwise safe for human consumption, but also that there is adequate oversight of ecological hazards associated with their use. These include the development of resistant pests and weeds and overuse of chemical herbicides.¹³



Greater scrutiny, including more rigorous safety review, and stricter disclosure requirements should apply to food from animals that are genetically engineered. Many Americans find genetic engineering of animals to be offensive, and do not wish to consume food products from those animals. Labeling should give them ready access to information to determine whether a food is consistent with their values. Additionally, a U.S. government advisory body dedicated to exploring the ethical concerns and social and economic impacts associated with genetic engineering of animals would be useful to suggest guidelines for acceptable use of this technology.

Market Concentration

Economically harmful concentration has taken hold in the food production, processing, distribution, and retailing sectors. Left unaddressed, or worse, further encouraged, this market concentration will create a serious obstacle for improving U.S. agriculture over the next 50 years. The Farmer Fair Practice Rules issued by USDA’s Grain Inspection, Packers & Stockyards Administration last December (the “GIPSA rule”) represent an important step in turning back the tide of corporate concentration.¹⁴ According to USDA estimates, the four largest U.S. poultry processors control 51 percent of the broiler market, 57 percent of the turkey market, and over half of poultry growers have just one or two processors in their state or region on which they must depend.¹⁵ This concentration leaves family farmers vulnerable to unfair, uncompetitive and retaliatory practices. The GIPSA rule, if allowed to be enacted,¹⁶ would help level the playing field by clarifying the commonsense proposition that violations of the Packers and Stockyards Act need not require a showing of harm to the entire market. Related proposed rules on poultry grower ranking systems and unfair practices should similarly go forward. These actions should contribute to an overall federal government effort to vigorously enforce anti-trust laws and protect consumers and farmers alike from anticompetitive practices.

CFA appreciates the opportunity to submit these comments and looks forward to continuing our work with USDA to promote sustainable agricultural practices that give consumers ample access to safe and nutritious food over the next 50 years and beyond.

Sincerely,
Thomas Gremillion
Director
Food Policy Institute
Consumer Federation of America

¹ For example, the 2006 outbreak of E.Coli in spinach is estimated to have resulted in over \$400 million in lost sales across the leafy greens industry. Huifang Zhang, Thomas L. Marsh, Jill J. McCluskey. “A Generalized Event Analysis of the 2006 E. coli Outbreak in Spinach and Lettuce” http://www.impact.wsu.edu/MarshFiles/E.coli_paper_V1.pdf.

Likewise, rural peanut farmers suffered an estimated \$1 billion in lost production and sales after unsanitary conditions and fraud at one company—Peanut Corporation of America—caused an outbreak of deadly Salmonellosis in 2009. Associated Press. “Peanut industry: Recall price tag \$1 billion” (March 11, 2009) available at: http://www.nbcnews.com/id/29634279/ns/business-going_green/t/peanut-industry-recall-



price-tag-billion/#.V7M-ZJgrKUK.

- ² See The Pew Charitable Trusts. “Weaknesses in FSIS's Salmonella Regulation” (Dec. 19, 2013), <http://www.pewtrusts.org/en/research-and-analysis/reports/2013/12/19/weaknesses-in-fsiss-salmonella-regulation>
- ³ See GAO. Workplace Safety and Health: Additional Data Needed to Address Continued Hazards in the Meat and Poultry Industry. (Apr. 2016), <http://www.gao.gov/assets/680/676796.pdf>.
- ⁴ See, e.g. Bob Dunaway. “Putting A Price Tag On A Hog Business” National Hog Farmer (Feb. 1, 1999), http://www.nationalhogfarmer.com/mag/farming_putting_price_tag.
- ⁵ 21 U.S.C. 457(c).
- ⁶ 21 U.S.C. 607(d).
- ⁷ <https://www.fsis.usda.gov/wps/wcm/connect/6fe3cd56-6809-4239-b7a2-bccb82a30588/RaisingClaims.pdf?MOD=AJPERES>.
- ⁸ Animal Welfare Institute. Label Confusion. How Humane and Sustainable Claims on Meat Packages Deceive Consumers. (2014) available at: <https://awionline.org/sites/default/files/products/AWI-FA-FoodLabelReport-05072014.pdf> (“USDA approves the use of high-value claims, such as “humanely raised,” on products from animals raised under conventional industry standards. For example, USDA regularly approves use of the claim by poultry producers who operate under the woefully inadequate standards of the National Chicken Council and the National Turkey Federation.”).
- ⁹ “Organic Agriculture,” USDA.Gov, last modified June 2, 2016, <http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=organic-agriculture.html>.
- ¹⁰ “Organic Agriculture,” USDA.Gov, last modified June 2, 2016, <http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=organic-agriculture.html>.
- ¹¹ “Organic Livestock and Poultry Practices Proposed Rule,” AMS.USDA.Gov, last modified April 6, 2016, <https://www.ams.usda.gov/sites/default/files/media/NOP%20Livestock%20Poultry%20Practices%20Proposed%20Rule%20QAs.pdf>.
- ¹² See National Academies of Sciences, Engineering, and Medicine. 2016. Genetically Engineered Crops: Experiences and Prospects. Washington, DC: The National Academies Press. doi:<https://doi.org/10.17226/23395>. (“There is one case in which that approach was used and a GE crop with allergenicity issues was detected early and prevented from being commercialized, and a second case in which a GE crop was withdrawn from the market based on the possibility that it included a food allergen.”). Id. at 203.
- ¹³ See Gregory Jaffe. “Genetically Engineered Foods and their Regulation: the Way Forward after Twenty Years of Adoption.” Regulatory Focus (2016), available at: <https://cspinet.org/sites/default/files/attachment/Jaffe%20RF%202016%2008%20GE%20Foods%20FINAL.pdf>
- ¹⁴ USDA. Press Release: USDA Announces Farmer Fair Practices Rules - Clarifications for Industry & Protections for Farmers, Release No. 0263.16 (Dec. 14, 2016), <https://www.usda.gov/media/press-releases/2016/12/14/usda-announces-farmer-fair->



practices-rules-clarifications-industry.

¹⁵ Id.

¹⁶ The Trump Administration has extended the comment period on the rule. See Grain Inspection, Packers and Stockyards Administration, Proposed rule: Extension of comment period 82 Fed. Reg. 9533 (Feb. 7, 2017), <https://www.federalregister.gov/agencies/grain-inspection-packers-and-stockyards-administration>.

*Comments Submission #092
Received 3/09/2017*

From: Corie Hlavaty
Sent: Thursday, March 09, 2017 1:28 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Public Comment on Sustainable Agriculture

Dear Mr. Murray,

I am sure you are aware that approximately 40% of the food in our nation is wasted every year (www.usda.org) - from farms, to grocery stores, to our individual households. There doesn't seem to be any measures, unless I missed it, that focus on reducing this food waste from the source, or providing more incentives to recover that food. The two problems of food production and food security could alleviate each other if there was more education, incentives, and access to recovering this surplus/wasted food and connecting it to communities who need more.

One tangible way that could help the food system is by eliminating the confusing labels of **expiration**, **sell by**, and **use by** dates. Consumers are unaware of the different meanings of these labels, and throw food away before it is actually spoiled. About 31% of food waste in America happens at the consumer level (www.usda.org). If there could be a measure to agree on one standard of quality and push education about these dates, that could help reduce overall food production by reducing consumer food waste in a big way.

I hope you take my consideration into account, and thank you for reading.

Sincerely,
Corie Hlavaty
Concerned Citizen

*Comments Submission #091b
Received 3/09/2017*

From: Alexis Baden-Mayer
Sent: Thursday, March 09, 2017 1:24 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comments - March 2 USDA listening session

Seth, please see attached docs.

Thanks!



Alexis

Alexis Baden-Mayer, Esq.
Political Director
Organic Consumers Association
202-744-0853

PDF of a powerpoint presentation attached – could not include here

*Comments Submission #091a
Received 3/09/2017*

From: Alexis Baden-Mayer
Sent: Thursday, March 09, 2017 1:23 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Written Comments - Visioning Sustainable Agriculture

Hi Seth,

Thanks so much for including me in last week's event. It was one of the best conferences I've been to on this topic (and I attend a lot of those)!

I've attached the written version of my presentation from last week.

To develop my comments, especially on the specifics of research needs, I consulted with Steven I. Apfelbaum of Applied Ecological Services. I'm going to forward a couple of his documents that he encouraged me to share with you in a separate email.

Also, you received an email from Debbie Hillman on a joint statement from a coalition of groups and individuals working in the good food movement. Organic Consumers Association is a signer of that statement and we've been collecting sign-ons (18,507 so far) from our members here: https://action.organicconsumers.org/o/50865/p/dia/action3/common/public/?action_KEY=20139

Thanks!
Alexis

Alexis Baden-Mayer, Esq.
Political Director
Organic Consumers Association

There are three interrelated challenges facing agriculture over the next 50 years.

The first is soil loss.

In the United States, soil is swept and washed away 10 times faster than it is replenished. That costs \$37.6 billion every year. Globally, all of the world's topsoil could be gone within 60 years.



The second challenge is diet-related disease.

About half of all American adults have one or more preventable chronic diseases related to diet. Diet is now the number-one risk factor for disease. More than two-thirds of adults and nearly one-third of children are overweight or obese. This costs \$190 billion a year. Obesity is the new malnutrition. Globally, a growing number of people have plenty to eat and yet remain malnourished.

The third challenge is climate change.

Floods, droughts, wildfires and extreme or unseasonable temperatures cause crop and livestock losses. In 2011, exposure to high temperature events caused over \$1 billion in losses to U.S. agricultural producers.

Phasing out greenhouse gas emissions is important, but it won't reverse climate change. Until we remove enough CO₂ from the atmosphere to get back down below the dangerous tipping point of 350 ppm, the impacts of climate change will persist.

Luckily, there's an inexpensive and easy-to-use technology for reliable carbon dioxide removal and sequestration. Soil.

Agricultural activities have removed roughly 660 GtCO₂ from terrestrial ecosystems. The good news is we can put it back.

Shifting to agricultural practices that can draw that carbon back down to the soil would:

- Reduce atmospheric CO₂ by 40-70 ppm by 2100,
- Build soil instead of losing it, and
- Improve resilience to drought and floods, while
- Producing more food that's more nutritious, and
- Generating higher farm incomes from increased production of nutrient-dense food.

We need more research on the microbial communities in the soil that generate carbon storage. Plants give the carbon they get from photosynthesis to soil microorganisms in exchange for water and nutrients. It works best when there are lots of different plants exchanging lots of different nutrients with lots of different microbes. The greater the plant biodiversity, the more carbon gets stored. The best way to reverse soil loss and sequester carbon is to continuously cover soil with a diverse array of living plants.

Scientists are currently documenting microbial soil carbon sequestration using carbon-13 isotope pulse labeling. Using this method, they can track the carbon flows from plants to and through soil microorganisms and identify the plants and the microorganisms that store the most carbon.

Fence line comparisons have demonstrated greater resilience to droughts and floods in carbon rich soils. Now, scientists can measure water flows through soil in three dimensions and accurately document soils' water infiltration and holding capacity.



Grazing and pasture-raised animals can be managed to increase plant biodiversity and microbial activity. Well-managed pastures can sequester even more soil carbon than cropping systems. But we need a deeper understanding of how methanotrophs in the soil utilize methane emitted from grazing animals.

Finally we need an assessment of the socio-economic impediments to, and opportunities for, realizing the full potential for soil carbon sequestration.

If increasing soil carbon can help produce *more food than you ever thought possible on less land than you can imagine*, as John Jeavons would say, then why don't more farmers do it?

If increasing soil carbon produces food that is flavorful, aromatic, and so healthy and nutritious that it could cost-effectively reverse diet-related diseases, why aren't more consumers demanding it?

*Comments Submission #090
Received 3/09/2017*

From: jhawk@*****.*** [JJ Lindsey]
Sent: Thursday, March 09, 2017 1:14 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: commentary

Hello,

AS a very concerned citizen of this nation's food systems, I wanted to contribute my commentary on visioning for the next 50 years.

We are drowning in our mistakes. Our healthcare system is overburdened with the corporate takeover of our food systems, which use profits as a bottom line, rather than health and nutrition.

Over the last 50 years we have turned to a highly mechanized and processed food system, with little regard for the chemicals poisoning our foods (herbicides, pesticides, etc.), the processing which leads to severely curtailed nutrition, the additions of huge volumes of sugar, additives, unlabeled dangers, genetic modification of our largest grain crops, and a myriad of other problems. This has led to massive increases in diabetes, cancers, heart disease (the causes of which have been absurdly missing the mark this whole time), and other major illness.

The next 50 years will need to be spent in righting these wrongs.

WHOLE FOODS, in their natural form, grown with strong and regulated ORGANIC STANDARDS in place, will be our way out.

We will need to continue to build local access to these whole foods, and incentives for farmers to grow them.

I see a national campaign which promotes the benefits of whole and organic foods, educates the public on information they desperately need to raise children in healthy environments, from school lunches to home.

We need to get agri-business out of the equation....it is literally ruining our food, poisoning our water, livestock, and our way of life. Billions are being spent on lobbying Congress for looser



regulations, MORE toxic chemicals, less health and safety standards, more profits.

This. is. not. acceptable.

We are doing ourselves a disservice.

We must get our heads straight on this one. Our future generations, our economic and political place in the world....depend on it.

What we eat has everything to do with that. Nutrition is the cornerstone of intelligence, clear and high-level thinking, freedom from illness, and affects our nation's advancement on every level.

In the next 50 years, we need to STOP the use of toxic chemicals in our food system---start with drastic curtailing of pesticide and herbicide uses on food crops, and we must stop the allowance of GMO crops which PROMOTE HIGHER usage of these chemicals...not less.

We will need to stop using the USDA, the FDA, and the EPA as nurse agencies for corporate food. They should be the opposite---they should stand for citizens, not for companies which seek to make profit off those citizens.

A Good and Beneficial USDA should incentivize farmers to grow whole and non-chemical foods on smaller plots of land. We need to replenish our soils...only small, organic farmers do this.

I buy local raw milk and eggs straight from the farm, shop at my local farmer's market and co-ops--which carry the produce from our entire region.

We are building a local and responsive food system in our county which entails everything from zoning laws to cottage industry food processing and sales.

We need to clean up our food system to strengthen our exports----we are now seen as the pariah of food....other countries don't want our GMO grains, our poorly-raised meats, our highly-chemicalized foods.

They can see the costs of our own guinea-pig experiment on our citizens....corporate food and beverage has made us a sick and increasingly stupid populace.

The vision?

Organic farms across the nation re-claiming and healing corporate agri-business fields, replenishing the soils, filtering the waters, making the land whole again.

Stores full of expanded offerings of reasonably priced organic produce, taking the place of whole aisles of sugary carbonated beverages and deep-fried snack chips.

Local farmer markets in EVERY town, where food banks receive the overflow, after the farmer has been able to make a living off of the whole foods he/she has provided the community. **Organic farmers should be getting the tax breaks and subsidies, not the corporate agri-businesses!!**

Public campaigns geared to educating the citizenry on healthy choices, free from the voices of the profit-driven sugar, meat, dairy, snack, and beverage industries.

Protection of our citizens, education--in schools, on all media outlets, in medical schools, about



nutrition and its vital life-giving benefits.

Small is beautiful, here. Large is bloated, sick, greedy, and dying. We need to make our food systems responsive to our local needs, cut out the terrible waste in transport systems and fossil fuel use, and support small farmers.

Taking these concepts to heart, rather than setting them on a useless shelf in order to serve corporate food interests....will be what saves us. Please do not fail to understand this. We need drastic change, and we need it quick.

Thank you for listening...

JJ Lindsey

Olympia, WA

Comments Submission #089

Received 3/09/2017

From: Stacia Clinton

Sent: Thursday, March 09, 2017 1:06 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: March 2nd USDA Listening Session Comments - Health Care Without Harm

Dear Mr. Murray,

Thank you for the opportunity to submit these comments. I have attached comments on behalf of Health Care Without Harm, a global network of hospitals and health care systems that seek to harness the purchasing power and expertise of the healthcare sector to advance the development of a sustainable food system that is healthier for people and the planet.

I look forward to future opportunities to support implementation of this vision.

Best,
Stacia

--

Stacia Clinton, RD. LDN.

National Program Director

Healthy Food in Health Care

Health Care Without Harm, US and Canada

www.healthyfoodinhealthcare.org

Seth Murray

Senior Advisor

Office of the Chief Scientist

U.S. Department of Agriculture

p.(202) 692-0204; f. (202) 260-8786



seth.murray@osec.usda.gov

Stacia Clinton, RD.LDN
National Director
Healthy Food in Health Care Program
Health Care Without Harm

RE: Docket No. 2017-01506, “Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session Meeting”

Dear Mr. Murray

As a network of leading health systems, doctors, and allied health clinicians committed to promoting public health, Health Care Without Harm (HCWH) appreciates this opportunity to provide comments reflecting our vision of a sustainable food production system that supports human and environmental health and a thriving agricultural economy.

Together with our partners around the world, HCWH works on the principal “First Do No Harm” to develop and implement ecologically sound and healthy alternatives to present hospital operations and investments that pollute the environment and contribute to disease. Our Healthy Food in Health Care (HFHC) program seeks to harness the purchasing power and expertise of the healthcare sector to advance the development of a sustainable food system that is healthier for people and the planet. Comprising 18% of U.S. GDP, the healthcare sector holds significant buying power and a mission-driven interest in health to shift our entire food system toward sustainability. Our network of over 1,500 hospitals nationally and tens of thousands globally is working to purchase foods that are produced, processed, and transported in ways that are protective of public and environmental health.

OUR VISION

Just as we prompt the health sector to transition from treating illness to a systems-oriented, prevention-based approach—where the health of the community generates individual health and wealth—we envision a similar approach to our global food system. Rather than placing emphasis on issues management, a regenerative agriculture approach taps into the strengths of the ecosystem through healthy soil microbiology to reduce our use of synthetic inputs, sequester carbon and preserves clean air, water, and other natural resources to ensure production that can meet the needs of our growing population. In particular, we recognize that our current industrial animal agriculture system serves as a major contributor to greenhouse gas (GHG) emissionsⁱ and the growing crisis of antibiotic resistanceⁱⁱ. By recognizing the inextricable link of agriculture to climate changeⁱⁱⁱ both as a driver of mitigation and resiliency, we can build a system that conserves, protects, and regenerates the human and ecological systems that enable food production to support the needs of all eaters now and in future generations. Regenerative agriculture includes integrating animals and diverse agroecosystems, improving grazing system management, and important crop rotations that have revealed significant reductions in atmospheric carbon and in some cases net positive impact.^{iv}



In our current system, we have sacrificed much for efficiency. A rebalance of values and efficiency drives a food system that supports a diversity of production systems: small-scale, mid-scale, urban, etc. In order to make this inclusive system viable, our national system should be made up of a collection of strong regional systems that support the existing natural environment, local economies, and regional aggregated food demand. These regional systems have the benefit of cutting down on long-distance transportation to markets, prompting job growth for local production and processing centers, and supporting the resurgence of local community ownership in our food system.

THE HOW

Health care is concerned with the repercussions of the overconsumption and production of food animals, and for this reason, supports an environmental nutrition^v approach in alignment with the 2015 Dietary Guidelines Scientific Advisory Report recommendations to reduce meat consumption^{vi}. Food production practices and their subsequent impact on the environment directly impact public health.

Recommendations for consumption changes cannot be separate from recommendations on production changes. Doing so segregates our health care system from potential health risks generated by our agricultural decisions. Therefore, agricultural production planning cannot happen independently of national dietary guideline development.

The value of promising research to deepen understanding of regenerative agriculture systems, including transition expenses and variations for geographic application, cannot be understated. With increased research and incentives for organic pastured-based animal production, improved oversight and regulation of animal manure lagoons to improve air and water quality, and coordination with the FDA to strengthen regulation on the use of antibiotics and other pharmaceuticals in animal production, we can move the agricultural sector towards a new model of food production aligning scale of production with available natural resources. It's important to note that *public* investment is particularly important in both food nutrition and agriculture since many noted practices can reduce reliance on purchased inputs from the food and agricultural industry.

To ensure the viability of this new system, consistent, market demand is necessary. Health Care Without Harm is transforming the healthcare market to prioritize and purchase healthy, sustainably-grown food from such a system. Other major institutional sectors such as colleges and universities are shifting to more sustainable production practices and are increasingly willing to pay more for products that support their values. Together, we are actively increasing aggregated volume of demand across institutional sectors by aligning food production standards and purchasing criteria to move forward this new system. Public funds directed to support institutional operations must take into account the essential role of food provisions and purchases in generating health and the subsequent cost of prioritizing local and sustainable products while this new system gains efficiencies.

IMPACT AND NEXT STEPS

If done well, this system will bring economic vitality into our nation's communities by decreasing reliance on government inputs and by placing public institutions as a primary market



driver to support accessibility and affordability of healthy food within and beyond their walls. In a study by the University of Vermont Medical Center, the economic multiplier of local food purchases amounted to 1.36-1.60 as a result of their purchases alone.^{vii} In addition, the Anchors for Resilient Communities project led by Health Care Without Harm and Emerald Cities Collaborative in Oakland California is establishing a sustainable meal preparation and food processing center as the result of a community-identified desire for increased viability of local food and farm businesses and to address the health risk of food insecurity which is prevalent in their community.^{viii}

The regenerative agriculture system will reduce reliance on synthetic inputs or food laboratory innovations by placing the future of farms in the hands of farmers rather than agribusiness. By doing so, we allow for a de-consolidation of the agricultural sector allowing regional production and markets to gain efficiencies and economic stability. This diversification of markets creates inherent stability in local and regional communities in the face of uncertain climate or global trade conditions. Creating greater community ownership of the food system has the potential to improve health outcomes through greater individual and community wealth. All the while the role of our national and global food system shifts to serve as a compliment rather than the dominant system.

While there is a great need for research and piloting of innovative markets as noted above, there is a parallel need to educate the public about an environmental nutrition framework that clarifies the undeniable link between agricultural production practices and public health. Our nation’s farmers, clinicians, and consumers alike need to acknowledge their interdependence and collaborate on implementing this new vision for agriculture—the growth of a diversified food production system that supports the health of the environment and therefore the health of the public.

We applaud the USDA for prompting this important reflection and welcome the opportunity to participate in future steps to implement this vision.

Sincerely,

Health Care Without Harm

¹ Gerber, P. J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., ... & Tempio, G. (2013). Tackling climate change through livestock: A global assessment of emissions and mitigation opportunities. Rome, Italy: Food and Agriculture Organization of the United Nations (FAO).

¹ Centers for Disease Control. Antibiotic Resistance Threats in the US, 2013. Available at: <https://www.cdc.gov/drugresistance/threat-report-2013/>

¹ Crimmins, A., J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Elsen, N. Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofilm, J. Trtanj, and L. Ziska, 2016: The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. U.S. Global Change Research Program, Washington, DC.

¹ Rodale Institute. Regenerative Organic Agriculture and Climate Change - A Down-to-Earth Solution to Global Warming



¹ Health Care Without Harm. Environmental Nutrition – Redefining Healthy Food for Health Care. Available at: <https://noharm-uscanada.org/environmentalnutritionwhitepaper2014>

¹ Scientific Report of the 2015 Dietary Guidelines Advisory Committee. Available at: <https://health.gov/dietaryguidelines/2015-scientific-report/>

¹ Becot, F. Conner, D. Imrie, D. Ettman, K. Assessing the Impacts of Local Hospital Food Procurement. 2016 Journal of Foodservice Management & Education, Volume 10, Number 1, Pages 1-7

¹ EC Oakland Anchor Strategy Moves Toward a Sustainable, Local East Bay Food Economy; Applicants Sought for Jobs at New Food Processing Plant, January 18, 2017. <http://emeraldcities.org/cities/oakland/news/ec-oakland-anchor-strategy-creates-20-new-local-jobs-apply-today>

*Comments Submission #088
Received 3/09/2017*

From: Holley, Franklin
Sent: Thursday, March 09, 2017 12:03 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Prezkop-intern, Leigh; McBride, Monica; Pearson, Pete
Subject: March 2nd USDA Listening Session Comments

Dear Seth,

Please find the word document attached with comments from WWF's Food Waste team (represented by Pete Pearson and Monica McBride) for the March 2nd USDA Listening Session.

Please let me or those copied know if you have any questions.

Thank you for this opportunity,
Franklin

Franklin Holley
Manager, Agricultural Commodities
Sustainable Food
World Wildlife Fund | Washington, DC 20037
worldwildlife.org
HUMAN.NATURE.

Office of the Chief Scientist
U.S. Department of Agriculture

Dear Administrator and Staff:

I write to you on behalf of the Food Waste Team at the World Wildlife Fund. We consider this topic crucial for the health of not only our agricultural systems, but for the health of the land that gives life to this system as well as the public who consumes the end product. I am writing in



response to the topic of, “Visioning of U.S. Agriculture Systems for Sustainable Production” that was published in the **Federal Register on January 24, 2017**. Below I have primarily focused on how food waste is a principal actor in helping to increase product utilization for farmers, meeting the nutritional needs of a growing population while maintaining or decreasing our agricultural footprint in the U.S.

Threats of our Modern Agriculture Food System

Our modern American agricultural system has an extensive record of increasing productivity that has resulted in providing affordable food, livestock feed, fiber, and biofuel crops for both domestic and international use. However, as a result of these decades of technological advancements, the agricultural landscape has shifted from one predominantly dependent on mid-sized family farms to one where very few, large-scale industrial farms are shouldering the work. With this has come a decline in water quality, increases greenhouse gas emissions, decreases in biodiversity and soil quality, and increases in [land reduction](#). This is in stark opposition to two of the major tenants of sustainable agriculture as defined in [U.S. Code Title 7, Section 3. Our current agricultural system often falls short of being an](#), “integrated system of plant and animal production practices having a site-specific application that will in the long term:

- Enhance environmental quality and the natural resource base upon which the agriculture economy depends; and
- Make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls.”

While these two tenants of sustainable agriculture may be in question, the U.S. is meeting two of the other tenants included in the definition:

- Satisfy food, feed, and fiber needs, and contribute to biofuel needs; and
- Enhance the quality of life for farmers, farm workers, and society as a whole.

However, these two goals still have much room for improvement given the pervasive issue of food insecurity and the dearth of young farmers.

- **Food Insecurity.** USDA’s Economic Research Service defines food insecure as households that are uncertain of having, or unable to acquire enough food to meet the needs of all their members because of insufficient money or other resources. In 2015, 12.7% of U.S. households were food insecure, a 1.3% decrease from 2014, which is a good downward trend but still a troubling problem for a nation that produces more than enough food to feed our population, especially when you include food that is lost or wasted across the supply chain. Recovering edible food at the farm level that currently is lost or wasted represents a major opportunity to support the 42.2 million Americans living in food insecure households while increasing farmers’ profitability and creating positive environmental impacts.
- **Lack of young farmers.** There is a growing movement of young people who are interested in farming, and using environmentally sustainable methods to do so. These young farmers provide a great opportunity to turn our current system of production on its head and transition from a system dominated by large-scale monoculture crops to a more biodiverse system of medium-sized farms with that can be more resilient in the face of a



changing climate. However, acquiring land can be a major challenge as it is not easily accessible or affordable for these young farmers, especially when many of them are starting a farming career with college debt. Even though we are perhaps enhancing the lives of current farmers through these larger factory style farms, we are making it quite challenging for young farmers, or new beginning farmers to get into the industry. The [National Young Farmers](#) Coalition did a survey in 2011 and observed that three quarters of young farmers did not come from farming backgrounds, meaning that they are not in a position to inherit land and of these, 68% listed access to land as a challenge.

- By merging biodiversity and agricultural practices, farmers can eventually see a decrease in the need for pesticides and other expensive fertilizers. Farming is in fact meant to be increasing the microbiome of the soil, and when you farm with methods like crop rotation, beneficial pollinator plants and legumes, you are adding nutrients in the soil and therefore enhancing your crop. In the long term this will minimize direct costs going into the farm. Society as whole will benefit from this environmental gain by consuming more nutrient rich food as well as contributing to the mitigation of climate change. Healthy soil does not pollute the environment, but instead alleviates climate change by maintaining or increasing its [carbon content](#).

Where and how we produce food affects the planet more than any other human activity. Food production accounts for 70% of biodiversity loss, 70% of freshwater use, 25-35% of greenhouse gas emissions, 50% of soil erosion, and the majority of chemical use. We produce enough food to feed everyone, yet we waste one third of calories globally. North America wastes more food than any other region; in the United States more than 48 million people (including 15 million children) are food insecure. Therefore, the largest weakness in our current agriculture system is the gap between farm production utilization and edible food rescue.

A recently published [Rethink Food Waste through Economics and Data \(ReFED\)](#) report indicates that in the United States, 16% of food waste across the entire food system occurs at the farm level. Low market prices and high labor costs often make it uneconomical for farmers to harvest all that they produce. Strict cosmetic standards result in insufficient demand for imperfect produce (e.g. oversized zucchinis or bent carrots). Despite gleaning and farm-to-food-bank efforts to recover this un-harvested food, the vast majority is left in the fields to be tilled under. While many think that incorporating crop loss into the soil is an environmentally preferable solution since the unharvested crop is eventually turned back into the soil it came from, this solution still wastes all the energy and money that went into growing the crop. Food saved by reducing losses could feed more than 25 million food insecure people. Feeding our growing U.S. and world population is often cited as a major challenge facing the world in the next 30 to 50 years, however, when you consider 40% of what is currently grown goes uneaten the challenge really is rescuing the food we already produce. This amount of loss and waste in our current food systems is a major threat to the future of sustainable agriculture.

Vision

Sustainable agriculture should aim to freeze or slow the rate of land conversion and the other natural resources required to produce the current and growing levels of food, fuel, and fiber



needed to support our population at home and those we help abroad. The goal should be to optimize the use of our current agriculture footprint by decreasing waste and loss across the system starting at the farm level to ensure that the time, energy, and inputs required to produce these products are not lost. Given the magnitude of the environmental impacts of food production, food waste and food loss must be addressed and must be seriously considered a pillar of sustainable production.

Opportunities

Several studies show that changing produce specifications to expand the sale of imperfect farm products could lead to the use of an estimated [10 million tons](#) of crops that otherwise would be lost or wasted at the farm level. Recovering edible food at the farm level represents an opportunity to support Americans living in food insecure households, increase farmers’ profitability, and reduce environmental impacts. According to ReFED, accepting and integrating the sale of off-grade or imperfect produce—including produce with a short shelf life and produce of different sizes, shapes, and/or colors—could divert 266,000 tons of waste by 2030, potentially valued at more than \$275 million (\$1,039 per ton). When food is disposed of in a landfill, it rots and becomes a significant source of methane, a greenhouse gas with at least 21 times more global warming potential than carbon dioxide. Therefore, waste diversion would not only increase supply and create more low-cost options for consumers, it would also decrease greenhouse gas emissions by about [422,000 tons](#) by 2030.

This also provides an opportunity for farmers to increase product utilization. Whether it be tax incentives, or cuts to other titles in the farm bill, helping farmers to insure that nothing is left in the fields, will bring down long-term costs in terms of expansive and intensive farming operations, and also help to freeze our food footprint.

Research and Infrastructure Needed

Although it represents a significant economic and environmental issue, specialty and commodity crop food loss on the farm and post-harvest is largely unmeasured in the US today. Given the data gap and lack of information, measuring and understanding farm-level losses would be the first step towards taking corrective actions to recover and fully utilize this edible food. This would be the first step in creating a vision of a more sustainable agriculture system with little to no food loss or waste. The following steps outline a strategy for measurement and data collection.

Next Steps

Outlined below are examples of what would be needed to move forward and advance the measurement and management of food loss and waste to facilitate the implementation of reduction strategies.

- Train and educate farmers and their staff to improve harvesting practices, including using maturity indices and protecting the harvested produce from damage and heat. Use of improved postharvest handling practices (sorting/grading, field packing, pest



management, pre-cooling, packinghouse management) can all contribute to reducing on-farm losses.

- Better demand forecasting (what to plant, how much, for whom, at what price); recapturing on-farm loss/waste (finding a market for "ugly produce", investing in improved packages, pre-cooling, processing to new "value-added" products, storage to extend shelf life and expand the marketing period), direct marketing to consumers (shortening the postharvest chain from farm to market, capturing more of the market price for the growers)
- An improved focus on and effort to solve identified issues with the system, such as developing quality standards that focus less on size and appearance, and more of an emphasis on nutrition; promoting the development of new markets for B grade produce; formation of grower cooperatives to share the risks and rewards of investments to reduce loss/waste; developing/supporting local food banks, food bank suppliers and food distributors. Changing the face of food so that it is seen for its quality and not its visual appearance would be a huge step forward in consumer behavior. Consumers most likely want food that is nutrient dense, so it is a matter of showing that the perfect looking tomato can in fact be less nutrient dense than the misshapen tomato, depending on the growing methods.

Conclusion

In conclusion, I respectfully urge the U.S. Department of Agriculture to consider the points outlined to create their vision for the future of U.S. agriculture systems. Creating a vision of the U.S. Agriculture System for Sustainable Production is a multidimensional task of which I have only addressed one piece of, creating a vision that is centered around reducing food loss and food waste to meet our future food demands while minimizing our impact on the environment. It is important to note that achieving sustainable production in the US agriculture system is the responsibility of not just farmers and policy holders, but all other participants in the system, including laborers, researchers, retailers, and consumers. Each group has its own unique contribution to make to strengthen the sustainable agriculture community.

Thank you for your consideration.

Sincerely,
World Wildlife Fund, Food Waste Team

*Comments Submission #087
Received 3/09/2017*

From: Diana Jerkins
Sent: Thursday, March 09, 2017 11:56 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: RE: Presenters FAQ for March 2 USDA listening session

Seth,



Attached please find the written comments submitted by the Organic Farming Research Foundation. If you have any questions, please let me know. Look forward to seeing the full report that you are preparing. Thank you for allowing us to participate.

Thanks,
Diana Jerkins

Visioning of United States Agricultural Systems for Sustainable Production

The Organic Farming Research Foundation is pleased to be invited to present at the USDA Visioning session to help inform the possible future of U.S sustainable agricultural systems.

The Organic Farming Research Foundation (OFRF) is a national, public-interest organization founded in 1990 to foster the improvement and widespread adoption of organic farming systems. The organization was founded as a response to rising demand for organic agriculture research, extension and education to meet the information needs of a growing community of organic farmers and to educate the public and policy decision makers about organic farming issues.

Objective for this presentation:

To identify research opportunities and knowledge/data gaps for research priorities for long-term organic U.S. agricultural production systems.

What are the current strengths, weaknesses, and future opportunities of the U.S. agricultural industry?

Strengths

- Organic farming has grown tremendously since OFRF was founded in 1990. By April 2015, the United States Department of Agriculture (USDA) announced that there was over 19,000 certified organic producers in the US, a growth of 250% since 2002 (USDA, 2015). This growth brings OFRF closer to our mission of organic agriculture being the leading form of agriculture in the country. It strengthens our commitment to supporting the success of this important and rapidly growing part of our agricultural system. The USDA announced in April 2016 a significant increase in the number of certified organic operations, continuing the trend of double-digit growth in the organic sector. According to new data, there are now 21,781 certified organic operations in the United States and 31,160 around the world. "Organic food is one of the fastest growing segments of American agriculture," said Agriculture Secretary Tom Vilsack. According to data released by the Agricultural Marketing Service's (AMS) National Organic Program (NOP), the number of domestic certified organic operations increased by almost 12 percent between 2014 and 2015, representing the highest growth rate since 2008 and an increase of nearly 300 percent since the count began in 2002. The total retail market for organic products is now valued at more than \$39 billion, nearing a 5% share of the total food market in the United States and over \$75 billion worldwide. (USDA, 2016).
- Organic practices can support both organic and conventional systems
- These recommendations can provide a choice for producers and consumers for how and what is produced

Weaknesses

- Aging farmer/rancher demographics
- Loss of prime agricultural producing lands



- Reliance on external source of agricultural products
- Difficulty of transfer of applicable research results for adoption by farmers/ranchers
- Lack of diversity of production methods
- Environmental degradation, land use changes, and human health concerns

Opportunities

- Public acknowledgement of important of farms/ranchers and farmers/ranchers
- Continued growth of the organic segment of the agricultural industry for both consumers and producers for diversity of products and practices
- Organic systems and practices can be more sustainable and self-regenerative, especially environmentally and economically, through the enhancement of natural cycles
- Increase the number of small producers and retain the mid-sized farms/ranches which are most in jeopardy of land and people loss
- Maintain and support the rural economy

Based on the current needs of American organic farmers and ranchers as assessed by OFRF surveys and review of the USDA National Institute of Agriculture Organic Programs, USDA NAS producer’s surveys, and USDA ERS assessments, OFRF recommends several areas as high research priorities to provide scientific knowledge to farmers and ranchers to meet the challenges of the next 50 years. For a more detailed needs assessment and recommendations, please refer to the OFRF NORA results published in 2016 (Jerkins and Ory, 2016). This report provides the results of a nationwide survey of national organic producers on their research needs.

High Research Priorities

To begin discussion and planning for future research opportunities, OFRF recommends the following high priority research topics:

- Use of **whole systems** research approach for **nutrition, weed, insect, and disease management** for production systems, i.e. vegetable, animal, fruit, etc., and especially for mixed systems
- Research that will lead to a better understanding of **soil processes**, for example soil biology (microbiology and food webs), and how to improve soil health and linkage to plant health and relate soil health back to economic returns are leading research needs expressed by organic producers
- A better understanding of **natural systems** to support and maximize the benefits to agricultural lands
 - Measure the benefits of **ecosystem services** as multiple services within the production system framework as to how to enhance these services and potential for economic benefits to producers.
- Increase and improve **genetic varieties** for plant and livestock specific to organic systems
 - **Breeding** specific for organic production to enhance nutritionally dense products and stress reliance
- Develop practices and products to replace and/or eliminate the use of **antibiotics**
- Use of **robotics** for all scale of producers
- Social science research for most efficient way to **transfer research results** and most effective **training** for farmers/ranchers to increase level of adoption of research verified practices and technologies
- Research to scale-up organic methods



- Enhancement of the **medium-scale producer** level from production to economic research needs so that this level of production will not be lost in the US agricultural landscape.
- Adoption of **large scale organic agriculture** – production techniques, technologies, transition methodologies, marketing strategies
- Provide research and **educational information and training** for new and transitioning farmers/ranchers entering the organic production arena
 - Retention of current producers and access of **new farmers** – how to entice the next generation to be a farmer/ranchers; land access; economic support; training and long-term mentoring

References:

USDA, 2015. “USDA Announces Record Number of Organic Producers in U.S.” Press Release No. 0097.15. USDA Office of Communications, Washington, DC.
USDA, 2016. “USDA Reports Record Growth In U.S. Organic Producers.” Press Release No. 0084.16. USDA Office of Communications, Washington, DC.
Jenkins, D. and Ory, J. 2016. 2016 National Organic Research Agenda. OFRF, Santa Cruz, CA.

*Comments Submission #086
Received 3/09/2017*

From: Farrell, Elisabeth
Sent: Thursday, March 09, 2017 11:44 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Kelly, Thomas
Subject: [Caution: Suspicious Attachment]written comments for Visioning Agriculture

Hi Seth,

We are pleased to submit written comments in response to the Visioning Agriculture in the US listening session. Please see attached.

Sincerely,

El

Elisabeth Farrell
Project Director

University of New Hampshire
The Sustainability Institute
Durham, NH 03824-3547



ONLY PDF ATTACHED – FORMATTING MAY HAVE CHANGED DURING COPY AND PASTE

WRITTEN COMMENTS submitted to Office of the Chief Scientist, USDA Per March 2, 2017
Listening Session Submitted by Food Solutions New England

Visioning of United States Agricultural Systems for Sustainable Production

Food Solutions New England (FSNE) is a regional, collaborative network organized to support the emergence and viability of a New England food system that is a driver of healthy food for all, racial equity, sustainable farming and fishing, and thriving communities (see foodsolutionsne.org). We envision a future in which New England produces 50% of its food by 2060. (Learn more about A New England Food Vision: <http://foodsolutionsne.org/new-food-vision>.) We envision a food future guided by these values:

Democratic Empowerment: We celebrate and value the political power of the people. A just food system depends on the active participation of all people in New England.

Racial Equity and Dignity for All: We believe that racism must be undone in order to achieve an equitable food system. Fairness, inclusiveness, and solidarity must guide our food future.

Sustainability: We know that our food system is interconnected with the health of our environment, our democracy, and our economy. Sustainability commits us to ensure well-being for people and the planet now and in the future.

Trust: We consider trust to be the lifeblood of collaboration and collaboration is key to our long-term success. We are committed to building trust across diverse people, organizations, networks, and communities to support a thriving food system.

Robust research and development are critical to helping us achieve our vision. Specific areas where research and development can play a role include:

- Modeling land use and agriculture production, climate, and ecosystem health
- Climate change impacts and adaptation for agriculture
- Weather resilience and landscape level water management
- Quantifying Ecosystem Services
- Regional Networks and Institutions (food policy councils, etc.) for regional food systems (e.g., New England)
- Nutrient density and diversity
- Soil Regeneration
- Collaborative decision support tools
- Racial Equity, Dignity and Democratic Empowerment in Sustainable Food Systems

Realizing our vision could help farmers, the environment, and our society in many tangible ways, including:



- Increasing the value of food production in New England by more than three times
- Growing the farming industry and local jobs
- Increasing commercial fisheries and related local jobs
- Reducing the use of current food system practices that put future generations at risk
- Promoting health through more nutrient rich dietary practices
- Promoting greater social justice and equity
- Building greater regional food security through enhanced capacity for food production

Gaps that need to be filled in order to realize our vision include:

- Redirecting federal agricultural subsidies to support sustainable farming
- Protecting farmland and forest through programs that purchase easements from landowners
- Promoting farmland access and training programs for beginning farmers
- Investing in distribution networks and retail outlets that better connect farmers and fishermen with customers
- Passing and enforcing strong environmental regulations that protect and preserve our natural environment, but combine these with incentive programs that help farmers and fishermen put environmental safeguards in place
- Adopting regulatory structures that encourage access to fishing rights for owner-operated fishing vessels
- Expanding farm-to-plate programs in schools, hospitals, and other institutions
- Supporting the creation of community gardens, school gardening programs, and community and educational farms
- Subsidizing consumption of healthy foods (especially fruits and vegetables) so that people will be encouraged to eat more nutrient-dense foods
- Ensuring that every household that wants to grow its own food is able to do so, either on its own property or in common space
- Securing a living wage for every person who is able to work and sufficient jobs for all

*Comments Submission #085
Received 3/09/2017*

From: Debbie Hillman
Sent: Thursday, March 09, 2017 11:21 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Alexis Baden-Mayer; Meg Hourigan; Liza Marron
Subject: March 2nd USDA Listening Session Comments

Dr. Murray —

Attached are written comments to be entered into the record for the March 2, 2017 USDA Listening Session on long-term visioning for U.S. agricultural systems.

These comments represent an informal coalition statement written by four of us. We then submitted our 2-page statement for sign-ons by other U.S. food-and-farm professionals. As you can see in our Word document, the statement was approved by 18 organizations and 20 individuals.



Thank you for all your coordination. We look forward to the report and any other public outcomes of this public process.

On behalf of Meg Hourigan, Alexis Baden-Mayer, and Liza Marron (who are copied on this email),

Respectfully submitted

— Debbie Hillman
Debbie Hillman
Evanston, Illinois

FOOD, FARMS & DEMOCRACY
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www.FoodFarmsDemocracy.net

WRITTEN COMMENTS submitted to Office of the Chief Scientist, USDA
Per March 2, 2017 Listening Session
Submitted by 18 food-and-farm organizations and 20 individual food-and-farm practitioners
(see complete list below)

Visioning of United States Agricultural Systems for Sustainable Production

Over the next 50 years, U.S. agriculture must shift to diverse, resilient, adaptive and regenerative systems that mimic nature, stimulate healthy soils, restore ecosystems, benefit human health, ensure human safety, sustain just and livable employment at all points in the supply chain, increase biodiversity, and build communities of practice, to ensure the vitality of human health and local economies.

We envision agricultural systems that are:

Accessible to all

Everyone's right to safe, healthy, nutrient-dense food will be recognized and fulfilled. Agriculture will be a thriving, diverse, widespread, and common practice that nearly everyone engages in, including in urban settings. Farmers in the US will be diverse in age, gender, race, and ability; location and income will not be a barrier to participating in the cultivation and consumption of food.

Regionally self-sufficient

Food and fiber production will be integrated into daily life in homes, schools, healthcare and community centers, workplaces, and public spaces, in urban, suburban, and rural communities. Most food and fiber will be consumed close to where it is produced. Waste will be drastically reduced or used according to the EPA waste hierarchy and surplus will be distributed. US regional food systems will be resilient against catastrophic weather events and will be able to



adapt to changes in supply from elsewhere. US-grown produce will be competitive against imported produce, and local/regional food will be the norm instead of a specialty.

Healing people and the planet

Food and farming will be the foundation of individual, public, and environmental health. Food production will have shed its greenhouse gas emissions and become a sink that cleans the atmosphere of pollution. Agriculture will be used to create resilience to and eventually reverse climate change. Food and fiber production systems will be planned and managed to restore soils, waterways, ecosystems, environments and wild spaces.

Fair

Food and fiber production will be an honored profession. The true value of producers' efforts will be recognized and compensated. Production systems will no longer rely on underpaid labor, prices below the cost of production, or negative externalities. New economic systems will emerge to create greater opportunities for more people in food and fiber production. All people working in the food system will earn living wages and enjoy the same labor rights as workers in other industries.

Democratic

Localities will have decision-making authority and control over their resources, while acting with neighboring communities to establish regional cooperation. Robust food policy councils at the municipal, county, state, and regional levels will guide agricultural systems. The councils will be instruments of democratic and civic engagement with governmental decision-making capacity on issues relating to health, energy, the planning of developed areas, the protection of environmentally sensitive areas, the restoration of wild areas, resource utilization, management of the economy, etc. Participation in food policy councils will be open to all.

We recommend the USDA focus its research on:

NUTRIENT DENSITY AND DIVERSITY to reorient food production for quality as well as calories.

SOIL REGENERATION, the foundation of life on Earth. Research should focus on soil as a complex living entity to be managed for maximum carbon storage, water holding capacity, production, nutrition, and resilience. Soil building strategies, including composting, biochar, adaptive multi-paddock grazing and plant biodiversity, should be investigated. Restoring soils in urban communities should also be investigated to make more space available in cities for food production.

HIGHLY PRODUCTIVE POLYCULTURES that integrate large varieties of plants and animals, annuals and perennials, and food and fiber, to maximize productivity, soil health, nutrient density, and pest suppression, in a closed system where all inputs and sources of fertility are produced on the farm. Design and implementation strategies from permaculture, organic farming, biodynamic farming, North American indigenous nations, and other traditional farming methods should be investigated.



ON-FARM ENERGY PRODUCTION that doesn't hinder or compete with food production.

DECISION-MAKING STRUCTURES that spur sustainable agriculture such as collaborative research, food policy councils, participatory budgeting, collectives, public banks, community supported agriculture, seed banks, community land trusts, and worker-run businesses.

EDUCATING THE NEXT GENERATION OF FOOD PRODUCERS with farm-to-school programs, school gardens, new farmer mentorship programs, and classes in nutrition, holistic management, ecology, etc., to spark an interest in, and provide the skills needed for, careers in food production. This education should be available to people at all ages and education levels. Research should identify best practices for ensuring that each generation has a sufficient number of farmers ready to steward the land as older farmers retire.

SUBMITTED BY:

Liza Marron
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FoodFarmsDemocracy
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Mile-High Farmers

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Northbrook Farmers Market Association

Dale Duda, President
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Slow Food USA

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Sprout City Farms

Meg Caley



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*Comments Submission #084
Received 3/09/2017*

From: Sally Flis
Sent: Thursday, March 09, 2017 8:41 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Lara Moody
Subject: Comments on the Visioning of U.S. Agriculture Systems for Sustainable Production
Listening Session 82 FR 8174 2017-01506

Dr. Murray,
Please find attached The Fertilizer Institute's comments addressing Visioning of U.S.
Agriculture Systems for Sustainable Production Listening Session 82 FR 8174 2017-01506.
Thank you,
Sally

Sally A. Flis, Ph.D.
Director of Agronomy
The Fertilizer Institute
425 3rd Street, S.W., Suite 950
Washington, D.C. 20024-3206

**ONLY PDF ATTACHED – FORMATTING MAY HAVE CHANGED DURING COPY
AND PASTE**

February 16, 2017
VIA ELECTRONIC SUBMISSION



Seth Murray, Senior Advisor
Office of the Chief Scientist
U.S. Department of Agriculture
1400 Independence Ave., S.W. Washington, DC 20250
seth.murray@osec.usda.gov

RE: Written comments for Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session Meeting

Dear Dr. Murray:

The Fertilizer Institute (TFI) is pleased to provide the Office of the Chief Scientist at the U.S. Department of Agriculture with these comments addressing the “Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session” announced in the Federal Register by the Agriculture Department on January 24th, 2017 (82 FR 8174). The members of TFI, and our scientific partners with the International Plant Nutrition Institute (IPNI), are leading the way in development and implementation of new technologies and scientifically-based management for agricultural cropping systems to better meet social, environmental, and economic goals. The interest and commitment of the industry to researching, designing, and implementing these systems is demonstrated through 4R Nutrient Stewardship: choosing the Right Nutrient Source to apply at the Right Rate at the Right Time and in the Right Place. Additionally, the creation of the 4R Research Fund provided much needed industry resources to expand the 4Rs as a viable strategy to address cropping system productivity and return on investment for the grower as well as concerns for nutrient losses into the environment.

Statement of Interest

The Fertilizer Institute represents the nation’s fertilizer industry including producers, importers, retailers, wholesalers and companies that provide services to the fertilizer industry. TFI members provide nutrients that nourish the nation’s crops, helping to ensure a stable and reliable food, fuel, and fiber supply. TFI’s full-time staff, based in Washington, D.C., serves its members through legislative, educational, technical, economic information and public communication programs.

Whether from organic or commercial sources, fertilizer nutrients are a key component of sustainable crop production systems. Fertilizer is a key ingredient in feeding a growing global population, which is expected to surpass 9.5 billion people by 2050. Half of all food grown around the world today, for both people and animals, is made possible through the use of fertilizer. As demand continues to grow, farmers around the world will continue to rely on fertilizer to increase production efficiency to produce more food while optimizing inputs. Fertilizers play an essential role in replenishing nutrients in the soil that are used by plants each growing season, raising soil productivity, and improving soil health; but incorrect nutrient use leads to negative impacts on a grower’s return on investment and risks increased impacts on the environment.

The Fertilizer Institute has worked to promote 4R Nutrient Stewardship, choosing the Right Nutrient Source to apply at the Right Rate, at the Right Time, and in the Right Place. The 4R



Nutrient Stewardship program is science-based and provides information for stakeholders to utilize for education, advocacy, and implementation of crop nutrient stewardship. Through this program, the industry provides information on fertilizer best management practices (BMP) that benefit the environment and the producer's bottom line. As part of the 4R Nutrient Stewardship program, the 4R Fund was established by the fertilizer industry to help inform sustainability indicators and to encourage collection of environmental impact data associated with expanded implementation of 4R Nutrient Stewardship across North America. The Fund provides needed resource support with a focus on measuring and documenting the economic, social and environmental impacts of 4R Nutrient Stewardship.

While the 4R Research Fund is providing much needed resources (\$4.7 million pledged to date) to expand crop adviser and grower understanding of the implementation of the 4Rs, many questions regarding impact of fertilizer BMP adoption remain which must be addressed to advance sustainable cropping systems.

Research Priorities and Funding

Initial projects supported by the 4R Research Fund, and overseen by scientists with IPNI, included five meta-analyses to identify known impacts related to fertilizer BMP implementation as well as existing knowledge gaps. This information is extremely relevant to the Office of the Chief Scientist request for identifying research opportunities and knowledge / data gaps to consider as the USDA evaluates research priorities to enhance the long-term future of U.S. agricultural production systems (http://research.ipni.net/toc/category/4r_research_fund). IPNI scientists have frequently been invited by the USDA ARS as science stakeholders, to provide input on their research direction in nutrient management, plant nutrition, and soil productivity.

Specific identified knowledge gaps include:

- Need for more long-term studies with coordinated controls across multiple site years. The biology of a location takes time to adapt to management changes and nutrient movement in the system will change as the biology adapts. (L. Christianson, N. Nelson, D. Ruiz-Diaz).
- How does implementing drainage (surface or subsurface) in new areas change the recommendations for the source, rate, time, and placement of nutrients, the yield of the crops, the uptake of nutrients by the plants, the performance of other conservation practices like cover crops or buffers, the retention of the nutrients in the soil, and nutrient losses to air and water.
- When producers manage to improve soil health what are the adjustments needed to nutrient source, rate, time, and place? How do these changes in management influence crop yield, crop quality, soil quality (soil health), and nutrient cycling?
- In order to answer the larger questions about sustainability, research conducted across multiple locations and years needs to be combined and analyzed. This makes the consistency in reporting of means, variation, site characteristics (soil type, conservation practices in place, field drainage, soil nutrient analysis, and irrigation management), crop yield, crop nutrient uptake and concentration, and weather information (rainfall and temperature over the course of the project) essential to moving practices and implementation going forward. (R. Cook, A. Eagle, and D. Ruiz-Diaz)
- Research on the source, rate, time and placement effects of enhanced efficiency fertilizers on water quality (nitrate leaching, eutrophication) and N₂O and NH₃ emissions, crop yield, crop



nutrient content, and soil health from the same site during the same project (R. Cook and A. Eagle)

- Research that collects year-round monitoring of nutrient movement in the soil, water, and air in relation to the source, rate, time, and place of applications, crop yield, crop nutrient removal, and the implementation of additional conservation practices.
- Research collaborations on-farm to investigate current and emerging practices and technologies impact on economic, environmental and social outcomes.
- How does nutrient cycling change when multiple practices are implemented? Measuring crop yield, nutrient uptake, air and water losses, and soil changes across combinations of nutrient source, rate, time, and place when combined with additional conservation practices like cover crops, conservation irrigation, bioreactors, artificial wetlands, riparian zones, or vegetative buffers.
- What is the sociology of 4R implementation? What are the best tools, approaches, and information to provide to agriculture to increase adoption of science-based practices?
- Research that reports total plant P uptake and P removal in the grain in relation to soil test P, 4R practices, and water quality monitoring (D. Ruiz-Diaz)
- Research to explore the best combination of geographical criteria (soil type, latitude and longitude, weather records, or government boundaries) for making nutrient source, rate, time and placement recommendations.
- Research in more geographical locations, longer time periods, and more cropping systems. Most of the literature is from the Midwest on corn-soybean systems, followed by the Northeast. More locations and longer time periods will help reduce the variation in responses due to the influence of weather on outcomes. (L. Christianson, R. Cook, and A. Eagle)
- What are the drainage losses of N and P with improved 4R practices, in subsurface drained (tile drained) cropping systems near Lake Erie and above Des Moines, IA (M. Helmers, K. King).

Recently published literature calls for a more holistic nutrient research that incorporates nutrient source, rate of application, time of application, and placement and how those management factors further interact with soil health changes, climate change, social, and economic changes (Reimer, et al., 2016). Additionally, studies have called out the need to fill the gaps in the existing research data and data collection management (S. Brouder) to facilitate designing and implementing more efficient and effective systems. Federal investment in agricultural research is essential to develop solutions to ever-changing problems created by pests, disease, droughts, floods, regulation, international competition, and increasing population. Through public-private partnerships, including competitive grant funds through USDA, universities and federal researchers are able to help farmers overcome the increasing challenges of crop productivity.

Conclusions

The geographic conditions of an individual experimental site may limit the ability to extrapolate the results to a larger area. Yet, improved data collection standards will help improve the use of results, foster larger collaborations of researchers across the landscape, and will also contribute to results that have a wider application range. Further, collaboration and communication among university, industry, and federal research groups can help to ensure that new research is filling the gaps that have been identified in recently published science reports.

Continued funding and the ability to augment public funds with private funds is essential to meeting the research needs of the industry and society. Strategically located longer-term research



that collects increasingly more data points on climate, soils, crops, and practices is key to meeting the environmental, economic, and social goals of U.S. agriculture. However, traditional funding sources are limited and often restrict projects to three years (or less) of data collection, while agronomic and horticultural systems, especially those with broad-based rotations, can take much longer to evaluate

TFI appreciates the opportunity to provide comments on this proposal. Please do not hesitate to reach out to me with any questions regarding the perspectives of the association. I may be reached at phone or email.

Sincerely,

Sally A Flis, Ph.D. Director of Agronomy

*Comments Submission #083
Received 3/09/2017*

From: martintom

Sent: Thursday, March 09, 2017 7:48 AM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: Fwd: Marcia - Fwd: Emily - Fwd: EnviroCirc - VT Dairy - New England NRCS Leadership Meeting

Dear Seth,

Thank you again for providing the opportunity to speak at the USDA's Visioning The Future Of Sustainable Agriculture listening session last week in DC. You will note below that we have generated significant interest in EnviroCirc's Circular Farm model.

My best,

Tom Martin

Chairman/CEO

EnviroCirc

<https://envirocirc.wordpress.com>

www.NewVentureStrategies.com

I DID NOT INCLUDE HERE 8 attached JPEGs, 1 attached PDF report and many long strings of email that were attached to this message

*Comments Submission #082
Received 3/09/2017*

-----Original Message-----

From: Mark Schonbeck

Sent: Thursday, March 09, 2017 6:28 AM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: AMENDED comments from Virginia Association for Biological Farming

Importance: High

Dear Seth,



Please see the attached comments from Virginia Association for Biological Farming (VABF)- they are an amended version of the comments sent late last night.

Many thanks,

Mark Schonbeck
Policy Liaison, VABF

March 8, 2017

From: Virginia Association for Biological Farming
815 Little Retreat Road, Red Oak, VA 23964
Comments submitted by Dr. Mark Schonbeck, VABF policy liaison

To: Seth Murray, Senior Advisor
Office of the Chief Scientist
United States Department of Agriculture
Washington, DC

Re: Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production
Stakeholder Listening Session, Federal Register Notice 82 FR 8174, Jan 24, 2017
Written comments

Thank you for the opportunity to submit written comments on the questions related to long term sustainable agriculture research priorities addressed at the March 2, 2017 Listening Session in Washington, DC. The Virginia Association for Biological Farming (VABF) is Virginia's primary sustainable agriculture non-profit non-governmental organization. VABF's mission is to educate about, advocate for, and promote organic and biological farming and gardening. Our membership is comprised of smaller-scale diversified farmers, homesteaders, and concerned consumers who want to support organic and sustainable farming systems. As part of our mission, we have conducted on-farm research into organic production of tomato, summer and winter squash, and other horticultural crops.

VABF would like to offer the following specific comments and recommendations regarding long term research priorities for sustainable agricultural production.

Overarching Considerations:

1. **Address holistic societal needs.** The stated goal of the listening session includes input on: "*agricultural systems that could better meet holistic societal needs beyond existing systems.*" Toward this end, agricultural systems must:
 - Restore and sustain healthy agro- and natural ecosystems.
 - Be resilient to climate change and other stresses, sustain the food supply, and protect and enhance the resource base.



- Sequester CO₂ through photosynthesis and soil biology, thus mitigating climate change.
- Provide a decent and viable living for all farmers and ranchers.
- Create new employment opportunities – meaningful work for adequate pay.
- Provide affordable, safe, nutritious, food for all as a basic human right.
- Actively engage individuals and communities in shaping their own local and regional food systems.
- Actively promote racial equity and food sovereignty for all indigenous and ethnic groups.

These principles and goals form the context for the balance of our comments.

2. **Develop regionally appropriate practical solutions that farmers can adapt for site-specific application.** There exists an acute need for new and improved, publicly held crop cultivars and livestock breeds that are well adapted to each of the many agro-ecoregions across the US and that perform well in organic and sustainable production systems. For example, the warm, rainy climates of Virginia make it difficult to produce tomatoes organically because today’s tomato cultivars are highly susceptible to several serious fungal diseases. Other research-based farmer resources, including new crop and livestock production technologies, decision support tools, and practical information and guidance on inputs, and management practices should also take a regional and adaptive approach. For example, the most advanced decision support tools for cover crop selection are designed for the North Central and Northeast regions, and are not directly applicable to Virginia and other Southern states.
3. **Integrate traditional and indigenous farming and ranching wisdom with cutting-edge sustainable agricultural science and technology to evolve new systems that optimize economic, environmental, and social outcomes.** In the FR notice, USDA OCS cites “*novel agricultural systems*” and a goal of “*facilitating opportunities in the long-term for sustainable agricultural production.*” In its vision of the evolution of sustainable agricultural systems over the next 50 years, USDA might consider, in addition to “novel” systems, the tremendous trove of land wisdom and regionally-adapted agri-cultural traditions developed over millennia by indigenous human societies across the US and worldwide.

For example, gene mapping can enhance understanding of valuable traits of traditional land races of food crops and animals, and can elucidate how they might be integrated into modern crop cultivars and livestock breeds to enhance performance in sustainable, soil- and climate-friendly systems. Yet much of the work of developing these cultivars can and should happen in the field through classical breeding methods, including the breeding and selection practices of the original farmers and pastoralists. Furthermore, such integration must take place in a way that fully honors and remunerates the contribution of the long-time keepers of those land races and breeds (very often indigenous peoples), and ensures their fair and equal access to the fruits of the research and development of new or improved cultivars and breeds.



4. **Prioritize long term research and development efforts in advanced ecological farming and ranching systems, such as organic, permaculture, and management intensive rotational grazing.**

- *Organic production systems and practices*, as codified in the USDA National Organic Standards, constitute an excellent model and foundation for long-term sustainable solutions. For example, one VABF member who is an organic farmer with over 30 years experience has been featured in several NRCS video clips on soil health and conservation practices, and another has authored an excellent manual and scores of articles on sustainable organic vegetable production. Over the past 15 years, research funded through the USDA Organic Research and Extension Initiative (OREI) and Organic Transitions Program (ORG) has already provided valuable information and tools to organic producers. VABF was a partner with Virginia Tech in an ORG funded organic minimum-till vegetable production research project during 2003-07. A long-term investment in organic research is warranted to address the challenges and opportunities in organic production, especially organic minimum-till systems and co-management of soil health, plant nutrients, weeds, and other pests. *Please see www.ofrf.org for summaries and full reports on this analysis, which include specific recommendations regarding organic farmers’ research needs and priorities.*
- *Permaculture systems*, such as agroforestry, silvopasture, food forest gardening, and multistory cropping, rely primarily on food- and fiber-producing perennial plants, and thus entail no or minimal tillage and much lesser production inputs than annual crops. USDA might consider a long term sustainable agriculture goal of deriving at least half of the US population’s dietary caloric, protein, and other nutritional needs from perennial-based agro-ecosystems within 50 years.
- *Management-intensive grazing systems*, integrating high level rotational grazing, multispecies grazing, improved and diversified pasture and range plantings, and other practices, can become the standard practice for meat, poultry, egg, and animal fiber production. A growing body of research has shown substantial soil-restorative, C-sequestration, and water quality benefits from these systems. A long term USDA goal might be to research, develop, and adapt ecological livestock systems for each of the major livestock/poultry producing regions: Northeast, Southeast, Midwest, Deep South, semiarid regions of the Great Plains and Intermountain West, and West Coast.
- *Crop-livestock integration* can enhance nutrient cycling, soil health, and water quality. When livestock production is decentralized and integrated with crop production on small to midsize farms, livestock manure and urine present far less intractable water quality problems and become nutrient resources that reduce the need for off-farm inputs of industrially fixed N and other soluble fertilizers. Including a livestock / pasture component in intensive annual crop rotations can restore cropland soil quality and facilitate weed management. A long term USDA research commitment to address the opportunities and challenges (e.g., food safety, logistics and economics of the integration), can optimize economic, social, and environmental outcomes of crop-livestock integrated systems.



5. **Engage farmer and ranchers as equal partners in the process of developing long-term sustainable agricultural systems.** In order to achieve an optimal balance and synergism between basic and applied research, and producer and scientist, USDA should strive for roughly equal emphasis on, and tax dollar investment in practical on-the-ground solutions and more basic research. Reasons for this are several:
- The traditional flow of research data from land grant university → Extension → producer can tend to exclude producers from the process, thereby missing great opportunities for truly practical and sustainable innovation. For example, some OREI projects have taken a strongly producer-participatory approach; as a result, research outcomes include several simple yet highly effective farmer innovations in the areas of plant breeding and selection as well as organic weed management. The Sustainable Agriculture Research and Education (SARE) program is also exemplary in its engagement of producers, and I have worked with producers in Virginia conducting on-farm trials and field days in several SARE funded projects. In addition, VABF has conducted several on-farm demonstration and research projects funded through the Specialty Crop Block Grants program, with six farms engaged in each of three different SCBG projects; the farm tours promoted dissemination of information on best cultivars and most effective organic pest and disease management practices. All three programs play vital roles in this aspect of effective long term sustainable agricultural research, and SARE in particular should receive funding at its full authorized rate of \$60 million annually. Program priorities should be fine-tuned to align with long term sustainable agriculture research priorities identified through this listening session and comment period.
 - Farmer-initiated and on-farm research can be much more cost effective in realizing practical benefits. For example, OREI and ORG invested about \$27 million in farmer participatory plant breeding endeavors, which generated over 40 new cultivars and hundreds of advanced breeding lines, and established several strong, ongoing farmer-breeder networks. In comparison, industry typically invests about \$138 million to develop a single new GMO cultivar through high tech lab methods, and must impose patents and require farmers to sign technology agreements in order to recoup their investment.
 - Farmer engagement in the research, development, demonstration, evaluation, and delivery of new tools and technologies for sustainable production promotes their widespread adoption and hence enhances producer, environmental, and societal benefits

Specific Research Priorities – Sustainable Production Practices

6. **Plant and animal breeding and public cultivar / livestock breed development for sustainable and organic systems.** Over the past 25 years, crop seed markets have increasingly narrowed down to a few modern cultivars developed for conventional (high input) systems over wide geographic ranges, and many older regional cultivars have disappeared from seed catalogues and farm supply store shelves. The Organic Seed Alliance (<https://www.seedalliance.org/>) has identified the lack of regionally adapted



crop seeds that are also genetically equipped to thrive under organic and other ecologically based, low-external-input production systems as a major constraint on crop yields in these systems. VABF member, seed farmer and plant breeder Edmund Frost has developed an advanced breeding line of butternut squash with enhanced vigor, disease resistance, yield, and eating quality, and released it to producers under the Open Source Seed Initiative. The work has been conducted on a shoestring budget with a few small grants, including two from the Southern SARE producer grants. Further refinement into a finished cultivar will require a modest additional investment in funds; failure to obtain the funds to complete this work would constitute a missed opportunity and a significant loss to the farming community.

*In the Midwest, Mandaamin Institute (<http://www.mandaamin.org/>) has successfully transferred genetic traits from Mexican and Latin American land races of grain corn into conventional Corn Belt inbreds and hybrids that allow the improved cultivars to derive N from soil organic matter and slow release organic sources, and even to fix up to half of their N requirement through association with diazotrophic soil bacteria such as *Azospirillum*. By greatly reducing the need for applied soluble N, the new cultivars have a great potential to protect soil, water, and climate as well as saving farmers large sums on fertilizer inputs. Selecting, developing, and improving varieties of a wide range of crops for organic and sustainable production in each major agricultural region can go far toward advancing the ecological, economic, and societal goals of sustainable agriculture.*

Similarly for livestock, there exists an acute need for development of regionally adapted breeds that can thrive in the advanced, pasture-based systems outlined above. For example USDA ARS scientists in Arkansas are working with a strain of Katahdin hair sheep with greatly enhanced resistance to barberpole worm, a parasite that poses the greatest single barrier to sustainable, organic, pasture-based small ruminant production. This development illustrates the potential for animal breeding to address sustainable ranching goals and needs.

Long term USDA research priorities in this area should include:

- A long-term commitment to public plant and animal breeding and public cultivar development, including funding structures that allow for the 10+ year process of developing a new breed or cultivar from concept to cultivar / breed release, so that promising breeding endeavors are not stranded by cessation of funding.
- A commitment to recruit, train, and securely fund the next generation of public plant and animal breeders.
- Emphasis on highly cost-effective farmer-participatory breeding networks and endeavors, complemented by appropriate use of advanced genomics technologies that support and speed the development of new cultivars and breeds through classical breeding and selection methodologies.
- A commitment to keep all new and improved cultivars, livestock breeds, and plant and animal breeding lines developed through taxpayer-funded USDA programs in



the public realm in perpetuity, so that farmer and breeder utilization, propagation, and improvement is not restricted by private intellectual property rights.

- 7. Optimum management of soil biology (soil food webs) for crop production, nutrient cycling, soil conservation, soil health, and crop disease suppression.** Over the past 20 years, the importance of soil life to both economic and environmental aspects of successful sustainable farming and ranching has been abundantly demonstrated and widely embraced. As a result, the use of commercially available microbial inoculants, on-farm composting, and other practices to enhance soil biology and fertility and crop production has increased among organic and non-organic producers alike. Yet, our understanding of the functioning of soil food webs in relation to crop nutrition, crop protection, and other agronomic and conservation objectives remains in its infancy. As a result, soil biology enhancing products and practices have given mixed results, and have not consistently benefited crop yields or soil quality.

Some recent OREI funded research has made promising new advances in this area. For example, researchers at University of California, Santa Cruz documented the phenomenon of “tight nutrient cycling” in some organic tomato fields in CA. Integration of plant genetics, soil microbial communities, balanced and diverse organic inputs, and best soil management practices allow crops to obtain sufficient nutrients without dependence on soluble N and other nutrient applications that can threaten water quality and emit the powerful greenhouse gas nitrous oxide.

In another example of OREI funded soil food web research, USDA ARS scientist Dr. Mark Mazzola elucidated the mechanisms by which mustard green manure crops help control soilborne orchard diseases. They do so primarily by encouraging the proliferation of beneficial, disease-suppressive bacteria, rather than through the release of antimicrobial isothiocyanate compounds. This important clarification of mechanism makes a valuable contribution toward more effective soil food web management in orchards and other production systems under both organic and non-organic management.

USDA should make a long term research commitment to develop practical soil food web management information and tools for farmers to foster tight nutrient cycling, to develop more effective management practices for biologically based suppression of soilborne diseases and other pests, and to achieve other production and conservation objectives *across the full gamut of agro-ecoregions, crops, and production systems in the US.*

- 8. Research and development of perennial crops and cultivars.** As noted earlier, USDA might consider setting a goal of deriving a substantial portion of US dietary needs from soil-conserving and carbon-sequestering perennial production systems. Perennial crops include existing traditional foods such as pome and stone fruits and tree nuts, less well known native perennial-based foods such as pawpaw and American persimmon, and perennial cultivars of traditionally annual crops such as wheat and other cereal grains.



- 9. Functional agricultural biodiversity.** A growing body of research findings shows that enhancing biodiversity, beginning with crop rotation and including wildlife habitat plantings and landscape diversity, as well as below-ground (soil food web) diversity, tends to improve the ecological stability of agro-ecosystems, with potential economic, environmental, and social benefits. However, the success of a given diversification practice (such as adding new crops to a rotation, or planting a multi-species cover crop cocktail or pollinator habitat mix) depends not just on the number of new species but *on their functional relationships* with one another and the existing soil, climate, and biota. *Functional agricultural biodiversity* might be defined as the fine art and science of developing agricultural ecosystems that function much like natural forest, prairie, and other climax ecosystems yet provide substantial harvests of nourishing food for human consumption – in short, permaculture at optimum functioning. However, there is a critical need for additional research data to support farmers and landowners in developing such systems. An OREI planning grant on functional agricultural biodiversity was awarded to Oregon State University in 2011, and the team developed a cogent and comprehensive research plan to explore and develop this vital concept. However, the full proposal was not awarded.

USDA should prioritize long term research into functional agricultural biodiversity in permacultural, crop-livestock integrated, and annual cropping systems.

- 10. Carbon sequestration and greenhouse gas (GHG) mitigation in farming, ranching, and crop-livestock integrated systems.** A substantial body of research has already been conducted on soil C sequestration and net GHG (methane, carbon dioxide, nitrous oxide) impacts of various organic and conventional agricultural practices and systems. However, current models do not yet provide truly farmer-accessible, practical, and accurate information and guidance to producers seeking to mitigate their “carbon footprints” and to build soil health through net C sequestration. Significant advances have been made with models such as Comet Farm and OFOOT, and USDA should make a long term commitment to elucidating the underlying processes and developing practical tools for producers. Especially given the urgency of the global climate crisis, this long term research goal merits high priority.

Specific Research Priorities – Economic and Sociological Topics Vital to Meeting Holistic Societal Needs

- 11. How to make affordable, quality food available to all and guarantee a viable and decent living for all agricultural producers.** In addition to making our agricultural systems more sustainable in terms of environmental impacts, it is vital that our future food and agriculture systems provide true food security – defined as adequate, affordable, nourishing, and culturally appropriate food for all in the US, regardless of ethnic background or socio-economic status. Food security and food sovereignty (local engagement and control over one’s food system at household and community levels) are basic human rights that any truly sustainable agricultural system must uphold and protect. Equally important is ensuring that all producers can receive sufficient compensation for the vital services they provide to society (food, environmental quality, etc) so that any



competent farmer or rancher can make a viable and decent living. USDA should make a long term commitment to the marketing, business management, rural sociological research, and policy analysis needed to move our current food and agricultural system toward this challenging yet essential sustainability goal.

12. **Support and respect as equal partners the traditional and indigenous communities who contribute toward the sustainable agriculture of the future.** USDA should explore how it can ensure that indigenous and traditional human communities receive full recognition for their contributions to agricultural solutions, and full and equal access to the benefits of research to which their crop seeds, animal breeds, knowledge, and wisdom has contributed. A first step is to ensure that no crop or animal germplasm gathered from these communities with support from taxpayer dollars is ever patented or subjected to other intellectual property restrictions that adversely affect the communities of origin. USDA can thus play an important leadership role in protecting food sovereignty of all peoples within and outside US borders.
13. **Carefully consider and implement optimal use of advanced technologies such as remote sensing, predictive modeling, robotics, and genomics and other cutting edge genetic technologies.** Throughout history, automation has been a double edged sword, on the one hand accomplishing what had been tedious, exhausting, or dangerous work for human laborers, and reducing production costs for farmers and other entrepreneurs; and on the other eliminating jobs and leaving millions unemployed and at risk of becoming disengaged from society in harmful ways. USDA must weigh the positive and negative impacts of advanced technological applications, particularly robotics, on agriculture related employment opportunities. Remote sensing and other precision agriculture methodologies can save financial and natural resources and help farmers make better decisions, and advanced genetics can support more effective plant and animal breeding for sustainable systems. However, wholesale roboticization of agricultural production could also foreclose meaningful and rewarding employment opportunities in sustainable farming, ranching, and food systems.

Another key aspect of holistic societal needs is the very real human need to establish and maintain a connection with the source of one’s food – the farmer, the land, and other vital resources. Many studies have shown that “nature deficit disorder” can have serious psycho-social impacts, especially on children. Urban farming projects that engage inner city youth in producing fresh food have been shown not only to provide healthful food to residents of urban food deserts, but also to sharply reduce crime levels, school discipline problems, and other social ills, a clear illustration of the essential importance of the human connection with the land. Other research has shown that the lost awareness of and connection with the source of our food is a major contributor to the obesity epidemic and other diet-related public health problems. In pursuing cutting edge technologies, especially robotics within the context of long term sustainable agriculture systems research, USDA should consider the risk that a highly automated agriculture and food system may contribute to the alienation of Americans from the land and the farming



community as the source of their food, and consider also the social consequences of such alienation.

Thank you again for the opportunity to provide input on long term USDA research priorities for the development of sustainable agriculture and food systems for the future. We hope that this has been helpful in guiding long term USDA priorities.

Sincerely,

Mark Schonbeck, Ph.D.
Policy Liaison, Virginia Association for Biological Farming

*Comments Submission #081
Received 3/08/2017*

From: Pauline Grieb

Sent: Wednesday, March 08, 2017 11:47 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: Written Comment for the Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session

Dear Dr. Murray,

First of all, I would like to thank you for this opportunity to voice my opinion regarding the future of the US agricultural system and for the incredible work you are doing as part of the OCS. My name is Pauline Grieb and I am a current undergraduate student at Duke University, studying Environmental Science and Public Policy.

In my vision for agriculture, I see an abundance of urban farming initiatives across the country. Urban agriculture has proven to yield incredible results in the most economically challenged cities, such as Detroit. It has enhanced a sense of community and helped alleviate food insecurity. More importantly, I believe that creating a subsidy program to incentivize the creation of urban farms would be crucial since it would empower socio-economically disadvantaged urban residents and would lead to more resilient and equitable city economies. It would also revalue the work of farmers and reconnect urban residents to the soil, which feeds them.

As proposed in Senator Stabenow's Urban Agriculture Act, I would like to see more legal protections set up to protect urban farmers from expulsion. This is a crucial problem in Detroit, where urban gardens are destroyed because of the sudden reappearance of former landowners. More holistically, I believe that shifting to more sustainable forms of agriculture can be a powerful asset in alleviating food insecurity. However, sustainably grown, local produce often does not reach the hands of those who need it the most. I would therefore like to see the development of partnerships between the SNAP program and the farmers providing this fresh produce. I can envisage incorporating into the program a discount on CSA memberships for example.

Thank you for taking the time to read my comment,
Best regards,



Pauline Grieb

***Comments Submission #080
Received 3/08/2017***

From: Mark Schonbeck
Sent: Wednesday, March 08, 2017 9:46 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comments on USDA long term sustainable agriculture research priorities, FR Jan 24, 2017-01506
Importance: High

Dear Mr. Murray,

Please see attached comments, submitted on my own behalf as an independent sustainable agriculture consultant.

Thank you for the opportunity to submit comments on this vital topic.

Sincerely,

Mark Schonbeck, PhD

The attached comments from this submitter were duplicative to the later submission and he confirmed only one set needed to be included.

***Comments Submission #079
Received 3/08/2017***

From: Melvin, Karen
Sent: Wednesday, March 08, 2017 3:58 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Dang, Ha; Vigil, Domingo; Aghassi, Sarah
Subject: March 2nd USDA Listening Session Comments

Dear Mr. Murray,

We appreciate the opportunity that the USDA Office of the Chief Scientist has provided for giving written comments on the long-term vision for U.S. Agricultural Systems for Sustainable Production. You will find our comments attached in both Word format (unsigned) and the signed and scanned PDF format. The County of San Diego Department of Agriculture, Weights and Measures and the *Live Well San Diego* Food System Initiative know how vital it is to consider how economic, environmental, security, and health benefits of regional and national food systems are provided through agriculture over the next 50 years. We are committed to proactively working with local, state, and federal agencies and stakeholders to realize a robust and resilient food system that builds healthy communities, supports the economy, and enhances the environment.



We look forward to reviewing the published report when it's available.

Best Regards,

Karen Melvin

Deputy Agricultural Commissioner/Sealer
Agricultural Standards, Agricultural Water Quality,
& Integrated Pest Control
County of San Diego
Department of Agriculture, Weights & Measures

Promoting a thriving agricultural community, healthy residents, and a balanced environment.

March 9, 2017

Mr. Seth Murray
Office of the Chief Scientist
United States Department of Agriculture (USDA)
Washington DC

MARCH 2ND USDA LISTENING SESSION COMMENTS

Dear Mr. Murray,

Thank you for the opportunity to submit written comments on behalf of the County of San Diego Department of Agriculture, Weights and Measures and the *Live Well San Diego* Food System Initiative for the Visioning of United States, Agricultural Systems for Sustainable Production Stakeholder Listening Session.

Our vision over the next 50 years is for agricultural systems to be considered as an integral part of a robust and resilient food system that builds healthy communities, supports the economy, and enhances the environment. The County of San Diego is committed to this vision and is proactively working with its partners, including the San Diego Food System Alliance, to make this vision a reality.

To realize this vision, we submit the following comments for your consideration:

- There is a need for research on sustainable systems of urban agriculture that will contribute to food security and provide economic opportunity, especially for new and young farmers. One way this can be accomplished is by investing resources into promotion and development of sustainable hydroponic systems and vertical farming for growing food. More research is needed on optimal produce types/cultivars and systems to improve supply chain and quality products at price points that protect consumers.
 - Benefits to the environment:
 - Hydroponic systems use 85% less water than conventional systems
 - Less land is used (1 A of hydroponics = 20 A of conventional)
 - Vertical farming uses 93% less water than traditional methods



- Benefits to the economy:
 - Allows urban integration of agriculture increasing access to fresh, locally grown food in underserved communities and helps to empower those communities economically
 - Year round crop and income for farmers verses seasonal
 - Model is reproducible nationwide (and worldwide), independent of type of climate or land
- Aquaponics continues to grow in popularity with commercial operations already existing in San Diego County. This production method holds great potential. However, detailed research identifying any and all public health risks associated with aquaponics farming is needed to ensure that this sustainable method of farming is safe to introduce into the nation's food system. Good agricultural practices recommended by the USDA and an agricultural producer certification, both customized for commercial aquaponics farmers, would be helpful tools to assist State and local food safety regulators to identify aquaponics grown produce as a safe and approved food source.
- Invest in research to reduce on-farm food waste while pursuing opening markets to "seconds" that would increase economic benefits to farms (more market share, less waste) and access to fresh fruits and vegetables (more supply, could be more affordable).
- Gains can be made in both nutrition and the environment with researching the best ways to expand the educational resource of a farm/school cluster. Having a working farm in close proximity to a school/multiple schools where students can get hands-on experience provides an interconnection of nutrition, agriculture, and ecology. A good example of a successful farm/school cluster is the Encinitas Union School District Farm Lab: <http://www.eusdfarmlab.com/>.
- More research and education is needed to increase the capability of farmers composting their organic/crop waste on site. Benefits of composting of organic material on farms include improvements in the soil, reduction of organic materials from landfills and thereby a reduction in greenhouse gases.
- There is a need for research on carbon sequestration and carbon-based conservation farming techniques, including the use of biochar and compost from biomass wastes that would have otherwise been landfilled or open burned. This research could help to develop programs to encourage use of composting to enhance soil for carbon sequestration and soil healthy farms. Research findings could also be integrated into recommended pasture and rangeland best management practices. .
- Focus on ways to collect and make available current/real time data. A gap exists between historical data that USDA collects and makes available and real time, current data needed to discuss and make decisions about emerging trends.
- To gauge effectiveness of research applications and proactive efforts in improving a local food system, work collaboratively with states and counties to develop metrics to use to inform food system and agricultural reporting.



We appreciate the opportunity to submit comments on the long-term research needs to improve agricultural systems and sustainable production . We look forward to reviewing the published report, as well as partnering with stakeholders and other agencies on fulfilling this 50 year vision for agricultural systems and a food system that supports health, the economy, and the environment.`

Regards,

Ha Dang
Agricultural Commissioner/
Sealer of Weights and Measures

Domingo Vigil
Food System Coordinator
Live Well San Diego Food System Initiative

CC: Sarah Aghassi, Deputy Chief Administrative Officer, Land Use and Environment Group

HD:DV:km

*Comments Submission #078
Received 3/08/2017*

From: Suzanne McMillan
Sent: Wednesday, March 08, 2017 12:28 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Deborah Press
Subject: March 2nd USDA Listening Session Comments

Hi Seth,

Please find attached the ASPCA's written comments in response to the USDA's Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session.

Thank you for your time.

Sincerely,

Suzanne McMillan
Content Director, Farm Animal Welfare Campaign
Strategy & Campaigns
Anti-Cruelty Group
ASPCA

March 8, 2017

Seth Murray
Senior Advisor



Office of the Chief Scientist
US Department of Agriculture
Rm 3866 South Building,
1400 Independence Ave. S.W.
Washington DC 20024

Re: Response to Request for Information: Visioning of U.S. Agricultural Systems for Sustainable Production

Dear Mr. Murray,

On behalf of our over 2.5 million supporters, The American Society for the Prevention of Cruelty to Animals (ASPCA) thanks you for the opportunity to respond to the USDA Office of the Chief Scientist's request for information on the visioning of the U.S. agricultural system for the coming years.

While "sustainability" is often deemed a solely environmental concept, it actually speaks to a system's ability to maintain itself over time. Genuinely sustainable animal agriculture addresses not only the well-being of its animals and its resource usage, but its external impacts such as environmental pollution; the health of those working in and living near its facilities; and the health of its consumers. It is also socially sustainable, meaning consumers and the public at large support and invest in its practices, finding them to be in line with their values and expectations (for animal treatment, worker treatment, environmental impacts, and so forth). This more holistic understanding of agriculture requires an acknowledgment that our current CAFO model is falling short of this goal, failing to serve the best interests of people, the environment and animals.

Farm animal welfare is no longer sustainable as we have pushed animals to their virtual breaking point. It is imperative that we adopt a new model that does not allow increases in food animal production and efficiencies to come at the expense of animal well-being. Research and technology will play critical roles in this new model. Following are some recommendations for achieving this goal.

I. Farm Animals Have Sustainable Genetics

The animals we raise for food have become exaggerated versions of their predecessors. Selective breeding for pronounced production traits (such as milk yield, egg yield, breast meat size, and so forth) have rendered farm animals unsustainable. In combination with intensive living conditions, the metabolic and body conformation imbalances resulting from this breeding agenda



have resulted in lame dairy cows,¹⁷ pigs collapsing from stress,¹⁸ chickens suffering heart failure¹⁹ and lameness,²⁰ and turkeys unable to breed naturally.²¹

In many cases, animals are literally getting larger. Broiler chickens’ average market weights have more than doubled since 1925 – from 2.5 lbs to a whopping 6.18 lbs in 2016.²² Unforeseen welfare consequences have resulted such as the birds’ legs being too large for standard slaughter plant shackles. In 2009, the USDA was compelled to issue a directive against breaking broiler chickens’ legs in order to force them into shackles.²³

Such genetic problems are unsustainable in terms of animal welfare but also in terms of social and marketplace demand. Consumers have been confronted with such horrors as chicken breasts containing green necrosis;²⁴ exposés of lame dairy cows dragged to slaughter;²⁵ and antibiotic-resistant bacteria stemming from drug overuse on farms.

Alternative genetics exist and are used to varying degrees, but remain far from the dominant commercial model. However, industry commitments are emerging to pursue more balanced, sustainable genetics –such as for broiler chickens.²⁶ It is therefore an ideal time to prioritize this research.

While more balanced genetics may extend animals’ growth times and lower their feed efficiency, countervailing factors that can help lower resource consumption and otherwise protect the environment include birds with stronger immune systems being less reliant on routine drug interventions, meaning less antibiotic contamination of our soil and water; and lower mortality rates, meaning fewer birds wasted.

II. Farm Animals Have Housing That Meets Their Physical, Psychological and Natural Behavior Needs

¹⁷ http://agtr.ilri.cgiar.org/documents/Library/docs/Interbull/bulletin15_files/Docs/Boettcher-Indirect.pdf

¹⁸ <https://extension.tennessee.edu/publications/Documents/PB1606.pdf>

¹⁹ <https://academic.oup.com/ps/article/86/5/999/1620688/Pathophysiology-of-Heart-Failure-in-Broiler>

²⁰ <http://jeb.biologists.org/content/216/17/3237>

²¹ <http://www.merckvetmanual.com/poultry/artificial-insemination/overview-of-artificial-insemination-in-poultry>

²² <http://www.nationalchickencouncil.org/about-the-industry/statistics/u-s-broiler-performance/>

²³ https://www.fsis.usda.gov/wps/wcm/connect/724ad094-823a-4e06-83f4-47ecbbefad53/PHIS_6100.3.pdf?MOD=AJPERES (“Establishment employees are breaking the legs of birds to hold the birds in the shackle or squeezing them into a shackle or otherwise mishandling birds while transferring them from the coops to the shackles;”)

²⁴ <http://www.thepoultrysite.com/articles/3142/deep-pectoral-myopathy-green-muscle-disease-in-broilers/>

²⁵ <http://www.washingtonpost.com/wp-dyn/content/article/2008/02/17/AR2008021701530.html>

²⁶ https://www.buzzfeed.com/venessawong/chicken-companies-are-trying-to-breed-out-the-suffering?utm_term=.vxxWQ9oZ3#.lyxqPpVrG; <http://fortune.com/2015/12/07/chicken-cage-free-eggs/>



Despite their wide acceptance as reliable animal welfare indicators, the “[Five Freedoms](#)”²⁷ are not consistently applied in commercial farms. We envision a farming system structured around the Five Freedoms.

The increasing number of food companies committing to this framework – including such giants as Perdue,²⁸ McDonalds²⁹ and Nestle³⁰ – creates even more of a need for research exploring ways to limit pain, fear and discomfort while maximizing normal behaviors and ensuring adequate access to nourishment.

Existing farm animal welfare certification programs possess a wealth of information on commercially viable, on-farm Five Freedoms implementation. They have exceptional experience with extensive systems featuring fresh air, natural light, increased space, and outdoor access. All protocols are supported by science as well as on-the-ground experience.³¹

Some of the most timely and critical animal welfare improvements currently pursued by producers include:

- Indoor housing without routine caging, crating and tethering
- Environments providing enrichment for mental stimulation and basic physical exercise
- The inclusion of fresh air and natural light, whether through indoor enrichment or outdoor access
- Avoidance of routine physical alterations, and at the very least, limiting pain by employing best practices including selecting for appropriate age and method, and ensuring those performing the alterations are properly skilled

Commercially viable alternatives exist for all of the above but more research devoted to each topic and how they function in tandem as a holistic rearing program, would prove useful.

Examples of current research programs include the [University of Pennsylvania’s Swine Teaching and Research Center](#), the [University of Minnesota’s West Central Research and Outreach Center’s swine research](#), the [Model Farm Project](#), and [Dr. Anne Fanatico’s sustainable poultry research](#)

Technical support also plays a critical role: we envision agricultural extension agents familiar with viable alternative systems and able to advise producers interested in adopting these changes.

Other resources needed include government-funded institutions able to generate research; researchers willing to test the impacts of alternative farm management and husbandry; testing facilities able to replicate alternative rearing systems or, ideally, commercial facilities willing to test alternative conditions among their flocks and herds; the availability and use of alternative

²⁷ http://www.aspcapro.org/sites/pro/files/aspcasv_five_freedoms_final_0_0.pdf

²⁸ <http://perduefarms.com/pdf/perdue-foods-animal-care-2016-beyond.pdf>

²⁹ <http://corporate.mcdonalds.com/mcd/sustainability/sourcing/animal-health-and-welfare/guiding-principles.html>

³⁰ https://www.nestle.com/asset-library/documents/creating%20shared%20value/rural_development/nestle-commitment-farm-animal-welfare.pdf

³¹ <https://animalwelfareapproved.us/>; <http://certifiedhumane.org/>;
<http://www.globalanimalpartnership.org/>



genetics in order to test additional animal welfare advantages beyond husbandry; and the ability to widely disseminate domestic and foreign research findings.

Finally, as human health is a necessary facet of any sustainable system, there is a need for much more extensive research into links between higher-welfare, extensive farming systems, and human health. A truly "sustainable" system does not pose systemic health threats to workers, surrounding communities, or consumers, yet today's intensive farming systems do just this by spreading pathogens including antibiotic-resistant bacteria; polluting soil and drinking water; and making the immediate air in and around CAFOs dangerous to breathe. In contrast, systems that function more in balance with natural resources and animals' needs stand to benefit humans as well; a body of work calculating these benefits more precisely would be useful.

We thank you for the opportunity to provide input on the needs and opportunities surrounding the future of U.S. agriculture. Please let us know if we can be of any further assistance.

Sincerely,

Suzanne McMillan
Content Director
Farm Animal Welfare Campaign
American Society for the Prevention of Cruelty to Animals

*Comments Submission #077
Received 3/08/2017*

From: Jennie Davis
Sent: Wednesday, March 08, 2017 12:14 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Inquiry from Duke Grad Student about Sustainable Production Stakeholder Meeting

Hello Mr. Murray,

My name is Jennie Davis. I'm a current graduate student in the Sanford Public Policy School. My focus is on Food Security and I'm taking a course on Sustainable Food Systems. Our professor shared with us the link for Federal Register regarding Sustainable Production.

My question to you in advance of the listening session once an innovative solution is met, how can it be shared amongst other stakeholders? Also, how can the USDA encourage a more "food systems thinking" across different departments and offer support to local and regional champions of food policy?

Thank you in advance for your consideration and I look forward to hearing from you soon.

Kind Regards,

Jennie Samata Davis



2015-2017 Masters of International Development Policy Fellow
Paul D. Coverdell Peace Corps Fellow
Duke University | Sanford School of Public Policy

*Comments Submission #076
Received 3/08/2017*

From: Dudley, Rebecca A.
Sent: Wednesday, March 08, 2017 11:23 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Bauch, Molly; Turville, Elaine K.; Watkins, Pepper
Subject: RE: Presenters FAQ for March 2 USDA listening session

Thank you, Seth.

We're looking forward to seeing the session read-out, and thank you again for organizing and hosting.

Best,

Rebecca

Rebecca A. Dudley

*Comments Submission #075
Received 3/08/2017*

From: 8mowgli8
Sent: Wednesday, March 08, 2017 11:10 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Jennifer Taylor
Subject: USDA listening session comments

Dear Sir,

I received this notice today March 7 and the comment period suggested that it was over on March 2. I have extensive knowledge of soil science, allan savory models of cattle rotation, and other aspects of herbicide and pesticide use that I would like to offer. Please inform me whether the comment period has been extended.

Thank you,
Peter Kelly

*Comments Submission #074
Received 3/08/2017*

From: Elana Kritikos
Sent: Wednesday, March 08, 2017 11:10 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: RE: March 2nd USDA Listening Session Comments



Hello,

I was just informed that you need a Word document version of the letter. Please see the version attached.

Elana Kritikos
Executive Assistant | Advocacy & Public Policy SBU
American Veterinary Medical Association

www.avma.org

March 8, 2017

Seth C. Murray
Senior Advisor of Agricultural Systems and Technology
Office of the Chief Scientist
U.S. Department of Agriculture
Email: seth.murray@osec.usda.gov

Subject: March 2nd USDA Listening Session Comments

The American Veterinary Medical Association (AVMA) appreciates the opportunity to submit comments to the U.S. Department of Agriculture identifying research opportunities and knowledge gaps that we recommend the Office of the Chief Scientist consider as it evaluates research priorities to enhance the long-term future of U.S. agricultural production systems.

AVMA is one of the oldest and largest veterinary medical organizations, with more than 89,000 member veterinarians worldwide, engaged in a wide variety of professional activities and dedicated to the art and science of veterinary medicine. The mission of the AVMA is to lead the profession by advocating for its members and advancing the science and practice of veterinary medicine to improve animal health and welfare and human health.

The USDA posed several questions – what are the major weaknesses of current agricultural systems that could be improved on in future systems? What are the major opportunities for agricultural systems of the future? How can technology and scientific findings facilitate these? What are the major threats for agricultural systems of the future? What infrastructure will be needed going forward?

The AVMA has identified several animal disease research areas that would, if USDA were to strengthen its attention and investment, lead to advancements that improve animal health and welfare, as well as positive economic and environmental outcomes for U.S. production agriculture.

It is imperative that USDA devote increased resources to the development of biological agents (vaccines) and diagnostics, antibiotics, anthelmintics (de-wormers), antifungals and parasiticides;



antimicrobial use strategies, control and therapy for diseases and infections; transboundary disease and foreign animal disease; water quality; animal welfare, including animal handling and management; biosecurity for agro-tourism and prevention, surveillance and response to agro-terrorism; food security; improving genetics; management and transport of food producing animals; microbiome; and organics.

Additionally, the AVMA urges the USDA to assume leadership and oversight for activities associated with control of all animal diseases. It is imperative for the Agency to assure the availability of sufficient numbers of Federal veterinarians who are trained to recognize and diagnose exotic and endemic animal diseases. Currently, the U.S. Department of the Interior's Fish and Wildlife Service sets disease standards for imported animals and interstate movement of those animals. As the world's population continues to grow and the demand for animal protein increases, animals that are not currently considered to be part of animal agriculture will play a bigger role in meeting those demands. It is imperative that the USDA take a leadership role in developing resources to support related activities.

We have identified the following priorities recognizing that, as a country, we do not have the infrastructure or plans in place to efficiently and effectively coordinate a national response to a nationwide food animal disease outbreak. Any improvement in these areas would positively impact animal health and welfare and save billions of dollars for the U.S. agricultural economy.

1. Development of a vaccine bank/stockpile for Foot and Mouth Disease, African Swine Fever, and Avian Influenza, and research on novel technologies to detect, manage and eliminate foreign livestock pests and other devastating animal diseases.

The U.S. faces constant threats from animal disease that could cripple American animal agriculture. This threat demands increased attention to the proactive study of contagious animal diseases and vaccine development and stockpile and improvement of diagnostic capabilities. Although novel technologies (e.g., gene modification for disease resistance) will play a role in managing animal disease, no technology is completely effective. Therefore, the AVMA strongly urges the USDA to also focus attention on vaccine development and stockpiles. In addition, because many infectious animal diseases have the potential to cross into the human population and impact human health, USDA is urged to collaborate with biomedical researchers to support assessments of human impacts.

Disease outbreaks lead to millions of sick animals, many of which must be culled and cost the U.S. billions in production losses and response costs.

✓ **Highly Pathogenic Avian Influenza (HPAI)**

During a seven month span beginning in Dec. 2014 in the Pacific Northwest, a highly pathogenic avian influenza (HPAI) outbreak spread across 21 states, affected 211 commercial and 21 backyard poultry flocks and resulted in the depopulation of 7.5 million turkeys and 42.1 million egg-layer and broiler chickens. The outbreak cost over \$1 billion, not including downtime losses faced by producers. There are currently 4 commercially available vaccines for AI licensed in the US but there are



several problems associated with their use. They are primarily in injectable form which makes their utilization in the face of a major disease outbreak labor and cost intensive. Additionally, their use must be approved by the USDA and state veterinarian because vaccination can have negative trade implications. Vaccinated animals cannot be differentiated from naturally infected animals. Importing countries view the presence of antibody as evidence of prior or active infection. Additional funding to further develop both the DIVA vaccination strategy for AI as well as continued research into the development of an effective vaccine against avian influenza that can be administered via aerosol or water would greatly benefit the United States and its poultry industry.

✓ **Foot and Mouth Disease (FMD)**

It is estimated that an uncontrolled outbreak of Foot and Mouth Disease (FMD) would have a \$200 billion impact over 10 years. FMD is a highly contagious viral disease causing fever, blisters on the feet and mouth, loss of appetite, drooling, and lameness impacts in cows, pigs, sheep, goats, deer and all other domestic and wild animals with cloven hooves.

FMD is considered one of the most economically devastating diseases in the world. Most affected herds are culled, as was the case in 2001 in Great Britain when over 10 million animals were destroyed. While the U.S. has been FMD-free since 1929 there is no guarantee the disease won't return – an outbreak would devastate the livestock industry.

USDA is urged to redouble investment in the development of a universal vaccine for FMD as well as biotherapeutic countermeasures that will provide immunity. There are seven different types of FMD viruses and more than 60 subtypes, so vaccines must be highly specific, matched to the type and subtype present in an outbreak, to protect animals against developing clinical signs of disease. Resources need to be devoted to investigating ways to differentiate between vaccinated and infected animals. Current diagnostic testing methods are only validated for single sample/single animal testing. To have any hope of responding to an outbreak, pooled sample/multi-animal diagnostic tests must be developed and validated.

✓ **African Swine Fever (ASF)**

African Swine Fever (ASF) is a highly contagious hemorrhagic disease of pigs that produces a wide range of clinical signs and lesions that closely resemble those of classical swine fever. There is no treatment for ASF, and all attempts to develop a vaccine have so far been unsuccessful. Prevention depends on ensuring that neither infected live pigs nor pig meat products are introduced into areas free of ASF. All successful eradication programs have involved the rapid diagnosis, slaughter, and disposal of all animals on infected premises. Introduction of this disease into the United States would have a devastating effect on the American swine industry.



USDA has developed surveillance programs for the early detection of FMD and ASF. These programs are awaiting validation in order to be approved for deployment to the veterinary diagnostic laboratories. In addition, the current sample types (oral swabs for FMD and whole blood for ASF) are not routinely included in most swine diagnostic samples submitted to the veterinary diagnostic laboratories. Additional sample types (such as oral fluids or tonsil) need to be developed and validated. The funding necessary to support surveillance enhancement, validation and implementation need to be prioritized.

✓ **Cattle Fever Tick (CFT) and Bovine Babesiosis**

Babesia are emerging health threats to both animals and humans in the U.S. Accelerated research at USDA is needed to prevent catastrophic economic losses due to cattle fever tick (CFT) and bovine babesiosis. Additionally there are impacts from human babesiosis due to cattle-associated *Babesia divergens* and *Babesia divergens*-like organisms which has led to an increase in the number of cases of human babesiosis over the past 25 years. Research on novel technologies to manage and eliminate foreign livestock pests and tick-borne diseases from south Texas is needed to protect the U.S. cattle industry from suffering losses similar to those faced by Brazil (\$3 billion) and Mexico (\$573 million). Movement of CFT infested wildlife (i.e., white-tailed deer and nilgai across the Mexican border) exacerbates our need to protect the U.S. cattle industry and human health. At present, Texas is issuing temporary preventive quarantines on multiple premises in the CFT-free zone of the U.S.; however, that is not a permanent solution. We need methods for integrated eradication to control and eliminate CFT outbreaks involving wildlife, expedited area-wide tests of innovative technologies to control CFT infestation, and to adapt protocols for research in wildlife. Technology innovation involves anti-tick vaccines; longer-acting acaricide formulations; safer acaricides; alternative acaricide delivery systems; tick growth regulators; acaropathogenic fungi and nematodes; remote surveillance and delivery systems; and algorithms to assess return on investment for the implementation of adaptive area-wide integrated CFT eradication protocols. Resistance to acaricides commonly used to prevent/treat CFT infestation renders those treatments ineffective, and drugs to prevent bovine babesiosis are not approved for use in the U.S. Funding is needed to research new methods to prevent further spread of CFT and to mitigate the risk for the re-emergence of bovine babesiosis.

Amplifying USDA's attention to these animal diseases will improve animal health and welfare, help protect the U.S. food animal-producing industries from economic harm, and protect U.S. consumers from contamination of the domestic food supply.

- 2. Development of technologies that will improve and increase the efficiency, effectiveness and accuracy of the National Animal Health Laboratory Network and other animal diagnostic laboratories, and allow them to communicate rapidly and efficiently regarding food animal outbreaks and antibiotic resistance.**



USDA and states ought to encourage and support rapid assay development, standardization, validation, and adoption of new technologies for the prevention, detection, and diagnosis of animal diseases and zoonoses.

Infrastructure investments in the U.S. network of animal health laboratories are critical. Laboratories must be expanded and strengthened to ensure sufficient capability and capacity for both routine and emergency diagnostic needs. Improvements across-the-board are needed to ensure robust connections among all component laboratories (federal, state, university, and commercial labs) contributing to the diagnosis of animal and zoonotic diseases. All parties involved – federal and state governments, and universities – must prioritize investment in labs participating in the National Animal Health Laboratory Network (the NAHLN). Currently federal support for the NAHLN is limited to just \$15 million discretionary dollars each year; federal support ought to be three times more and states should double their support.

Additionally, USDA, all 50 states and U.S. territories, as well as private industry should explore how they may assist unaccredited laboratories in preparing to achieve the standards for accreditation and determine how such laboratories can be prepared to complement federal efforts and the NAHLN in the face of food animal outbreaks.

Thank you for the opportunity to provide this information. The AVMA stands ready to be of assistance in any way possible. I have asked Ms. Gina Luke, Assistant Director in our Governmental Relations Division, to serve as the AVMA's point person on this issue. She may be reached at phone or via e-mail.

Sincerely,

Janet Donlin, D.V.M.
Executive Vice President and CEO

GL/MC

*Comments Submission #073
Received 3/08/2017*

From: Evanne M. Christian
Sent: Wednesday, March 08, 2017 12:55 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Healthy Soil

Here are my comments as requested. God provides the sun and the rain. People need to take responsibility for the plowing and planting. The facts are simple. Anything that grows in the ground needs a sufficient amount of healthy soil. Genuine, authentic, natural soil. Then consider



time-tested worthy natural fertilizer. Next comes a sufficient amount of clean unpolluted water. Finally, the food that is grown under these good, healthy, time honored circumstances must be protected from deadly poisonous pesticide and watched over, cared for until it's time to harvest. The harvest must consist of real food, not genetically modified food (unless clearly marked and marketed as such) I think what I've written could be understood by a smart child. Children, by the way, usually love to plant a child-sized garden. I can close my eyes and see a golden sun shining down from baby blue skies and white puffy clouds on acres and acres of American fields - amber and emerald as far as the eye can see. This vision is indeed the heartland, the heart of America and its people - who should never suffer hunger with the abundance of food grown in the fields. People of all colors, races, religions, creeds who work together for the uncommon good of all. God bless the United States of America and all its people - those who have been here for generations and those being blessed by Lady Liberty as they come to share in, and add to, the American Dream. Come to the tables laden with food and eat, altogether, one and all. That's my America! And it welcomes "the homeless, tempest tossed" to their new home. Glory, glory hallelujah!

Sent from Evanne's iPhone

*Comments Submission #072
Received 3/07/2017*

From: Deborah Moore
Sent: Tuesday, March 07, 2017 9:00 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Visioning of US Sustainable Agriculture

Dear Mr. Murray,

It is wonderful to know that such a discussion (Visioning of US Sustainable Agriculture) is being encouraged by the USDA. Thank you for this opportunity to weigh in.

As an informed consumer and scholar, what I have to offer are a few suggestions based on basic precepts that have grown from deep concerns.

The concerns are related to biotechnology, which seems to have become accepted as the current and future face of agriculture, but is, at best, in my opinion, a false friend. I see it as primarily industry-driven, a fancy and ostensibly easy solution to the problem of feeding the global population and managing various agricultural systems. In reality, it appears to be an increasing part of the problem, challenging the sustainable growth of agricultural systems, casting uncertainty on their ability to produce safely, healthfully, as well as plentifully enough.

On the other hand, there is ample evidence indicating that more attention to and funds for development of organic and regenerative methods of farming, food production, etc., are immensely wiser and ultimately more profitable in many ways, than soil poisoning, nutrient stripping, and fostering of pesticide-laden GMO monocultures that seem to occupy way too many commercial farming operations these days. A break-up of some of the massive agro-business farms, including and especially the CAFO facilities that are so harmful to animals,



environment, and people alike, and encouragement and subsidizing of small and family-owned organic/regenerative farms, and restriction of potentially irreversible harmful practices in all agricultural systems, is definitely the way to go for more agricultural sustainability. GMO development *must* be halted, outlawed as soon as possible, and pesticide use drastically curtailed. Monocultures should be discouraged. Unsafe and unhealthful aquaculture should be outlawed. The resulting agriculture in this country (and ultimately the world), will be safer, more nutritious, and more plentiful, and with no negative unintended consequences.

I strongly believe that sustainability for agriculture and, frankly, for life on this planet, will only occur with strict adherence to the basic tenets of the *Precautionary Principle*. The *Precautionary Principle*, in some form, needs to somehow quickly become the generally accepted operating principle or criterion by which science, including agricultural science, decisions are made. To proceed in any other way is short-sighted and disrespectful to this Earth that sustains us all. The concepts of unintended consequences, of precaution, of clean food, of regenerative agriculture, need to exceed in value and importance the concept of profits.

Thank you very much for giving me the opportunity to share my thoughts.

Sincerely,

Deborah E. Moore, PhD
Saxtons River, VT

Comments Submission #071
Received 3/07/2017

From: Gordon Jenkins
Sent: Tuesday, March 07, 2017 7:25 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comments for Visioning of U.S. Agriculture

Hello --

I'm a beginning farmer in North Carolina. My wife and I raise organic vegetables using no-till practices on less than an acre of land. We're just in our second year of production, but we foresee being able to make a living off this very small space by year four.

I saw a notice that the USDA is accepting written comments in regards to its recent Visioning of U.S. Agriculture listening session, so I wanted to add my two cents:

- There's nothing more important to agriculture than healthy soil. U.S. agriculture needs to embrace practices that promote healthy soil: cover crops, compost, plant diversity, and reduced tillage. Relying on chemical fertilizers, rather than healthy soil, will continue to ruin our prospects for feeding the world.
- Programs that support more farmers and farmworkers. It's incredibly difficult to start a farm business from scratch -- if we see farming as a public service, we need programs that support beginning farmers and not just programs that benefit big corporations.



- I have nothing against GMOs on principle, but I firmly believe that technologies that increase our reliance on chemical herbicides and fertilizers, that lead farms to get bigger and more mechanized, and that reduce crop and species diversity are the ruin of agriculture, not its future.

Thank you,

Gordon Jenkins

*Comments Submission #070
Received 3/07/2017*

From: Juan Carlos Rosa

Sent: Tuesday, March 07, 2017 6:15 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: Comment: Visioning of U.S. Agriculture Systems for Sustainable Production Listening Session

Dear Dr. Murray:

Like yourself, we all have a stake in the future of agricultural system and sustainable production. I have ideas on a policy solution that can encourage farmers to apply cover crop at the end of the cash crop season as a way to improve soil health. As you may know, the use of cover crop reduces the amount of fertilizer inputs needed at the beginning of each growing season. However, the costs to acquire seeds and the water necessary to maintain the cover crop, especially in water stressed regions, are two of the biggest deterrents for why small scale farmers in the United States have been slower to adopt the practice.

The challenges presented here can be resolved by encouraging more farmers to employ sustainability practices through policy measures that alleviate small-scale farmers top two concerns. Farmers that meet the criteria for sustainability practice including the use of cover crop should be allowed a tax refund for the cost of seeds if they are purchased during the beginning of the fallow season. In order to address the added expense of water usage, a formula can be derived based on the area of land the cover crop occupies. Allow the farmer to claim the added costs on their water bill for reimbursement, similar to the seeds. The enrollment of small-scale farmers into sustainable agriculture programs adds value to the ecosystem by taking out a significant amount of nitrogen input. The importance of reducing synthetic nitrogen inputs into the environment cannot be stressed enough for the long term health of our freshwater sources and marine fisheries along the coasts.

The future of sustainability practice may rely on loosened criteria on crop insurance timelines in order to boost participation in the program. Shifting the focus of the farmer from maximizing yield to maximizing land health will increase the opportunity for yield. The value of their land will also rise. Their access to enroll in organic farming programs will command a higher price for their crop. Implementing sustainability practice programs proven effective by research, provided with public support, together can create a positive feedback loop of productivity and profit for the farmer.



If you would like to discuss more ideas regarding climate change, land management practices, air, soil, water or food quality issues please feel free to reach out to me. I am always available for comment via email.

Sincerely,

Juan Carlos Rosa
Box# 97364
Durham, NC 27708

*Comments Submission #069
Received 3/07/2017*

From: Jean Public

Sent: Tuesday, March 07, 2017 4:26 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>; HUMANELINES; INFO; INFO; INFO; INFO; INFO; INFO; INFO

Cc: SCOOP@; LETTERS; CONTACT; INFORMATION

Subject: Re: ACT BY MIDNIGHT MARCH 9: Tell the USDA What You Want Food & Farming to Look Like in 50 Years

1. I WANT GE FOODS NOT GROWN IN THE USA ANYMORE AT ANY TIME IN ANY PLACE.
2. IF THEY ARE GROWN I WANT THEM LABELLED IN BIG RED LETTERS SO THAT THE PUBIC CAN AVOID THEM
3. I WANT RODEO NOT USED ANYPLACE IN THE USA TO KILL EARTH AND NATURE. ITIS CAUSING MANY DEATHS AND ILLNEESSES.
4. I WANT THE GROWING OF ALL ANIMALS TO BE SLAUGHTERED TO BE STOPPED TOTALLY\
5. IF THEY ARE STILL GROWN, I WANT NO CHEMICALS PUT INTO THEM, NOT FED SAWDUST AND OTHER CRAP, ALLOWED NORMAL LIFE SPANS INSTEAD OF THE CORRUPT POLLUTED TORTURED WAY THEY ARE PRESENTLY BEING GROWN BY SLIME HUMAN BEINGS.
6. THE RUNOFF FROM FARMS MUST BE CLEAN WATER, NOT FILLED WITH DISEASE TO MAKE OUR RIVERS AND STREAMSD INTO POLLUTED CESSPOOLS.
7. I WANT ALL THE ROBBER BARON CATTLE RANCHERS LIKE CLIVE BUNDY THROWN OFF ALL OPEN SPACE THAT THE 325 MILLIONS CITIZENS OF THIS NATION OWN AND THAT WE GET NO RENT FROM AND THAT WE ARE HAVING DESTROYED BY THE CATTLE THAT ARE ON THESE LANDS THAT BELONG TO ROBBER BARON CATTLE RANCHERS. THESE RANCHERS ARE RIPPING US ALL OFF. THEY DESTROY OUR LAND AND PAY NOTHING TO RENT IT. AND THEY WANT EVERY SINGLE WILDLIFE LIKE WILD HORSES, WOLVES, BEARS, BIRDS EVERYTHIGN SHOT AND POISONED TO DEATH FOR THEIR CONVENIENCE. THAT NEEDS TO STOP. APHIS WILDLIFE SERVICE IS A DISASTER FOR AMERICA. THEY ARE SHODDDY SLIMY SNEAKY PEOPLE WHO NEED TO BE FIRED IMMEDIATELY.

THIS COMMENT IS FOR THE PUBLIC RECORD ON THE BELOW INVITATION TO



COMMENT. PLEASE RECEIPT. JEAN PUBLIEE

*Comments Submission #068
Received 3/07/2017*

From: Kimberly McCartney
Sent: Tuesday, March 07, 2017 3:01 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Visioning of US Agricultural Systems for Sustainable Production

Dear Mr Murray,

All over the world it is being shown that sustainable agriculture produces as well and in some cases even better than industrial farming, which has a far greater cost both in monetary and land management terms, not to mention safety and health. We can do far better than we are today in the United States.

Farming should be brought back to smaller-scale operations which involve the growth of multi-crops that are compatible between themselves and which sustain and enhance the soil. Our farmlands have been turned into deserts both physically and socially - we need farm communities and people living in them to get our soil back into shape and American-produced food onto our tables! We need our land-based American cultural identity back.

Today the best fruits and vegetables, the ones people want to eat, come from smaller, local operations (where possible). The argument that they cost more falls into the dust once the real cost of subsidized, agro-industrialized chemical farming is factored in. If we subsidized sustainable agriculture at even a fraction of what we've done for the agro-industrial industry we would see rejuvenated land and healthier food in a matter of a few years.

New techniques such as permaculture have shown us how to function with greater efficiency and autonomy all while improving and rendering healthy our farmlands, and those of others in the developed world.

Thank you for considering my comments,

Kimberly McCartney

*Comments Submission #067
Received 3/07/2017*

From: theresa baker
Sent: Tuesday, March 07, 2017 1:57 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: comments for the Visioning of US Ag systems for sustainability

Dear Mr. Murray,

It is my opinion (based on research) that a sustainable future for US agriculture focuses on organic farming practices and rejects GMOs and monoculture crops.



I would like to see a focus on three interrelated challenges facing agriculture over the next 50 years—soil loss, diet-related disease and climate change. Each of these problems has a common solution: healthy soil.

The best way to reverse soil loss, sequester carbon and grow lots of nutrient-dense food is to continuously cover the soil with a diverse array of living plants. This feeds the microbial communities that perform 90 percent of soil function, including carbon storage.

The plants that we (or grazing animals) eat give the carbon those plants generate through photosynthesis to soil microorganisms, which in turn provide plants with water and nutrients. This process works best when there are lots of different plants exchanging lots of different nutrients with lots of different microbes.

Plant biodiversity is the key to soil carbon sequestration. It’s also a great way to grow more food than you ever thought possible on less land than you can imagine (to quote [John Jeavons](#), author of several books, and director of Grow Bio-Intensive). Plus, food from healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases.

This is the future of agriculture—not GMO monocultures that strip soil of nutrients, and of its natural ability to draw down and sequester carbon.

Thank you,
Theresa Baker-Pickering
Buffalo, NY 14213

*Comments Submission #066
Received 3/07/2017*

From: judi@*****.*** (Judith Terlizzi)
Sent: Tuesday, March 07, 2017 1:48 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Sustainable Agriculture

Dear Mr. Murray

I am a proponent of an integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- Satisfy human food and fiber needs;
- Enhance environmental quality and the natural resource base upon which the agricultural economy depends;
- Make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;
- Sustain the economic viability of farm operations; and
- Enhance the quality of life for farmers and society as a whole.

I urge the Department of Agriculture to support a view of sustainable, regenerative practices



which will support agricultural practices with a minimum of amendments which are detrimental to healthy soils and farm communities

Thank you
Judith Terlizzi

*Comments Submission #065
Received 3/07/2017*

From: Sally Drew
Sent: Tuesday, March 07, 2017 12:55 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: FRDOC 2017-01506 Long term Vision for Agriculture

Thank you for taking time to talk to me this morning. Areas of research that I hope would provide critical information for the long-term vision and development of agriculture are listed below. Research needs to be conducted independently not funded or led by corporations or organizations with a stake in the outcome.

The impact on the soil, environment, animals, insects, and humans of using high concentrations on herbicides and pesticides on crops. Does this really increase nutritious food production and how long can the environment sustain use of these chemicals?

How can agriculture within urban areas increase access to nutritious and affordable food? How can areas that are now contaminated due to past uses be rejuvenated so that food can be grown again? What are the long-challenges and the likelihood of sustainability?

More research is needed on the long-term impact of genetically modified organisms on the health of human beings and the natural environment. What impact do genetic changes have on the evolution of existing organisms?

I realize these are perhaps too general, but perhaps these areas can be kept in mind when more limited research is undertaken. Thank you for the opportunity.

*Comments Submission #064
Received 3/07/2017*

From: Jessica Shade
Sent: Tuesday, March 07, 2017 11:21 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comments on Visioning of U.S. Agricultural System for Sustainable Production

Dear Dr. Murray,

Thank you for the opportunity to comment on the long-term health and viability of U.S. agriculture, and to provide suggestions for effective strategies to concurrently improve the economic, environmental, security, and health benefits to the U.S. through agriculture over the next 50 years. I am attaching comments from the non-profit, The Organic Center, as a pdf to this email. Please let me know if you require any additional information.



Jessica Shade

Jessica Shade, PhD

Director of Science Programs

The Organic Center | www.organic-center.org

<https://www.facebook.com/TheOrganicCenter>

<https://twitter.com/OrganicCenter>

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February 23, 2017

Seth Murray, Senior Advisor

Office of the Chief Scientist

U.S. Department of Agriculture

1400 Independence Ave., S.W.

Washington, DC 20250

Docket: 82 Fed. Reg. 8174

RE: Visioning of U.S. Agricultural Systems for Sustainable Production

To the Office of the Chief Scientist:

We would like to thank the Office of the Chief Scientist for the opportunity to comment on the long-term health and viability of U.S. agriculture, and to provide suggestions for effective strategies to concurrently improve the economic, environmental, security, and health benefits to the U.S. through agriculture over the next 50 years. Specifically, we would like to provide input on how organic is an integral part of the solution for agricultural sustainability by supporting soil health, mitigating climate change, upholding pollinator health, and contributing to a successful economy.

The Organic Center is a non-profit organization with the mission of convening credible, evidence-based science on the environmental and health benefits of organic food and farming, and communicating the findings to the public. We are a leading voice in the area of scientific research about organic food and farming, and cover up-to-date studies on sustainable agriculture and health while collaborating with academic and governmental institutions to fill knowledge gaps.

Soil Health

Soil health is critical for maintaining agricultural yields over time, and is the backbone of our food security. Organic can act as a model for agriculture on how to build soil fertility and biotic community over time. For example, a study published in *Science* found that over a 21-year time period, organic soils have greater biological activity, greater soil stability, more biomass and higher diversity than conventionally managed soils [1]. Another study found that organic



management results in better soil nutritional and microbiological conditions, higher levels of total nitrogen, nitrate, and available phosphorus, more microbial biomass, and more enzymatic activity (acid phosphatase, protease, and dehydrogenase) [2].

Climate Change

Soil health is tied to climate change, which is something that will certainly affect agriculture over the next 50 years. Organic can also be a part of the solution to mitigating climate change through its increase efficiency. Research investigating the efficiency of organic has found that organic farms are more energy efficient than their conventional counterparts [3]. One of the reasons for this is that the production of synthetic fertilizer used in conventional practices is extremely energy intensive. One study showed that organic farming is more energy efficient than conventional farming for almost all crops when comparing the same amount of farmed area [4]. Even when yields are lower in organic vegetable production, the absence of fertilizer input makes up for energy costs so that energy used for the same crop output is still lower or similar to conventional farming.

This energy efficiency is important when it comes to mitigating climate change, which contributes to extreme weather events like droughts. In addition to the energy efficiency of organic production, organic farms also help sequester carbon and release lower levels of greenhouse gases. For example, a recent analysis of data from around the world found that, on average, organically managed soils release 492 kg less carbon dioxide per hectare per year than conventionally managed soils [5].

Organic farming is not only important for climate change mitigation; organically managed crops also allow for better adaptation to climate change. Anderson and Miller claim that genetically modified crops can be crafted to withstand droughts, but the page they link to shows that only one drought-tolerant biotechnology trait has been able to be developed for corn. Rather than relying on experimental biotechnology, organic farming allows greater resilience to drought by conserving soil moisture. Organic management of soils can improve their water-holding capacity by up to 100 percent [6]. This was demonstrated in a research trial that compared the performance of organic and conventional cropping systems in drought years. Researchers found that organic management of crops in drought years yielded up to 196% in relation to conventional crops [7].

Pollinator health

Bee populations have been declining at alarming rates, affecting seventy-five percent of all crops, valued at more than \$16 billion. The decline in pollinator numbers has the potential to not only adversely affect the world's biodiversity, but also threaten our economy and food security. Fortunately, organic farming practices can provide critical solutions that not only decrease risks to pollinators but actively support the growth and health of our pollinator populations.

The Organic Center recently released a report using organic as a model for supporting pollinator populations and providing steps that growers can take to foster healthy pollinators [8]. Organic farming requirements prohibit the use of harmful synthetic pesticides and toxic seed treatments while promoting abundant pollinator habitat and plentiful diverse pollinator food sources. These actions have resulted in higher pollinator abundance and diversity on organic farms. Many techniques used by organic growers-- such as crop rotations, hedgerow planting, and the use of



integrated pest management techniques—can be adopted by all growers to support pollinator health.,.

Economy

Organic agriculture can also be part of the solution for economic sustainability in agriculture. Organic farms are 35 percent more profitable than the average farm and have higher gross receipts. Premiums paid to organic farmers can range from 29 to 32 percent above non-organic prices, allowing farmers to make a living wage.

Organic is also a major contributor to jobs in the U.S. Sixty percent of organic businesses reported their operations had increased full-time employment during 2015. Additionally, over 65 percent of organic farms sell in wholesale markets, creating a distinct value chain in the greater food economy [9].

These benefits are especially true for rural communities. Organic hotspots, defined as counties with high levels of organic agricultural activity whose neighboring counties also have high organic activity, boost median household incomes by an average of \$2,000 and reduce poverty levels by an average of 1.3 percentage points. There are 225 counties across the United States identified as organic hotspots. These are as diversified as the organic industry, and represent the various kinds of organic agricultural activity and accompanying businesses: crop production, livestock production, and organic processors [10].

Again, on behalf of The Organic Center, I would like to extend my thanks to the Office of the Chief Scientist for its commitment to the long-term success of agriculture in the United States, and for the opportunity to provide input on the Visioning of U.S. Agricultural Systems for Sustainable Production.

Respectfully submitted,
Dr. Jessica Shade Director of Science Programs, The Organic Center

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2. Marinari, S., et al., *Chemical and biological indicators of soil quality in organic and conventional farming systems in Central Italy*. Ecological Indicators, 2006. **6**(4): p. 701-711.
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4. Smith, L.G., A.G. Williams, and B.D. Pearce, *The energy efficiency of organic agriculture: A review*. Renewable Agriculture and Food Systems, 2015. **30**(3): p. 280-301.
5. Skinner, C., et al., *Greenhouse gas fluxes from agricultural soils under organic and non-organic management - a global meta-analysis*. Science of The Total Environment, 2014. **468-469**: p. 553-563.
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7. Lotter, D.W., R. Seidel, and W. Liebhardt, *The performance of organic and conventional cropping systems in an extreme climate year*. American Journal of Alternative Agriculture, 2003. **18**(3): p. 146-154.
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9. Association, T.O.T., *2016 Organic Industry Survey*. 2016.
10. Jaenicke, E., *Organic Hotspots and their Benefit to Local Economies* The Organic Trade Association, 2016.

Comments Submission #063
Received 3/07/2017

From: Carly Yarosz
Sent: Tuesday, March 07, 2017 11:14 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Food Sovereignty

Dear Mr. Murray,

This is written by someone's opinion I highly regard and agree with.

"I am writing you regarding the visioning of the United States agricultural systems for sustainable production. I firmly believe that the best way to reverse soil loss, sequester carbon and grow lots of nutrient-dense food is to continuously cover the soil with a diverse array of living plants. This feeds the microbial communities that perform 90 percent of soil function, including carbon storage.

The plants that we (or grazing animals) eat give the carbon those plants generate through photosynthesis to soil microorganisms, which in turn provide plants with water and nutrients. This process works best when there are lots of different plants exchanging lots of different nutrients with lots of different microbes.

Plant biodiversity is the key to soil carbon sequestration. It's also a great way to grow more food than you ever thought possible on less land than you can imagine (to quote John Jeavons, author of several books, and director of Grow Bio-Intensive). Plus, food from healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases.

I think this is the future of agriculture. So do many other reputable scientists and organizations here and around the world.

Thank you."
Sincerely,
Carly Yarosz

Comments Submission #062
Received 3/07/2017

From: Anna Dawson
Sent: Tuesday, March 07, 2017 10:50 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Freezing and vacuum packaging the local harvest



Meat has been frozen and vacuum packed since 1960 locally in USDA meat processing facilities. However, we have neglected to use this technique in Ag. & Mkts. inspected kitchens to freeze and vacuum pack fruits, vegetables, cooked whole grains and cooked dry beans, savory sauces and more--a lost opportunity unless we do this now to reduce farm food waste. With color laser printers, a Publisher computer program, a picture of the finished product on a card stock label along with a nutrition label, local cooks at school cafeterias and at the 20,000 NY Ag. & Mkts. inspected kitchens, dozens of different meal kits can be created. Many resources are being spent on helping young farmers. We need to add this concept to culinary programs from high school to college students. This process simply needs a statement "Important, Keep Frozen Until Use." on the front of the label according to the fall 2001 newsletter of the North East Center for Food Entrepreneurship in Geneva, NY.

This process can create local jobs, provide farmers with monies to improve their soil and can be used in culinary and Family and Consumer Science classes--especially in high school where food preservation is part of the curriculum in Food Science--a one year one credit course.

Anna Dawson
Hometown Foods, LLC
Kinderhook, NY 12106
www.hometownfoods.harvestkitchens.net

*Comments Submission #061
Received 3/07/2017*

From: Karen Bentrup
Sent: Tuesday, March 07, 2017 9:33 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Make American Agriculture TRULY REALLY GREAT!

Dear Seth - as a restorative agriculture educator and 10-year farmer, we must do better. Sustainable and resilient food production with a triple bottom line of caring for earth, people and economics IS HAPPENING right now in many places around the globe. We must have an agriculture system that cares for our soil, sequesters carbon, produces healthy nonGMO organic food, and makes this available to all Americans.

I know we can do this.

Please support all efforts to keep American food aims at a renewable future for all of us.

Blessings on your work, Karen

Karen L. Bentrup | Volunteer, Technical Advisor

The Desert Oasis Teaching Garden at Albuquerque Academy
Albuquerque, NM 87109
<http://www.thedotgarden.org>

Comments Submission #060



Received 3/07/2017

From: Marianna Padilla
Sent: Tuesday, March 07, 2017 9:14 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: a vision of American Agriculture

Dear Seth Murray,

We currently have an agricultural system that is not sustainable. Large tracts of monocultures do not support soil health, pollinators, birds and other animals, or human health, They demand increasing dependence of petroleum based fertilizers and pesticides. These chemicals contribute to pollinator decline, species decline, and increased cancers and endocrine disorders in farm workers and the general population. Their use also moves us away from any small attempt we have made to slow down global warming.

I envision a sustainable agricultural system that encourages plant diversity, engages in organic methods of soil enhancement, provides habitat for pollinators, birds and animals, practices soil and water conservation (it is clear that water usage is already critical worldwide), builds small, seasonal and local farms and farmers markets (reducing the distance that food travels, and rebuilding local economies), and prohibits GMOs.

Let us grow more fruits and vegetables for human consumption and less crops for animal consumption, allowing animals free range, eating the plants natural to their development thus decreasing the need for our staggering use of antibiotics in animal production, and the risks thus imposed upon human health and water quality. Let us use municipal lands and parks to develop urban agriculture and edible forests.

Let us return the power of food production to the people and limit the control of large multi-international corporations to decide our future and the future viability of the planet.

Thank you,
Marianna Padilla

Comments Submission #059

Received 3/07/2017

From: Edward Hickey
Sent: Tuesday, March 07, 2017 9:10 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: What farming will become

Mr. Murray, sustainable farming vs. conventional big agriculture. These don't have to be VS/mutually exclusive, we can be both. Yes, some short run profits will not be made but in the long run , our land will be regenerated without toxic practices and the soil will continue to grow crops/animals that nourish us and not just feed us. We have the know how to make regenerative farming work- why not promote and train big agri on how to do this? We cannot continue killing the soil and making our children sick. One of the other big steps we can take is that of legalizing



and promoting the use of industrial hemp. Cotton can start switching to hemp as the premium cash crop which will also replenish soil and cut down on the amount of pesticide in the soil. Industrial hemp can truly help farmers- no other crop has so many uses. It can change the building/textile/medicinal/plastic etc. all into biodegradable, even edible products. we can cooperate and help repair our soils or become a wasteland , the choice is ours.

Sincerely, Edward Hickey

Comments Submission #058
Received 3/07/2017

From: marko dr.

Sent: Tuesday, March 07, 2017 8:42 AM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session Meeting

Dear Senior Advisor Mr. Seth Murray,

I appreciate this open platform for discussion about the health of the U.S. Agriculture. My concern in modern society is the health of the U.S. soil and I would like to encourage you to establish policies that enhance soil vitality and eliminate the use of agro-chemicals. This approach is connected to a better environmental system as well.

The second important aspect is biodiversity as this model is the closest to the wild nature and allows diversity of plants that can support each other as well as essential ecosystem.

And the last - but not the least important aspect is the pollinary protection.

Thank you for your time and attention!

Severin Sivertson

Comments Submission #057
Received 3/07/2017

From: Hough Barbara

Sent: Tuesday, March 07, 2017 8:36 AM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: Comments for "listening session" on 50 year farm vision

You have a great opportunity to address the three interrelated challenges facing agriculture over the next 50 years—soil loss, diet-related disease and climate change. Each of these problems has a common solution: healthy soil.

The best way to reverse soil loss, sequester carbon and grow lots of nutrient-dense food is to continuously cover the soil with a diverse array of living plants. This feeds the microbial



communities that perform 90 percent of soil function, including carbon storage.

The plants that we (or grazing animals) eat give the carbon those plants generate through photosynthesis to soil microorganisms, which in turn provide plants with water and nutrients. This process works best when there are lots of different plants exchanging lots of different nutrients with lots of different microbes.

Plant biodiversity is the key to soil carbon sequestration. It's also a great way to grow more food than you ever thought possible on less land than you can imagine (to quote [John Jeavons](#), author of several books, and director of Grow Bio-Intensive). Plus, food from healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases.

We think this is the future of agriculture—not GMO monocultures that strip soil of nutrients, and of its natural ability to draw down and sequester carbon.

Barbara Hough

*Comments Submission #056
Received 3/07/2017*

From: Karen Durovich
Sent: Tuesday, March 07, 2017 7:28 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: GMO agriculture does not solve our agricultural woes

Dear Mr. Murray,

Making soil healthy would solve the three biggest problems for agriculture: - soil loss
- diseases related to nutrition and diet
- climate change

Constantly growing a diversity of plants in a field reverses soil loss, sequesters carbon, and yields a lot of nutritionally rich food. Such a system feeds the microbial communities performing 90 percent of soil function, including carbon storage, and the food grown in healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases (try doing a blind taste test with your children or grandchildren comparing organic produce to factory grown).

GMO monocultures strip the soil of nutrients and of its natural ability to draw down and sequester carbon in the soil and not the air.

Karen B
Chapel Hill, NC 27516



*Comments Submission #055
Received 3/07/2017*

From: Briana Joan Binkerd-Dale
Sent: Tuesday, March 07, 2017 5:26 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Written Comment regarding Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production

Dear Mr. Murray,

I am writing you regarding the visioning of the United States agricultural systems for sustainable production. I firmly believe that the best way to reverse soil loss, sequester carbon and grow lots of nutrient-dense food is to continuously cover the soil with a diverse array of living plants. This feeds the microbial communities that perform 90 percent of soil function, including carbon storage.

The plants that we (or grazing animals) eat give the carbon those plants generate through photosynthesis to soil microorganisms, which in turn provide plants with water and nutrients. This process works best when there are lots of different plants exchanging lots of different nutrients with lots of different microbes.

Plant biodiversity is the key to soil carbon sequestration. It's also a great way to grow more food than you ever thought possible on less land than you can imagine (to quote [John Jeavons](#), author of several books, and director of Grow Bio-Intensive). Plus, food from healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases.

I think this is the future of agriculture. So do many other reputable scientists and organizations here and around the world.

Thank you for listening,
Briana Binkerd-Dale

--

Briana Joan Binkerd-Dale
Forest Ecology & Management, Soil Science
Cornell University College of Agriculture and Life Sciences

*Comments Submission #054
Received 3/07/2017*

From: Dorian Gieseler Greenbaum
Sent: Tuesday, March 07, 2017 4:52 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Sustainable agriculture

Dear Dr. Murray,



What does sustainable agriculture look like? It looks like the farms where I buy as much local and organic food as I can. Its fields are planted with many diverse crops, from arugula to zucchini. It uses natural and organic fertilizer, and has a big compost pile. Its chickens are let out to pasture every day, where they eat bugs and grass and get to behave like chickens. No one trims their beaks or cages them. Its sheep and cows graze on pasture. Its pigs are free to roam through pasture and forest, and they give birth in a humane manner. It does not give routine antibiotics to its animals. It has its own hives, and the bees are not exposed to pesticides. It honors the soil and improves it.

Sustainable agriculture does NOT look like acres of monoculture commodity crops that are genetically modified to either produce pesticide or resist it. It does not look like Concentrated Animal Feeding Operations. It does not look like chicken factories where birds never see the light of day or go outside.

Thank you for reading this. It is possible to save America's broken food system and save the planet.

Sincerely yours,
Dorian Greenbaum, Ph.D.

*Comments Submission #053
Received 3/07/2017*

From: Julie Glover
Sent: Tuesday, March 07, 2017 4:47 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Input for the Agricultural Systems for Sustainable Production Stakeholder Listening Session Meeting

To Whom It May Concern:

In regard to Agricultural Systems for Sustainable Production, here's the question (and the issue):

Exactly why is it that we, as an intelligent and developed nation, cannot learn how to work WITH nature rather than against it? Meaning both nature in our external environment (the need to maintain the health of our soil and water) and also understanding and addressing the internal needs of our own bodies?

You know that our agricultural systems are VERY FAR from being sustainable and beneficial for our soil and water. Our soil and our nutrition is degraded by myriad chemicals that have not been sufficiently tested — and one of the big ones, glyphosate, is a known carcinogen. We're not growing enough vegetables for every American to have access to what they need to consume on a daily basis in order to be healthy. It seems as if peoples' health is the LEAST concern of many of our agricultural policies. And why is that? Do we care so little for our citizenry that we're willing to mistreat them this way?



We really don't have to be collectively stupid here. We could look past short-term economic self-interest and do the wise thing by investing in healthy soils, water, and people by not poisoning them with chemicals and other injurious agricultural practices. PLEASE PUT OUR COLLECTIVE HEALTH FIRST — THAT'S WHAT YOU'RE SUPPOSED TO BE DOING!

Most sincerely,

Dr. Julia R. Glover
Clinton, WA 98236

*Comments Submission #052
Received 3/07/2017*

From: Elisaveta Wrangell
Sent: Tuesday, March 07, 2017 4:01 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: More sustainable agricultural infrastructures

Dear Mr. Murray,

We need to be thinking long-term for a more sustainable agricultural system.

Our current dependence on the use of fossil fuels in chemical fertilizers (who on earth thought up that brilliant plan?) and pesticides is untenable, and the land that is supposed to feed our grandchildren is suffering.

The US spends \$20 billion a year on direct agricultural subsidies.

Who can disagree that there is something wrong with this system?

Sincerely,

E. Wrangell

*Comments Submission #051
Received 3/07/2017*

From: Jennifer MacDonald
Sent: Tuesday, March 07, 2017 12:16 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Food & Farming
Dear Senior Advisor Murray,

Thank you for being open to my thoughts on what I envision for the U.S. food and farming system over the next 50 years. As a health-conscious person, I am very concerned about the extremely high rate of diet-related diseases that are prevalent in the US today. I am in the healthcare field and I am seeing increasing rates of diabetes and cancer, especially in our young people. We need more sustainable, regenerative farming practices. In the US, soil is washed



away at a much higher rate than it is replenished. People are eating less nutritious foods and many are going hungry. Moreover, droughts, floods, and fires are on the rise. We need to be mindful of the impact of climate change on our agricultural output.

Please keep my thoughts in mind.
Thank you for your openness,
Jennifer MacDonald

*Comments Submission #050
Received 3/06/2017*

From: Maria Christina Blanco
Sent: Monday, March 06, 2017 11:39 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comments on Visioning of U.S. Agriculture Systems for Sustainable Production

Over the next 50 years, U.S. agriculture must shift to diverse, resilient, adaptive and regenerative systems that mimic nature, stimulate healthy soils, restore ecosystems, increase biodiversity and build communities of practice, to ensure the vitality of human health and local economies.

We envision agricultural systems that are:

- Accessible to all. Everyone's right to safe, healthy, nutrient-dense food will be recognized and fulfilled. Agriculture will be a thriving, widespread and common practice that nearly everyone engages in.
- Regionally self-sufficient. Food and fiber production will be integrated into daily life in homes, schools, health-care and community centers, workplaces and public spaces, in urban, suburban and rural communities. Most food and fiber will be consumed close to where it is produced. Waste will be eliminated and surplus will be distributed.
- Healing to people and the planet. Food and farming will be the foundation of individual, public and environmental health. Food production will have shed its greenhouse gas emissions and become a sink that cleans the atmosphere of pollution. Agriculture will be used to create resilience to and eventually reverse climate change. Food and fiber production systems will be planned and managed to restore soils, waterways, ecosystems, environments and wild spaces.
- Fair. Food and fiber production will be an honored profession. The true value of producers' efforts will be recognized and compensated. Production systems will no longer rely on sweated labor, prices below the cost of production, or negative externalities. New economic systems will emerge to create greater opportunities for more people in food and fiber production.
- Democratic. Localities will have decision-making authority and control over their resources, while acting with neighboring communities to establish regional cooperation. Robust food policy councils at the municipal, county, state and regional levels will guide agricultural systems. The councils will be instruments of democratic and civic engagement with governmental decision-



making capacity on issues relating to health, energy, the planning of developed areas, the protection of environmentally sensitive areas, the restoration of wild areas, resource utilization, management of the economy, etc. Participation in food policy councils will be open to all.

We recommend the USDA focus its research on:

- Nutrient density and diversity, to reorient food production for quality as well as calories.
- Soil regeneration. Soil is the foundation of life on Earth. Research should focus on soil as a complex living entity to be managed for maximum carbon storage, water holding capacity, production, nutrition, and resilience. Soil building strategies, including composting, biochar, adaptive multi-paddock grazing and plant biodiversity, should be investigated.
- Highly productive polycultures that integrate many varieties of plants and animals, annuals and perennials, and food and fiber, to maximize productivity, soil health, nutrient density and pest suppression, in a closed system where all inputs and sources of fertility are produced on the farm. Design strategies from permaculture, organic farming, biodynamic farming, indigenous nations, and other traditional farming methods should be investigated.
- On-Farm energy production that doesn't hinder or compete with food production.
- Decision-making structures that spur regenerative agriculture, agriculture such as collaborative research, food policy councils, participatory budgeting, collectives, public banks, community supported agriculture, seed banks, community land trusts, and worker-run businesses.
- Education of the next generation of food producers with farm-to-school programs, school gardens and classes in nutrition, holistic management, ecology, etc., to spark an interest in, and provide the skills needed for, careers in food production. - See more at:
https://action.organicconsumers.org/o/50865/p/dia/action3/common/public/?action_KEY=20139#sthash.AKukhJPd.dpuf

Dear Mr. Seth Murray, Senior Advisor, Office of the Chief Scientist of the United States Department of Agriculture, OCS, USDA:

As a member of food and environmental justice organizations such as the Organic Consumers Association, The Food Project, and the Indigenous Environmental Network, I agree with the OCA's statement that over the next 50 years, U.S. agriculture must shift to diverse, resilient, adaptive and regenerative systems that mimic nature, stimulate healthy soils, restore ecosystems, increase biodiversity and build communities of practice, to ensure the vitality of human health and local economies. The USDA must promote agricultural systems that are: • Accessible to all, allowing everyone's right to safe, healthy, nutrient-dense food to be recognized and fulfilled. Agriculture must return to being a thriving, widespread and common practice that nearly everyone engages in. • Regionally self-sufficient. Food and fiber production must be integrated into daily life in homes, schools, health-care and community centers, workplaces and public spaces, in urban, suburban and rural communities. Most food and fiber should be consumed close to where it is produced; waste should be eliminated and surplus distributed. • Healing to people and the planet. Food and farming should be the foundation of individual, public and



environmental health. Food production must shed its greenhouse gas emissions and become a sink that cleans the atmosphere of pollution. Agriculture must be used to create resilience to and eventually reverse climate change. Food and fiber production systems should be planned and managed to restore soils, waterways, ecosystems, environments and wild spaces. • Fair. Food and fiber production must be treated as an honored profession. The true value of producers' efforts must be recognized and compensated. Production systems should no longer rely on sweated labor, prices below the cost of production, or negative externalities. Our economic system must be transformed to create greater opportunities for more people in food and fiber production. • Democratic. Localities should decision-making authority and control over their resources, while acting with neighboring communities to establish regional cooperation. Robust food policy councils at the municipal, county, state and regional levels must guide agricultural systems. The councils will be instruments of democratic and civic engagement with governmental decision-making capacity on issues relating to health, energy, the planning of developed areas, the protection of environmentally sensitive areas, the restoration of wild areas, resource utilization, management of the economy, etc. Participation in food policy councils must be open to all. The USDA must focus its research on: • Nutrient density and diversity, to reorient food production for quality as well as calories. • Soil regeneration. Soil is the foundation of life on Earth. Research should focus on soil as a complex living entity to be managed for maximum carbon storage, water holding capacity, production, nutrition, and resilience. Soil building strategies, including composting, biochar, adaptive multi-paddock grazing and plant biodiversity, should be investigated. • Highly productive polycultures that integrate many varieties of plants and animals, annuals and perennials, and food and fiber, to maximize productivity, soil health, nutrient density and pest suppression, in a closed system where all inputs and sources of fertility are produced on the farm. Design strategies from permaculture, organic farming, biodynamic farming, indigenous nations, and other traditional farming methods should be investigated. • On-Farm energy production that doesn't hinder or compete with food production. • Decision-making structures that spur regenerative agriculture, agriculture such as collaborative research, food policy councils, participatory budgeting, collectives, public banks, community supported agriculture, seed banks, community land trusts, and worker-run businesses. • Education of the next generation of food producers with farm-to-school programs, school gardens and classes in nutrition, holistic management, ecology, etc., to spark an interest in, and provide the skills needed for, careers in food production

Thank you for taking my comments into consideration. Sincerely,

--

María Christina Blanco
Community Organizer & Health Worker
Jamaica Plain MA 02130

*Comments Submission #049
Received 3/06/2017*

From: MarilynMullen
Sent: Monday, March 06, 2017 11:09 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Our vision



Dear Seth Murray,

The 1990 Farm Bill defined sustainable agriculture this way, and THIS IS WHAT WE WANT, NEED AND ARE NOT GETTING:

An integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- Satisfy human food and fiber needs;
- Enhance environmental quality and the natural resource base upon which the agricultural economy depends;
- Make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;
- Sustain the economic viability of farm operations; and
- Enhance the quality of life for farmers and society as a whole.

Sir, for the sake of future generations, will you please take a stand for a truly regenerative food and farming system?

Sincerely,
Marilyn H. Mullen
Casper, WY

*Comments Submission #048
Received 3/06/2017*

From: Gail Hanson

Sent: Monday, March 06, 2017 10:40 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: Comment for Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session Meeting

To keep it short--I favor evidence based decision-making. In agriculture, farmers should use best practices including use of pesticides and of genetically modified organisms, and antibiotics as appropriate. In academia and in industry, research and development should continue. In government, regulation and enforcement, and funding of research are all appropriate. Home gardens, farmers' markets, and community supported agriculture should be locally regulated. Use of public lands for grazing should be managed so as to preserve riparian areas and grasslands, and a population of predators. Slaughtering should be as humane as possible out of consideration for the workers' well being. Farmers' and cattlemen's associations should provide recognition for small operations that demonstrate best practices. County Agents in concert with County Fairs could also provide recognition.

If people want to pay extra for organic non-GMO stuff, that's OK, but people who have a small budget need to have nutritious, safe, reasonably priced food.



My dad irrigated fields to produce alfalfa and timothy to feed his beef cattle on a Southern Utah homestead. We butchered the beef on our kitchen table. Dad raised produce in our garden in town, too. Every rancher I knew had another source of income. Farming is a hard way to make a living.

Comments Submission #047
Received 3/06/2017

From: Jeannette
Sent: Monday, March 06, 2017 10:35 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: farming

to whom it may concern

healthy farming, animals, veggies can only be obtained by good farm practice. we cannot maintain this by the use of chemicals. using mother nature as our guide we can bring the earth back to a sustainable environment, comfortable and safe for man and beast.

thank you
jeannette dean chhp

Comments Submission #046
Received 3/06/2017

From: SMJ
Sent: Monday, March 06, 2017 10:13 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Food and farms of the USA

I have hope that the US government will very soon begin to put the health of our planet and its inhabitants ahead of corporate interests and profits. I would like to see a shift to more local and regional growers and farmers, a reduction in pesticide usage, an elimination of GMO produce, a removal of corn and soy subsidies, and a re-introduction of sustainable farming practices. The health of everyone depends upon it.

Our children are getting sicker and sicker. This issue does not choose based on wealth or position. If the air is dirty, everyone is breathing it. If the ocean and water supply is polluted, your children and grandchildren are drinking it, too. If our food supply is contaminated, it hurts everyone. While wealthy citizens may be able to afford organic food, how many teen-agers are going to eschew the junk food their peers are enjoying? Not many, I can tell you from experience.

It's time to demand independent investigation of technologies such as GMO and GE foods, pesticide tolerance levels, and the effect of chemicals and pharmaceuticals in our waste water and irrigation water on our bodies and the environment. We can not afford to wait any longer.



I ask you to do your duty, represent the best interests of US citizens and not US corporations, and make strong improvements NOW for the sake of my children and yours.

Thank you for your consideration,

Suzanne Jabaley

*Comments Submission #045
Received 3/06/2017*

From: Eric Burr & Margrit Broennimann
Sent: Monday, March 06, 2017 9:58 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: GMO, pesticide, and hebicide contaminated, inorganic food poisoning phase out

Please count this letter as favoring the least contaminated food possible. -Eric Burr, Mazama WA

*Comments Submission #044
Received 3/06/2017*

From: Addis/Zink
Sent: Monday, March 06, 2017 9:36 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening

Dear Mr Murray,

As a US citizen and a registered nurse, I am writing because I am seriously concerned about the quality and safety of mega crop food grown in the US. The very large amounts of toxic chemicals doused on the soil which then enters the plants which are consumed by our citizens is not healthy. Our family is fortunate to have access to small farmer food output from food cooperatives which assure organic soil and organic outputs. This is the only food, besides what we grow, that we feel is safe to consume. Other citizens across our country should have access, as well.

Organic, smaller farm production and plant biodiversity are keys to healthy soil and carbon sequestration within it. It's also a great way to grow more food on less land. Plus, food from healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases including obesity, diabetes and a number of gastrointestinal illnesses.

Thank you for your consideration,

--

Mary Zink
St Paul, MN 55104

*Comments Submission #043
Received 3/06/2017*



From: dmandch@***.*** (Drew Martin)
Sent: Monday, March 06, 2017 9:34 PM
To: seth.murray@osec.usda.gov.
Subject: Regenerative Food and Farming System.

Dear Mr. Murray,

I am a strong supporter of organic farming methods that reduce chemical input. I also oppose the use of GMO's in food and clothing agricultural products. I support small locally grown organic food production.

Please take into account some of the following points in food policy:

- Nutrient density and diversity, to reorient food production for quality as well as calories.
- Soil regeneration. Soil is the foundation of life on Earth. Research should focus on soil as a complex living entity to be managed for maximum carbon storage, water holding capacity, production, nutrition, and resilience. Soil building strategies, including composting, biochar, adaptive multi-paddock grazing and plant biodiversity, should be investigated.
- Highly productive polycultures that integrate many varieties of plants and animals, annuals and perennials, and food and fiber, to maximize productivity, soil health, nutrient density and pest suppression, in a closed system where all inputs and sources of fertility are produced on the farm. Design strategies from permaculture, organic farming, biodynamic farming, indigenous nations, and other traditional farming methods should be investigated.
- On-Farm energy production that doesn't hinder or compete with food production.
- Decision-making structures that spur regenerative agriculture, agriculture such as collaborative research, food policy councils, participatory budgeting, collectives, public banks, community supported agriculture, seed banks, community land trusts, and worker-run businesses.
- Education of the next generation of food producers with farm-to-school programs, school gardens and classes in nutrition, holistic management, ecology, etc., to spark an interest in, and provide the skills needed for, careers in food production.

Regards,
Drew Martin
Lake Worth, Fl. 33460

Comments Submission #042
Received 3/06/2017

From: Jordan Abbott
Sent: Monday, March 06, 2017 9:25 PM



To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Food & Farming in 50 Years

Dear Mr. Murray,

I would like to add a comment to the "listening session" on Visioning of U.S. Agriculture Systems for Sustainable Production. There is nothing more important to the health of American agriculture and to the health of Americans than biodiversity, including in soil. And we know how to support biodiversity, so it's time to do it!

Thank you,
Jordan

*Comments Submission #041
Received 3/06/2017*

From: Jonathan Jody Boyne
Sent: Monday, March 06, 2017 8:47 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Please support a regenerative food and farming system.

Dear Mr. Murray,

Please support a regenerative food and farming system

Congress defined sustainable agriculture in the 1990 Farm Bill as:

An integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- Satisfy human food and fiber needs;
- Enhance environmental quality and the natural resource base upon which the agricultural economy depends; •Make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; •Sustain the economic viability of farm operations; and •Enhance the quality of life for farmers and society as a whole.

By this definition, U.S. agriculture is a long way from being sustainable.

To begin with, current U.S. production isn't meeting our needs. We don't even grow enough vegetables for every American to have the USDA-recommended daily allowance. It's no wonder Americans are so unhealthy.

Moreover, U.S. agriculture isn't "enhancing"—or even making "the most efficient use of"—"the natural resource base upon which the agricultural economy depends." The soil of U.S. cropland is swept and washed away 10 times faster than it is replenished. This costs us \$37.6 billion every year.



Over the next 50 years, U.S. agriculture must shift to diverse, resilient, adaptive and regenerative systems that mimic nature, stimulate healthy soils, restore ecosystems, increase biodiversity and build communities of practice, to ensure the vitality of human health and local economies.

We envision agricultural systems that are:

- Accessible to all. Everyone's right to safe, healthy, nutrient-dense food will be recognized and fulfilled. Agriculture will be a thriving, widespread and common practice that nearly everyone engages in.
- Regionally self-sufficient. Food and fiber production will be integrated into daily life in homes, schools, health-care and community centers, workplaces and public spaces, in urban, suburban and rural communities. Most food and fiber will be consumed close to where it is produced. Waste will be eliminated and surplus will be distributed.
- Healing to people and the planet. Food and farming will be the foundation of individual, public and environmental health. Food production will have shed its greenhouse gas emissions and become a sink that cleans the atmosphere of pollution. Agriculture will be used to create resilience to and eventually reverse climate change. Food and fiber production systems will be planned and managed to restore soils, waterways, ecosystems, environments and wild spaces.
- Fair. Food and fiber production will be an honored profession. The true value of producers' efforts will be recognized and compensated. Production systems will no longer rely on sweated labor, prices below the cost of production, or negative externalities. New economic systems will emerge to create greater opportunities for more people in food and fiber production.
- Democratic. Localities will have decision-making authority and control over their resources, while acting with neighboring communities to establish regional cooperation. Robust food policy councils at the municipal, county, state and regional levels will guide agricultural systems. The councils will be instruments of democratic and civic engagement with governmental decision-making capacity on issues relating to health, energy, the planning of developed areas, the protection of environmentally sensitive areas, the restoration of wild areas, resource utilization, management of the economy, etc. Participation in food policy councils will be open to all.

We recommend the USDA focus its research on:

- Nutrient density and diversity, to reorient food production for quality as well as calories.
- Soil regeneration. Soil is the foundation of life on Earth. Research should focus on soil as a complex living entity to be managed for maximum carbon storage, water holding capacity, production, nutrition, and resilience. Soil building strategies, including composting, biochar, adaptive multi-paddock grazing and plant biodiversity, should be investigated.
- Highly productive polycultures that integrate many varieties of plants and animals, annuals and perennials, and food and fiber, to maximize productivity, soil health, nutrient density and pest



suppression, in a closed system where all inputs and sources of fertility are produced on the farm. Design strategies from permaculture, organic farming, biodynamic farming, indigenous nations, and other traditional farming methods should be investigated.

- On-Farm energy production that doesn't hinder or compete with food production.
- Decision-making structures that spur regenerative agriculture, agriculture such as collaborative research, food policy councils, participatory budgeting, collectives, public banks, community supported agriculture, seed banks, community land trusts, and worker-run businesses.
- Education of the next generation of food producers with farm-to-school programs, school gardens and classes in nutrition, holistic management, ecology, etc., to spark an interest in, and provide the skills needed for, careers in food production.

Sincerely,

Jonathan Boyne
Honolulu

*Comments Submission #040
Received 3/06/2017*

From: Charlotte Fremaux
Sent: Monday, March 06, 2017 8:36 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: What I want Food and Farming to look like in 50 years

I am writing in support of the testimony given by the Organic Consumers Association regarding their recommendations for developing a regenerative food and farming system.

I am fortunate to live near an organic farm where I see the benefits of regenerative farming, and have access to fresh, organically grown produce. I am also fortunate to be able to shop at organic markets and buy healthful, non-toxin-laced, non-GMO food every day. Unfortunately, I represent a tiny minority with the wherewithal and intent to support this kind of agriculture. I am also a naturalist, and have spent years observing the natural world and natural systems. This is what I have learned: nature will not sustain us if we don't sustain it by following the rules that govern all life on Earth. We cannot abuse the natural systems that support life on the planet and expect our (already degraded) environment to support us.

Our current (Agribusiness) system does not support biodiversity, soil regeneration, prudent use of water, humane treatment of animals, nor the production of toxic pesticide-and-herbicide-free food. It is not a sustainable system that promotes environmental and human health, nor the future of farming families.

To even attain the standards set in the 1990 Farm Bill, we would have to drastically change many of our current farming practices that are, unfortunately, depleting soil, wasting water, poisoning



pollinators and essential insects, destroying biodiversity, and failing to work with natural processes -- and in the process, failing farmers.

Americans are overweight, sick, and many lack access to healthful food. Current commercial agricultural practices do not provide enough of the quality food needed to adequately nourish our citizens.

Current practices in organic farming are a solution to these wrongs: they work with nature, sequester carbon, build healthy soil, use water responsibly, and support biodiversity. These practices are what is needed to make America healthy again.

Thank you for considering my views.

Charlotte M Fremaux
Harpers Ferry, WV 25425

*Comments Submission #039
Received 3/06/2017*

From: healing line

Sent: Monday, March 06, 2017 7:59 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session Meeting

SIR:

As an interested stakeholder, I wanted to submit a public comment on this document, but public commenting feature was disabled.

It is of the utmost importance that future agricultural systems prioritize SOIL HEALTH. Healthy, humus-rich soils are the best available carbon sink. The current misuse of industrial animal waste is symptomatic of the wastage of this resource. The animals are fed substances that are detrimental to soil health, which renders them unfit for reincorporation into soil. If the animals were fed proper diets without these growth-inducing (often antibiotic) additives, all soils could benefit from age-old manuring practices. As it is, they are not even used to produce methane; it is simply allowed to escape freely into the air instead of harnessing for fuel.

Harnessing this source of methane would remove yet another source of soil depletion--- ozone and global warming imbalances that change biospheres faster than ecosystems can adapt.

SOIL HEALTH is undermined by use of pesticides and herbicides that disrupt the natural cycles of soil replenishment via decay and nitrogen fixation with the help of bacterial and insect life. Fungicides especially render soils sterile and prone to desertification. Animal helpers such as geese and chickens who could be feeding upon the 'pest' populations are instead being



poisoned by the residues of these chemicals in their feed.

Monocultures instead of harmonious companion planting and raising are not only inefficient but terribly prone to infections by disease. Study of the rubber trees of 'Fordlandia' in Brazil demonstrates that this is not how any resource should be treated. All agriculture thrives best in working partnership with its companion organisms, be they animal or vegetable.

Large scale renewable resources are possible, but must follow the example of smaller and sustainable 'family farm' operations.

Once soil is gone, all health and wealth also will be gone. SOIL HEALTH must come first.

helgaleena

> We do not write because we want to;

> we write because we have to.

> > Somerset Maugham

Helgaleena says:

<http://en.gravatar.com/helgaleena>

<http://helgaleena.blogspot.com>

<https://rainydayreadspublishing.com/>

<https://paper.li/f-1322418561>

*Comments Submission #038
Received 3/06/2017*

From: Mary Wildfire

Sent: Monday, March 06, 2017 7:48 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: vision for US ag for next 50 years

Dear Mr Murray,

I appreciate this opportunity to comment on the ideal future of US agriculture. I think this is a critical question, because agriculture ties in with everything else in important ways as the US, and indeed all of humanity, faces a set of crises likely more serious than anything we've faced before, in all of human history. Yes, I'm talking about climate change, but not only that. There are other environmental problems nearly as important, if not quite as urgent...problems like the ever-increasing amounts of plastic debris, nitrogen and phosphorus, and toxins in the oceans and the ever diminishing pH and life in them; loss of land species as well; depletion of healthy soils, and the loss of clean drinking and irrigation water in many places, together with the conflicts occasioned by the increasing scarcity of water, and the excessive and still increasing human population. And then there are non-environmental crises: the impending shortages of fossil fuels and certain minerals; the countries moving toward totalitarian rule; the degree to which fragmentation of media has led citizens into camps with no common language; increasing inequality and the unrest it generates.



I expect this set of problems, together with the inability to governments to take any steps, however urgent and necessary, that go against the wishes of wealthy people and corporations, to lead to some kind of breakdown in the near future. But if it’s a gradual breakdown, actions taken now could set up conditions in which we could transition to a stable and healthy future—or at least have a chance at doing so.

Support for farmers transitioning to organic and poly-cultural farming would be very helpful, as these practices can, if done right, sequester significant quantities of carbon in the soil where it improves fertility rather than being a problem. Mixed farms can reduce the amount of leakage into waterways of nutrients from manure and artificial fertilizers which enhance the health of soils but degrade the health of waters. They can provide food which is generally healthier than the non-organic food too many of us rely on, especially the heavily processed stuff. They can enhance the health of the complex ecosystems in soil; in my opinion, the most exciting research these days is in the field of soil biology. Of course, this approach is more labor-intensive than what we’ve come to call conventional farming—which is to say it would *provide jobs*. Perhaps it could also bring back a thousand small towns from the dead, as family farms come back.

There is a huge obstacle to such a transition, of course. As mentioned in a general context, it has become impossible for governments on any but the most local level to take actions that go against the wishes of the corporate lobbyists, of those who fund the campaigns of politicians. *Could* the USDA put serious effort into assisting a transition such as I describe, when it would harm the bottom lines of Monsanto and Syngenta, of Cargill and ADM, of Tyson and Perdue and John Deere? Perhaps it can, a little bit, around the edges of the “regular” work it does servicing industrial agriculture.

I feel a certain tension around even discussing such a vision, because I expect that challenging corporate rule is anathema in the offices in which someone is reading this...what is wanted, perhaps, is fantasies in which computers calculate with great precision the amount of fertilizer or water to use in each square foot of a field, and the work is all done by robots (while the people live on basic income, perhaps, or do they all just politely cease to exist?) I don’t see such “advances” as useful. I had a terrible potato crop last year because that field has drainage issues; but knowing with great precision exactly which spots were most prone to flooding would have helped very little. Knowing the weather in advance, now *that* would be a huge help. If you knew in March or April that August would bring a major drought and heat wave, you could choose drought tolerant crops. But I doubt that’s in the cards.

Thanks for reading this, anyway.
Mary Wildfire
Spencer, WV 25276

*Comments Submission #037
Received 3/06/2017*

From: Kyle Young
Sent: Monday, March 06, 2017 7:46 PM



To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: pass HR 3187 - remove ALL sub's and reg's - go regenerative

Mr. Murray,

Thank you for accepting comments on this critically important topic.

Although I was born into a Kansas wheat and cattle farming family as a fourth generation farmer, I currently farm vegetables, dairy goats, pigs, alpacas and chickens in Arizona.

I've been blogging and writing about regenerative food, farm and nutrition issues for many years at www.erdakroft.com

Complaining is easy. Providing solutions... not so easy. If you have an opportunity to read some of my blogs and read some of the articles on my website you'll find that I'm passionate about the numerous positive responses to our soil, water and air that can be derived by utilizing carbon centric, regenerative farming practices. Perhaps more important are the nutritional benefits that come from eating food grown in carbon rich soil - - a soil that cannot be achieved using conventional tillage and pesticide regimes. Indeed, the fact that over 50% of Americans currently suffer from some form of chronic illness is testimony to the toxic load and the lack of nutrients that the status quo food production system is foisting on the American people.

Of all the industries that lend themselves to being deregulated, farming tops the list - - as long as food is being grown regionally so it can be traced to it's source. Any local farmer that sells tainted food to his regional constituents will soon go out of business. No regulations needed. Allow those who are striving to do the right thing to excel. Deregulate all aspects of farming and remove ALL subsidies -- whether they be for small farmers or multi-million dollar CAFO's. Level the playing field for all farmers. Take things back to the way it was when my Dad farmed 1,200 acres of wheat and cattle during the 1950's in Kansas and slaughtered his own beef for local markets. This can begin with the passage of HR 3187, The PRIME Act, a bill currently pending in Congress. Then we can generate a similar bill to do away the antiquated and highly restrictive regulations and subsidies that stifle small, local dairy production.

Then provide a tax incentive to encourage farmers to switch to regenerative farming practices. Another tax incentive would be provided to farmers who market their production regionally, with an even better tax incentive for those who market locally, either as a raw product or as an -- unregulated -- value added item. Then stand aside and watch while local and regional cuisine blossoms across the landscape and US farms and restaurants become the food destinations of the world.

Problem solved.

Thanks again for your efforts.

Best Regards,



Kyle Young
www.erdakroft.com

*Comments Submission #036
Received 3/06/2017*

From: Max Gries
Sent: Monday, March 06, 2017 7:08 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: comment on the Visioning of US Agriculture Systems for Sustainable Production

I believe we need a regenerative food and farming system in the US.

I am asking the USDA to shift to a diverse, resilient, adaptive and regenerative food system that works with nature, not against

*Comments Submission #035
Received 3/06/2017*

From: Cari
Sent: Monday, March 06, 2017 6:37 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: sustainable agriculture

Sir:

We have one small planet. We need to have sustainable agriculture, which means government officials and other influential people must have vision, now and for the future.

Sincerely,

Cari Sagan Greene

*Comments Submission #034
Received 3/06/2017*

From: Martha Jaegers
Sent: Monday, March 06, 2017 6:12 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: We want sustainable agriculture in USA

Congress defined sustainable agriculture in the 1990 Farm Bill as:

An integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- Satisfy human food and fiber needs;
- Enhance environmental quality and the natural resource base upon which the agricultural economy depends;
- Make the most efficient use of nonrenewable resources and on-farm resources and integrate,



where appropriate, natural biological cycles and controls;

- Sustain the economic viability of farm operations; and
- Enhance the quality of life for farmers and society as a whole.

By this definition, U.S. agriculture is a long way from being sustainable.

To begin with, current U.S. production isn't meeting our needs. We don't even grow enough vegetables for every American to have the USDA-recommended daily allowance. It's no wonder Americans are so unhealthy.

Moreover, U.S. agriculture isn't "enhancing"—or even making "the most efficient use of"—"the natural resource base upon which the agricultural economy depends." The soil of U.S. cropland is swept and washed away 10 times faster than it is replenished. This costs us \$37.6 billion every year.

Do whatever it takes to make our agricultural system work as it should.

Thank you very much.

*Comments Submission #033
Received 3/06/2017*

From: stefan@*****.***(Stephan G. Andrews)
Sent: Monday, March 06, 2017 6:10 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Vision of U.S. Agriculture Systems for Sustainable Production

Dear Seth Murray:

Thanks for the opportunity to comment on our US Agriculture System. I begin with a brief comment on what I'm seeing.

I'm concerned and disappointed in the current direction of policy for US Agriculture. We have abandoned the sustainable practices of the past and are currently destroying the majority of our soil which gives us life. My perception is that my government is failing me in one of the most crucial areas of my life and the lives of my fellow citizens--and that is healthy food.

I'm a third year baby-boomer, a former elementary teacher and small businessman, and a current B2B copywriter for the education industry.

Healthy food is increasingly difficult to obtain in our suburban and urban stores. We are forced to choose from poisoned food that contains pesticides, herbicides, and glyphosate chemicals as testing is increasingly showing these substances in the urine of a majority of the population.

We have bought into the lies that chemicals are producing more and better food. This just plain isn't true. But you have to dig deep in buried scientific studies and articles to catch just the tip of this nightmarish scenario. We are guinea pigs in the experiment to see what these chemicals will produce in the human body. Some of the results already are a huge concern. The epidemic of



autism is tracing back to these chemicals in our foods. And that's just one problem. There's the epidemic of diabetes which is sourcing to white sugar laden foods and the interactions with the chemicals.

These food problems and concerns are, taken together, a ticking time bomb that's going to be laid at the feet of agriculture and the food industry whose, greedy focus on obscene profits in lieu of healthy food and at the expense of the consumer is going to explode in their faces in the not too distant future. And USDA's complicity with the agribusiness model makes them a convenient scapegoat for a public that will be very, very angry.

So, what's the solution?

USDA needs to reset the entire policy of the department to support agricultural systems for sustainable production across our entire nation.

That means ignoring the big moneyed agribusiness giants in the world and establishing policies and systems that benefit family farms, promote new farmer ownership, encourage healthy soil regeneration and stewardship, require soil water retention practices to clean up our waterways, and produce healthy food crops and meat animals for public consumption.

This can only happen if we do the following:

1. Cease subsidizing the big agribusiness farms and apply that money to help young farmers get started in establishing family farms.
2. Eliminate beef, pig, and poultry CAFOs and replace them with grass-fed beef, pig, and poultry operations of small family farms selling to their local markets.
3. Eliminate the huge transporting of crops thousands of miles, where possible, and instead promote the purchasing of organic and healthy, local foods in farmer's markets, coops and stores featuring such foods.
4. Quit promoting mono-culture crops that rape the soils and instead, apply that money to promote permaculture and other organic practices to help farms transition from destructive system practices to sustainable system practices.
5. Encourage the public to quit buying unhealthy processed food laden with chemicals, and instead, encourage them through a sustained campaign to support local farmers by purchasing their healthy organic food directly or through farmer's markets or from stores certifying that their produce and meat is healthy and/or organic.
6. Strengthen the rules for organic products and let the public know how they can help enforce them. Give the public the power by giving them the knowledge to purchase healthy products on the local level.
7. Speed up the application and certification process for farmers to switch their farms to organic certification.
8. Cut the subsidies for biofuels and chemical fertilizers, pesticides, and herbicides that are destroying productive cropland.
9. Make it possible for poor folks to use their food stamps and other subsidy programs to buy from farmer's markets or directly from the farmer to get healthy food.
10. Use sound science from honest, trustworthy scientists instead of bought scientists with strong ties to the agribusiness companies that are funding faulty studies supporting their destructive practices.



Finally, please, please, please, support the growing of organically healthy food and the feeding of livestock with healthy feed and grains when not on grass-fed pastures. Then, we consumers, looking for healthy food, can confidently go to our food markets and easily find the healthy food we want. Only then will we return to healthy bodies, a healthy medical system, and a healthy economy.

Thanks for reading.

Sincerely,
Stephan G. Andrews
Kerrville, Texas 78028

*Comments Submission #032
Received 3/06/2017*

From: Smith, George
Sent: Monday, March 06, 2017 5:15 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Smith, George
Subject: March 2nd USDA listening session comments

Seth:

Was nice to meet you and thanks again for the opportunity to present last week at USDA sponsored listening session on visioning of US agricultural systems for sustainable production. My written comments are attached. Please feel free to contact me if I can provide additional information. Best regards. GWS

George W. Smith
Associate Director
MSU AgBioResearch
Associate Dean for Research
College of Agriculture and Natural Resources
Michigan State University
AgBioResearch.msu.edu

**Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production
Stakeholder Listening Session**

With more than 300 commodities produced on a commercial basis, Michigan is the second most diverse agriculture state in the nation (behind only California). The MSU College of Agriculture and Natural Resources, MSU AgBioResearch and MSU Extension work hand-in-hand with commodity organizations to address the issues facing growers and producers throughout the state. Key findings from research assist the food and agriculture industry, which contributes



more than \$100 billion of annual economic impact to Michigan alone. There is perhaps no greater time than now to be involved in research pertaining to sustainable food production. We need solutions that will keep our food supply safe and secure and environmentally sustainable. **We feel diversity is a cornerstone for sustainability of US agriculture, now and in the future. This represents not only diversity in commodities produced, but also diversity in farm size, production systems and operational goals. The USDA research agenda for the future must reflect this diversity.**

The USDA's flagship competitive grants program – Agriculture and Food Research Initiative or AFRI -- benefits the nation by providing America's farmers and ranchers with genomic data and biotechnology tools to expand food production, processing and international trade; farmers, landowners and ranchers with expanded knowledge about soil and water quality and university funding to train new generations of food and agriculture scientists and cooperative Extension educators.

In considering the foundational principles critical to advancements in sustainability of US agriculture for the next 50 years and beyond, it is also critical to consider programs/principles that have been critical to advancements in productivity and sustainability of US agriculture over the past decades. Of paramount importance to sustainability of US agriculture in the future are basic research programs, such as the Foundational Grants Program of AFRI. The fundamental knowledge generated through this program has been critical to many of the advancements that have driven growth/increased productivity and sustainability of agriculture in Michigan and the entire US. For example, milk production in Michigan has increased by over 90% since 2000, and MI now ranks second in the country in average milk production/cow. This growth in productivity is directly linked to improvements in reproductive performance, feed efficiency, genetic selection and animal health made possible by an underlying foundation of basic research. Continued applied research in such areas is critical to future advancements linked to sustainability of the US dairy industry and basic research remains critical to solving the challenges of coming decades and beyond.

Technological advancements in precision agriculture and big data provide an opportunity for innovation and rapid growth in productivity within the agricultural sector and are important components of a future research agenda focused on sustainability. In developing a long term research agenda to promote sustainability of US agriculture, it is important to consider both opportunities and overarching threats. Extreme variation in weather represents a highly significant threat to the specialty crop sector in agriculture and to traditional agronomic crops as well. Increased research on resilience is critical. Prolonged very early periods of warm weather followed by rapidly decreasing temperatures can wipe out specialty crops for an entire year with little to no alternatives or viable ways to combat just as prolonged periods of heavy rain or drought dramatically impact yields of other crops and availability/costs of feedstuff for livestock. Accompanying such variability in weather is emergence of new pests such as spotted wing drosophila that threaten many specialty crops in Michigan and beyond. **Development of new more resilient varieties of specialty crops and agricultural commodities in general with resistance to abiotic and biotic stressors is critical to sustainability of US agriculture as are**



advancements in precision agriculture and remote sensing that may provide alternative tools for detection, protection or remediation of effects of such stressors.

Another looming threat to sustainability of US agriculture in the foreseeable future is antimicrobial resistance. Once a topic for science fiction (development of superbugs), antimicrobial resistance has significant implications for animal, human and environmental health and animal and plant based production agriculture in general. Combatting this threat will require a truly integrated, multidisciplinary approach involving scientists from diverse fields including animal and human health, plant sciences, engineering, computational modeling and environmental sciences. **Future efforts in antimicrobial resistance research should be focused on 1) development and testing of new production/management practices/regimes to reduce the frequency by which antimicrobials are needed, 2) development of new biosensor technologies providing early detection of resistant microorganisms and framework for modeling of transmission on farm and to the environment and accompanying risk assessment, 3) diagnostics to rapidly and accurately determine causative microorganisms mediating disease and their resistance status to increase efficacy of treatments and consequently reduce use of ineffective drugs or prophylactic use of antimicrobials in general, and 4) design of new, alternative methods of treatment or prevention of plant and animal disease.**

While the threats to sustainability of US agriculture outlined above are significant, available technologies provide many avenues for tackling the challenges presented. However, one final challenge that cannot be overcome by technology alone is the brain drain and shortage of students pursuing careers in agriculture. A 2015 USDA report cited an annual shortage of over 22,000 Bachelor’s degree level or higher graduates relative to jobs available in agriculture. While the numbers of PhD level graduates and accompanying employment opportunities are smaller, the implications of the brain drain for the future of agricultural research in this country are no less significant. Stagnant or shrinking budgets for competitive grants programs have resulted in extremely low funding rates, leaving meritorious projects undone and discouraging young scientists from entering the field. In short, it is creating a system that is not welcoming to the best and brightest young scientists. If this continues, it will erode our ability to respond to the challenge of feeding the world and limit future sustainability of US agriculture. **To address this shortage of talent pursuing careers in agriculture, the agricultural community must strive to reinvent and promote agriculture as a STEM discipline to attract a greater percentage of the current generation of students to careers in agriculture. Additional funding opportunities for new investigators are also critical to encourage the best and brightest to pursue careers in agricultural research. One additional partial solution is to continue to develop new and effective partnerships with other federal agencies as well as foundations and private industry to increase funding opportunities for agricultural research.**

Michigan State University looks forward to continuing our tradition as a strong land-grant university – educating future generations to meet the growing demands and discovering and sharing advancements that promote sustainability of agriculture that will benefit our state, the nation and the world. Agriculture is America’s oldest career, and today it is arguably one of the most complex, technology-driven, knowledge-based industries in the world. We’ve come a long way, but the journey is far from over.



George W. Smith, PhD
Associate Dean for Research
College of Agriculture and Natural Resources
Michigan State University
Associate Director

MSU AgBioResearch

Comments Submission #031
Received 3/06/2017

From: Noreen Winningham
Sent: Monday, March 06, 2017 5:13 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comments for the Toward a Visioning of U.S. Agriculture ... Listening Session

Dear Mr. Murray, Contact Person-OCS, USDA:

Please accept the following comments into the official record of the Visioning of U.S. Agriculture Systems for Sustainable Production Listening Session for those interested in the long-term health and viability of U.S. Agriculture and for concurrently improving the economic, environmental, security, and health benefits to the U.S. through agriculture over the next 50 years.

As I enter my 7th decade of life as a born and bred American citizen, I realize that I have maintained a great deal of admiration for, appreciation of, and trust in agricultural producers and the government systems that regulate and support them. Consequently, it was distressful to realize how difficult this maintenance has become in recent years. Much of my difficulty comes from the disproportionate influence of corporations as agricultural suppliers. There is a difference between the goals of the American family farmer and the agra-industrial corporation. This difference is increasingly not in the best interest of the farmer or the consumer.

I am especially concerned about how seed stock is being produced and maintained. That we have allowed copyright on seed stock to the extent that farmers can no longer collect seeds for replanting; that farmers are subject to litigation if they don't buy corporate seed stock and such stock is found in their fields, regardless of wind patterns and natural propagation; that genetic engineering of seed stock appears to proliferate without long-term research as to the impact on human and animal health, are but a few of the concerns that plague me in terms of the American food chain.

As we maneuver the global economy of the 21st Century, studies are needed to economically reposition American agriculture. Contemporary pesticides, fertilizers, and GMO seed stock need to be reassessed for environmental and ecological impacts. New uses for agricultural outcomes, such as biodiesel fuels and other uses that technology now makes more accessible, need to be targeted and developed (this is potentially an effective approach for reviving agricultural colleges).



Studies are needed to stimulate technological advances in the processes of agriculture. Again, this opens new sectors for economic growth, for both the farmers and the developers.

In 50 years, I would envision that the American people again come to recognize the importance of agricultural processes, not only for health reasons, but because we will again have a robust, agricultural sector that provides its workers with a variety of roles that provide meaningful, profitable incomes, and which also feed and fuel the nation. I would envision urban gardens and small-scale farms as contributors to the urban environment, to organic farming, and to the education of urban dwellers. Will there remain family farmers in 50 years? I certainly hope that they remain a part of the American vision.

Thank you for your consideration.

Noreen Winningham
Skokie, IL 60076

*Comments Submission #030
Received 3/06/2017*

From: Kelley Poole
Sent: Monday, March 06, 2017 5:11 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: OTA Comments on Effective Strategies to Support the Long-term Health and Viability of U.S. Agriculture

Dear Seth,

On behalf of the Organic Trade Association (OTA), I submit the attached comments to the Office of the Chief Scientist in response to the opportunity to offer suggestions for effective strategies to support the long-term health and viability of U.S. Agriculture.

If you have any questions or we can be of further assistance, please feel free to contact me.

Kind regards,
Kelley
Kelley Poole, Vice President Government Affairs
Organic Trade Association (OTA) | www.ota.com
Direct: (202) 403-8511
Cell: (202) 394-3374

ONLY PDF ATTACHED – FORMATTING MAY HAVE CHANGED DURING COPY AND PASTE

March 6, 2017
Seth Murray, Senior Advisor
Office of the Chief Scientist
U.S. Department of Agriculture
1400 Independence Ave., S.W.



Washington, DC 20250

Docket: 82 Fed. Reg. 8174

RE: Visioning of U.S. Agricultural Systems for Sustainable Production

To the Office of the Chief Scientist:

On behalf of the Organic Trade Association (OTA), I would like to thank the Office of the Chief Scientist for seeking comments on the long-term health and viability of U.S. Agriculture, and also providing an opportunity to offer suggestions for effective strategies to concurrently improve the economic, environmental, security, and health benefits to the U.S. through agriculture over the next 50 years.

OTA is the membership-based business association for organic agriculture and products in North America. The leading voice for the organic trade in the United States, OTA represents over 9,500 organic businesses across 50 states. Our members include growers, shippers, processors, certifiers, farmers' associations, distributors, importers, exporters, consultants, retailers and others. Organic products represented include organic foods, ingredients and beverages, as well as organic fibers, personal care products, pet foods, nutritional supplements, household cleaners and flowers. Our member organic businesses work together to encourage and protect organic farming practices, and to share messages about the positive environmental and nutritional attributes of organic products with consumers, the media, and policymakers.

A vibrant organic industry is integral to agricultural systems for sustainable production in the United States, both now and in the future. We offer our support of and underscore the comments provided by The Organic Center (TOC), a non-profit organization with the mission of convening credible, evidence-based science on the environmental and health benefits of organic food and farming, and communicating the findings to the public. TOC is the leading voice in the area of scientific research about organic food and farming, and covers up-to-date studies on sustainable agriculture and health while collaborating with academic and governmental institutions to fill knowledge gaps. In their comment submission, TOC provided specific input on how organic is an integral part of the solution for agricultural sustainability by supporting soil health, mitigating climate change, upholding pollinator health, and contributing to a successful economy.

The almost 50 billion dollar-a-year organic industry is a bright spot in the U.S. farm economy. U.S. organic sales have grown exponentially from \$14 billion in 2005 to \$43.3 billion in 2015, a 209% increase. Organic has posted double-digit growth in each of the last five-years, including 11% growth in 2015. ¹

¹ The Organic Trade Association's 2016 *Organic Industry Survey*

² The Organic Trade Association's 2016 *Organic Industry Survey*

Organic farms, suppliers and handlers are creating jobs across the country, including expanding, opening and retooling handling, manufacturing and processing facilities. Sixty percent of organic businesses reported their operations had increased full-time employment during 2015.² More than 65 percent of organic farms sell in wholesale markets, creating a distinct value chain in the greater food economy. From processors to packers, distributors to marketing cooperatives, the organic industry is employing Americans across the entire supply chain.



Organic hotspots—counties with high levels of organic agricultural activity whose neighboring counties also have high organic activity—kick start rural economies, boost median household incomes by an average of \$2,000 and reduce poverty levels by an average of 1.3 percentage points.³ To date, 225 counties across the United States are identified as organic hotspots and are as diversified as the organic industry, representing the various kinds of organic agricultural activity and accompanying businesses: crop production, livestock production, and organic processors.

The almost \$50 billion-per-year industry is supported by more than 24,000 certified organic operations nationwide. From strawberries to beef, wheat to eggs, organic farms and businesses can be found in all 50 states. When viewed as a commodity class, organic is the fourth largest food and feed economy in the U.S. with over 6.2 billion in 2015 farm-gate sales, up 13% since 2014.⁴ Still demand regularly outpaces supply, making organic an opportunity for U.S. farmers. Additionally, organic farms are 35 percent more profitable than the average farm and have higher gross receipts. Premiums paid to organic farmers can range from 29 to 32 percent above non-organic prices. The difference in on-farm net-income in many cases is what makes staying on the farm possible. In today’s economic uncertainty, organic is critical to an economically sustainable U.S. agriculture production system.

Thank you for your commitment to the long-term success of agriculture in the United States, and for the opportunity to provide input on the Visioning of U.S. Agricultural Systems for Sustainable Production.

Sincerely,
Laura Batcha
Executive Director/CEO
Organic Trade Association

*Comments Submission #029
Received 3/06/2017*

From: Nancy Caulfield
Sent: Monday, March 06, 2017 5:09 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Written Comment

Dear Dr. Murray,

I am a certified organic farmer and believe very strongly that the current focus on *agribusiness*, rather than *agriculture* is not sustainable for the planet, it’s ecosystems or it’s inhabitants. Mono-cropping with genetically engineered crops that allow tons of poisonous glyphosate and other toxins to be applied to crops and the earth are killing the soil, the birds, beneficial insects, fish, other wildlife, and sickening humans worldwide. These destructive practices must end if humanity and the planet is to survive.

The USDA must promote biodiversity of crops and local production. Government subsidies to farmers should be based on the farmers who:



- grow diverse crops
- incorporate soil building practices with green manures, animal manures, compost, crop rotation, etc.
- allow animals to live in natural conditions and eat foods that they are designed to eat (i.e. cows on grass)
- produce food for local markets and encourage regional self-sufficiency
- produce nutrient dense food to heal people and the planet.
- reduce greenhouse gas emissions and provide green spaces that will clean the atmosphere and waterways of pollution

The USDA must promote farming as an honorable profession and mandate that the true value of producers efforts be recognized and fairly compensated thus encouraging opportunities for more people to become food and fiber producers.

Local communities, rather than Big Ag, will have decision-making authority and control over their resources and issues relating to health, energy, area planning, protection of environmentally sensitive areas and restoration of wild areas.

USDA research should focus on:

- nutritional value of crops
- soil regeneration
- beneficial polycultures
- sustainable on-farm energy production such as solar, wind and hydro
- how to help communities become self sufficient in sustainable food and energy production

Thanks or accepting my comments.

Nancy Caulfield

Over the next 50 years, U.S. agriculture must shift to diverse, resilient, adaptive and regenerative systems that mimic nature, stimulate healthy soils, restore ecosystems, increase biodiversity and build communities of practice, to ensure the vitality of human health and local economies.

We envision agricultural systems that are:

- Accessible to all. Everyone's right to safe, healthy, nutrient-dense food will be recognized and fulfilled. Agriculture will be a thriving, widespread and common practice that nearly everyone engages in.
- Regionally self-sufficient. Food and fiber production will be integrated into daily life in homes, schools, health-care and community centers, workplaces and public spaces, in urban, suburban and rural communities. Most food and fiber will be consumed close to where it is produced. Waste will be eliminated and surplus will be distributed.
- Healing to people and the planet. Food and farming will be the foundation of individual, public



and environmental health. Food production will have shed its greenhouse gas emissions and become a sink that cleans the atmosphere of pollution. Agriculture will be used to create resilience to and eventually reverse climate change. Food and fiber production systems will be planned and managed to restore soils, waterways, ecosystems, environments and wild spaces.

- Fair. Food and fiber production will be an honored profession. The true value of producers' efforts will be recognized and compensated. Production systems will no longer rely on sweated labor, prices below the cost of production, or negative externalities. New economic systems will emerge to create greater opportunities for more people in food and fiber production.

- Democratic. Localities will have decision-making authority and control over their resources, while acting with neighboring communities to establish regional cooperation. Robust food policy councils at the municipal, county, state and regional levels will guide agricultural systems. The councils will be instruments of democratic and civic engagement with governmental decision-making capacity on issues relating to health, energy, the planning of developed areas, the protection of environmentally sensitive areas, the restoration of wild areas, resource utilization, management of the economy, etc. Participation in food policy councils will be open to all.

We recommend the USDA focus its research on:

- Nutrient density and diversity, to reorient food production for quality as well as calories.

- Soil regeneration. Soil is the foundation of life on Earth. Research should focus on soil as a complex living entity to be managed for maximum carbon storage, water holding capacity, production, nutrition, and resilience. Soil building strategies, including composting, biochar, adaptive multi-paddock grazing and plant biodiversity, should be investigated.

- Highly productive polycultures that integrate many varieties of plants and animals, annuals and perennials, and food and fiber, to maximize productivity, soil health, nutrient density and pest suppression, in a closed system where all inputs and sources of fertility are produced on the farm. Design strategies from permaculture, organic farming, biodynamic farming, indigenous nations, and other traditional farming methods should be investigated.

- On-Farm energy production that doesn't hinder or compete with food production.

- Decision-making structures that spur regenerative agriculture, agriculture such as collaborative research, food policy councils, participatory budgeting, collectives, public banks, community supported agriculture, seed banks, community land trusts, and worker-run businesses.

- Education of the next generation of food producers with farm-to-school programs, school gardens and classes in nutrition, holistic management, ecology, etc., to spark an interest in, and provide the skills needed for, careers in food production.

- See more at:

https://action.organicconsumers.org/o/50865/p/dia/action3/common/public/?action_KEY=20139#sthash.EACIyrVv.dpuf



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- See more at:

https://action.organicconsumers.org/o/50865/p/dia/action3/common/public/?action_KEY=20139#sthash.EACIyrVv.dpuf

*Comments Submission #028
Received 3/06/2017*

From: Melody Englund, Indexer

Sent: Monday, March 06, 2017 4:59 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: Visioning of U.S. Agriculture Systems for Sustainable Production

Mr. Seth Murray, Senior Advisor
Office of the Chief Scientist

Dear Sir,

My vision for the future of agriculture in our country includes more and more organic foods using the current standards or stronger, and fewer chemicals.



I am allergic to preservatives: sodium benzoate causes me to become very emotional and nitrates irritate my sinus membranes. In the last 10 years I have become very concerned about commercial meat production practices, including the addition of large doses of antibiotics so that animals can be contained in small areas with very little space to move around.

I started choosing organic food in the 1980s and endeavor to only eat meat that was produced humanely, without the use of antibiotics. It is difficult to tell whether meat was produced and slaughtered humanely and I would like clarification on that to be included in packaging. Meanwhile, I don't order meat at restaurants unless they can assure me that the animals were not fed antibiotics and there are no preservatives in the meat. The result of that is I eat less meat and more vegetables that may have been sprayed with chemicals or are GMO; at least the vegetables were not mistreated, unlike the bees that pollinated them. I'm sure you cannot kill bugs with poison without killing bees as well.

It seems to me the chemicals Monsanto and others are pushing have created an endless cycle of killing off bugs—bugs develop immunity—chemical companies increase the dosage. It seems to me there is a conflict of interest in that chemical companies can depend on their product being needed in the future if the bugs just keep developing immunity. Meanwhile we grow sicker from somewhat unexplained diseases and antibiotics are no longer as effective as they once were because everyone has been getting their daily dose in their meat. This is not sustainable!

Please keep the standards we currently have and make them stronger if you can. Please add humane treatment information to packages of meat. And please, don't listen to Monsanto! They've done enough damage. Without the EPA it seems to me you will be our last line of defense. Please hold that line!

Sincerely,
Melody

Melody Englund
Songbird Indexing Services
Rainier, Oregon

If we encounter a man of rare intellect, we should ask him what books he reads. -- Ralph Waldo Emerson

*Comments Submission #027
Received 3/06/2017*

From: S Ludtke
Sent: Monday, March 06, 2017 4:43 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: food and farming in fifty years

Please accept these comments for an improved US system of food production and farming activities.



Mother nature is screaming for help, but unfortunately the powerful voices of the industrial chemical based agricultural industries is drowning her out. But we all know a new system is imperative. Not only should it be sustainable, but also one that is regenerative and builds the top soil, sequesters carbon and reduces the poisons flowing into the air and waterways. The USDA needs to cooperate and promote this change.

My father was educated before and after world war II during the chemical explosion when it became viewed that we could succeed by challenging the natural process. He worked for the USDA after WWII with the veterans and again after the war on Vietnam. In between he was a high school ag instructor. In his later years and contrary to his earlier college education, he came to understand and state that the only winners in this chemical intensive farming are the chemical producers. And he was correct. The farmers that will remain in a couple of decades will be the ones to abandon the world according to Monsanto and produce healthy food organically.

Regards

Spencer Ludtke
Saint Paul, MN

*Comments Submission #026
Received 3/06/2017*

From: Denise Louie
Sent: Monday, March 06, 2017 4:37 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Comment

Hello Senior Advisor Seth Murray,
Please forward this email message to Agriculture Department Acting Under Secretary of Research, Education and Economics Ann Bartuska and relevant parties. I missed the webinar "Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder Listening Session Meeting". But I do have comments.

I am deeply concerned about our future, not least because, as the United Nation says, we have maybe 60 harvests left.* Even if the US has more fertile soil than other countries, our safety is at risk when people from other countries expect to get something from the US. I am also concerned that we have not learned from history how great civilizations experienced great upheaval or perished when their people went thirsty and hungry.

If the US is going to move forward with sustainable agriculture, we should consider the environment our top priority. Native pollinators like native bees are responsible for 1 out of every 3 bites of food on our plates. A recent study announced in February 2017 states in North America, 749 native bee species are declining, and 347 of these species are highly imperiled, at risk of extinction.** This is but a sample of what is happening to all kinds of pollinators, due



primarily to habitat loss/degradation/fragmentation, herbicide use on farms and ranches, and other human activities.

Government hand-outs to Big Ag are unsustainable, because Big Ag practices are unsustainable. Corn and sugar, for example, have significant adverse impacts on Americans’ health, preventable hospital visits and my insurance bill. Besides, Big Ag compacts the earth and pollutes our air with heavy machinery, wastes water with aerial spraying, causes land subsidence by overdrawing aquifers that formed over thousands of years, causes water pollution and dead zones such as the Mississippi River Delta—to name a few things that need to change. I also understand how these farmers leave much land bare for many months of the year, allowing wind to blow topsoil away. It takes 1000 years for Earth to create 1” of topsoil.

In short, agricultural practices and government subsidies need to change—for our health and safety, for biodiversity, for the environment, and for whole civilizations to remain intact. Long-term sustainability should not be given short shrift by short-term profits. I urge you to advocate for Regenerative Agriculture.***

Thank you,
Denise Louie

* <http://www.fao.org/soils-2015/events/detail/en/c/338738/>

** http://www.biologicaldiversity.org/campaigns/native_pollinators/pdfs/Pollinators_in_Peril.pdf

*** <http://www.regenerativeagriculturedefinition.com/>

*Comments Submission #025
Received 3/06/2017*

From: Birgit Sharp
Sent: Monday, March 06, 2017 3:47 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Visioning of U.S. Agriculture Systems for Sustainable Production Listening Session

Dear Mr. Seth Murray, Senior Advisor, Office of Chief Scientist;

Thank you for the opportunity to comment on the future of farming in the United States.

We must move in the direction of regenerative farming. By improving soils, farms can:

- keep water available for plants, making crops more resilient to drought and floods
- keep nutrients available to plants, increasing fertility to plants and reducing polluting runoff
- sequester carbon, mitigating climate change
- improve soil life; that provides plants with immunity, growth hormones, micronutrients, and much more
- reduce erosion
- improve nutritional value of food



This does not require large investments. We need to do the following:

- 1) Reduce soil disturbance, such as plowing or tilling
- 2) Keep soils covered with living plants. This means cover crops during the winter and companion crops during the growing season. Perennial crops are ideal. (Diversity of plants is optimal)
- 3) Increase organic matter. This is easily done by leaving crop debris.
- 4) Intensive grazing

This is good for our farmers, good for our health and good for the environment.

Thank you for your consideration.

Birgit Sharp

*Comments Submission #024
Received 3/06/2017*

From: charliebites9@*****.*** (Melissa Frye)
Sent: Monday, March 06, 2017 3:44 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production

Public comment submitted for
Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production
I, Melissa Frye, would like to see organic agriculture exclusively implemented

*Comments Submission #023
Received 3/06/2017*

From: Benjamin Merrill
Sent: Monday, March 06, 2017 3:35 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: FR document 2017-01506: Sustainable Production comments

I have this comment for the Federal Register concerning the future of sustainable agriculture in the US:

The US is currently converting and losing more of its best farmland to urban development every year while the population increases. Policy should incentivize the opposite trends. Policy should also reverse the environmentally and culturally destructive movement toward ever-increasing farm consolidation and monoculture acreage expansion. Small farms and diverse producer types is the key to a sustainable agricultural economy that occurs without environmental instability and loss of environmental health.

Benjamin Merrill

*Comments Submission #022
Received 3/06/2017*



From: Kathleen Medina
Sent: Monday, March 06, 2017 3:31 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comments on sustainable production

When I heard that the USDA was going to hold a session on the Visioning of U.S. Agriculture Systems for Sustainable Production, I saw a great opportunity to address the three interrelated challenges facing agriculture over the next 50 years—soil loss, diet-related disease and climate change. Each of these problems has a common solution: healthy soil.

The best way to reverse soil loss, sequester carbon and grow lots of nutrient-dense food is to continuously cover the soil with a diverse array of living plants. This feeds the microbial communities that perform 90 percent of soil function, including carbon storage.

The plants that we (or grazing animals) eat give the carbon those plants generate through photosynthesis to soil microorganisms, which in turn provide plants with water and nutrients. This process works best when there are lots of different plants exchanging lots of different nutrients with lots of different microbes.

Plant biodiversity is the key to soil carbon sequestration. It's also a great way to grow more food than you ever thought possible on less land than you can imagine (to quote [John Jeavons](#), author of several books, and director of Grow Bio-Intensive). Plus, food from healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases.

We think this is the future of agriculture—not GMO monocultures that strip soil of nutrients, and of its natural ability to draw down and sequester carbon.

Thank you for considering these facts as policy is being made.

Sincerely,
Kathleen

*Comments Submission #021
Received 3/06/2017*

From: Christine Mallar
Sent: Monday, March 06, 2017 3:22 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Sustainable farming

I saw this notice:

The OCS, USDA announces a Visioning of U.S. Agriculture Systems for Sustainable Production Listening Session for those interested in the long-term health and viability of U.S. Agriculture and for concurrently improving the economic, environmental, security, and health benefits to the U.S. through agriculture over the next 50 years.

I just wanted to say that very few things mean as much to me as supporting sustainable, biodynamic farming methods. Farms that actively work to conserve and protect natural resources are among the best ways to balance the demands of a growing population with the need to



protect clean streams and rivers, prevent soil erosion, sequester carbon, and reduce chemicals used in the process. We need to protect and support the livelihood of smaller farmers that work so hard to integrate plant and animal production to protect these resources and improve the quality and diversity of foods and fibers, as well as protecting biodiversity and sequestering carbon. I don't want herbicides, insecticides, and chemical fertilizers in my food or my environment. I don't believe in farming methods that disregard the long term effects their practices have on soil, air, water and the animals that are raised for food. I hate the idea of making plants more resistant to chemical applications which leave residuals in the foods; plants and insects eventually adapt to these conditions and require greater and greater quantities and varieties of these chemicals. Soils are depleted and erode quickly, and runoff effects groundwater as well as other bodies of water, etc. I work hard to support these sorts of farming methods with my personal purchases and the foods I sell to the public in my business. Please do your very best to protect these sustainable agricultural practices as we move forward.

Sincerely,

Christine Mallar
Portland, OR

*Comments Submission #020
Received 3/06/2017*

From: Matthew Gray
Sent: Monday, March 06, 2017 3:23 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Comments for USDA study

Hello Mr. Murray,

I appreciate you taking my opinion into consideration. I have been a small sustainable farmer for many years. My partner and I chose to affiliate our operation with Certified Naturally Grown. We believe that the best quality and healthiest food is grown without the use of chemicals and utilizing farming methods that have been around since farming began. Caring for soil health with crop rotation and utilizing beneficial insects are simple methods that don't require anything but a little planning and caring. It is vital that we protect pollinating insects as no average person will be able to grow their own food without them. If humans lose the ability to grow their own food, we will all be in deep trouble. If we allow chemicals, antibiotics and genetic modification to continue at the current pace, we will lose our ecosystem and ability to provide ourselves with the nourishment our bodies need. Nature provided us with a perfect system for feeding all creatures. This must be respected and protected. People claim that the world can not be fed with natural farming methods, but this is a false notion. So much food is wasted. Excess food and "ugly produce" are tragically wasted every day. Things can be done differently and more efficiently to solve our problems while still respecting nature. There are thousands of farmers like my partner and I that are ready and willing to provide input and ideas towards this outcome.

Regards,
Matthew



Comments Submission #019
Received 3/06/2017

From: Weaver, Eric
Sent: Monday, March 06, 2017 3:14 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Cc: Sss
Subject: Visioning of U.S. Agriculture Systems for Sustainable Production

Seth Murray, Senior Advisor
Office of the Chief Scientist
telephone: (202) 692-0204; fax: (202) 260-8786
email:
seth.murray@osec.usda.gov <https://www.federalregister.gov/documents/2017/01/24/2017-01506/visioning-of-united-states-us-agricultural-systems-for-sustainable-production-stakeholder-listening>

Dr Murray,
I think this is awesome! We need to get a new perspective on agriculture in the USA, and make it much more sustainable. There is no need to profit above all else, and the competitive-greed model is simply destroying everything and [polluting all of us](#). "Sustainability" is critical and fundamental to the next century as we are finding with the new guidelines for establishing University Sustainability: <https://stars.aashe.org/pages/about/understanding-sustainability.html>

Please, encourage a US Agriculture Vision based on reducing pollution and toxic waste. Stop all factory farm waste lagoons that are illegal for any other municipality. Toxic pesticide overspray and GMO drift must result in substantial fines like with the BP Oil spill in the Gulf of Mexico that impacted neighbors. The USA population is moving away from cheap fast food full of chemicals and increasingly seeking healthy organics. The US Agriculture Vision must meet this requirement to avoid the increase of organic imports. The European and Japanese food standards are light-years ahead of the USA. Make USA Great again through healthy honest agriculture, not deceptive, toxic lies and propaganda!

Thank you for your effort here, and I would welcome the opportunity to support this new vision!
Kind Regards,
Eric

Eric R.R. Weaver, MBA, MSM, Research Associate
Patel College of Global Sustainability, CGS 242
<http://eweaver.myweb.usf.edu/>

Comments Submission #018
Received 3/06/2017

From: Dan Ezra Aurian-Blajeni



Sent: Monday, March 06, 2017 3:12 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: RE: Visioning of U.S. Agriculture Systems for Sustainable Production

To Whom It May Concern,

The best way to reverse soil loss, sequester carbon and grow lots of nutrient-dense food is to continuously cover the soil with a diverse array of living plants. This feeds the microbial communities that perform 90 percent of soil function, including carbon storage.

The plants that we (or grazing animals) eat give the carbon those plants generate through photosynthesis to soil microorganisms, which in turn provide plants with water and nutrients. This process works best when there are lots of different plants exchanging lots of different nutrients with lots of different microbes.

Plant biodiversity is the key to soil carbon sequestration. It's also a great way to grow more food than you ever thought possible on less land than you can imagine (to quote John Jeavons, author of several books, and director of Grow Bio-Intensive). Plus, food from healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases.

Over the next 50 years, U.S. agriculture must shift to diverse, resilient, adaptive and regenerative systems that mimic nature, stimulate healthy soils, restore ecosystems, increase biodiversity and build communities of practice, to ensure the vitality of human health and local economies.

We envision agricultural systems that are:

- Accessible to all. Everyone's right to safe, healthy, nutrient-dense food will be recognized and fulfilled. Agriculture will be a thriving, widespread and common practice that nearly everyone engages in.
- Regionally self-sufficient. Food and fiber production will be integrated into daily life in homes, schools, health-care and community centers, workplaces and public spaces, in urban, suburban and rural communities. Most food and fiber will be consumed close to where it is produced. Waste will be eliminated and surplus will be distributed.
- Healing to people and the planet. Food and farming will be the foundation of individual, public and environmental health. Food production will have shed its greenhouse gas emissions and become a sink that cleans the atmosphere of pollution. Agriculture will be used to create resilience to and eventually reverse climate change. Food and fiber production systems will be planned and managed to restore soils, waterways, ecosystems, environments and wild spaces.
- Fair. Food and fiber production will be an honored profession. The true value of producers' efforts will be recognized and compensated. Production systems will no longer rely on sweated labor, prices below the cost of production, or negative externalities. New economic systems will emerge to create greater opportunities for more people in food and fiber production.



- Democratic. Localities will have decision-making authority and control over their resources, while acting with neighboring communities to establish regional cooperation. Robust food policy councils at the municipal, county, state and regional levels will guide agricultural systems. The councils will be instruments of democratic and civic engagement with governmental decision-making capacity on issues relating to health, energy, the planning of developed areas, the protection of environmentally sensitive areas, the restoration of wild areas, resource utilization, management of the economy, etc. Participation in food policy councils will be open to all.

We recommend the USDA focus its research on:

- Nutrient density and diversity, to reorient food production for quality as well as calories.
- Soil regeneration. Soil is the foundation of life on Earth. Research should focus on soil as a complex living entity to be managed for maximum carbon storage, water holding capacity, production, nutrition, and resilience. Soil building strategies, including composting, biochar, adaptive multi-paddock grazing and plant biodiversity, should be investigated.
- Highly productive polycultures that integrate many varieties of plants and animals, annuals and perennials, and food and fiber, to maximize productivity, soil health, nutrient density and pest suppression, in a closed system where all inputs and sources of fertility are produced on the farm. Design strategies from permaculture, organic farming, biodynamic farming, indigenous nations, and other traditional farming methods should be investigated.
- On-Farm energy production that doesn't hinder or compete with food production.
- Decision-making structures that spur regenerative agriculture, agriculture such as collaborative research, food policy councils, participatory budgeting, collectives, public banks, community supported agriculture, seed banks, community land trusts, and worker-run businesses.
- Education of the next generation of food producers with farm-to-school programs, school gardens and classes in nutrition, holistic management, ecology, etc., to spark an interest in, and provide the skills needed for, careers in food production.

Thank you for your time and consideration.

Warmest regards,
Dan Aurian-Blajeni

*Comments Submission #017
Received 3/06/2017*

From: David Anderson
Sent: Monday, March 06, 2017 3:07 PM



To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Re envisioning Agriculture

Dear Sir,

Since June, 2008 my wife, Marie Chandoha and I own and steward 160 acres of ranch/farm land on the northwestern slope of Sonoma Mountain in Sonoma County California.

From 1916-1975 the land was grazed and farmed for two generations and then held for residential development for the next thirty years. We sold two development rights in a conservation easement and are actively restoring the degraded grasslands and woodlands. Utilizing wholistic management methodology we are actively restoring native perennial grasses, improving water retention, planting in 1/2 mile of riparian creeks, and assuring a new generation of woodland trees and understory plants to support the local ecology.

This view of nature as supportive of agriculture rather than an intrusive and destructive pest to be banished is helping to bring vibrancy and resilience to this land we call A Place of Hope and Beauty. We urge the USDA to embrace Nature and its powerful and majestic capacity to regenerate life with its new vision of Agriculture for the next 50 years Sincerely yours, David Anderson

*Comments Submission #016
Received 3/06/2017*

From: Brian Cole
Sent: Monday, March 06, 2017 3:04 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject:

We need a regenerating farm system with permaculture principals to serve our needs and keep the land healthy and prosperous. The current system of overusing chemicals for growth and pests is degrading the topsoil of our country at an alarming rate. We will never be able to fix the problem if it continues this way.

Plant biodiversity is the key to soil carbon sequestration. It's also a great way to grow more food than you ever thought possible on less land than you can imagine. Plus, food from healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases.

Make food policy for people and place, not for profit that undercuts our health.

Thank you

--

Brian Cole

*Comments Submission #015
Received 3/06/2017*

From: Karin Johnson
Sent: Monday, March 06, 2017 3:04 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: COMMENTS Visioning of U.S. Agriculture Systems for Sustainable Production



Dear Dr. Murray,

Ever since I became pregnant with my children, I have been buying organic fruits and vegetables and humanely raised and organically fed meats and poultry. I pay more for these items, and afford this by buying less, wasting less, and eating less meat. I also have encouraged family members and friends to do the same.

Healthy food and a healthy environment are very important to me, and go hand-in-hand. I hope that the USDA will support healthy, natural and organic farming that creates healthy soil, growth of a great variety of plants, and healthy and humanely raised animals.

I also would like to see the USDA work harder to enforce rules that hold large factory farms accountable for the conditions they keep their animals in. We know that a plant-based diet is healthier than a predominantly animal-based diet, and I would like to see the USDA encourage people to eat LESS meat and more fruits, grains, vegetables and legumes.

Respectfully,
Karin Johnson

*Comments Submission #014
Received 3/06/2017*

From: Roy Simmons
Sent: Monday, March 06, 2017 3:02 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Visioning of agriculture in the future

I would like much more plant food and LESS animal food within the next 50 years. I want the farming and ranching to take care of their environment and be efficient in their use of resources. Farmers should be able to earn a livable wage.

*Comments Submission #013
Received 3/06/2017*

From: sedna101@***.***
Sent: Monday, March 06, 2017 2:53 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject:

Animal agriculture is destroying our environment; it is the opposite of sustainable. All subsidies should be stopped immediately. Every cardiologist I know recommends a vegan diet due to the devastating health effects of animal products. They should start being phased out. A large farm produces more animal waste than a city, and none of it is treated!
In addition, due to the widespread use of pesticides and other ag chemicals, I only buy organic, non-GMO foods...as does everyone else I know. That is what sustainability is.



There are three interrelated challenges facing agriculture over the next 50 years—soil loss, diet-related disease and climate change. Each of these problems has a common solution: healthy soil. The best way to reverse soil loss, sequester carbon and grow lots of nutrient-dense food is to continuously cover the soil with a diverse array of living plants. This feeds the microbial communities that perform 90 percent of soil function, including carbon storage. Plant biodiversity is the key to soil carbon sequestration. Food from healthy soil is flavorful, aromatic and so nutritious that it could cost-effectively reverse diet-related diseases.

We think this is the future of agriculture—not GMO monocultures that strip soil of nutrients, and of its natural ability to draw down and sequester carbon.

Blessings, Jane Eagle, voter

~^..^~ Denali's Legacy Arctic Dog Rescue ~^..^~

Each day, a person who eats a vegan diet saves 1,100 gallons of water, 45 pounds of grain, 30 square feet of forested land, 20 pounds of CO2 equivalent, and ONE ANIMAL'S LIFE.

Comments Submission #012
Received 3/06/2017

From: barbara harris
Sent: Monday, March 06, 2017 2:59 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: agriculture

To whom it concerns,

We all must support organic agriculture , now, so that we do not pollute and damage our food and water any further than it already is,and it is bad.

Please support legislature that takes the right and best action for all of our health and well being.

Thank you, and most sincerely,

B. Harris

Comments Submission #011
Received 3/06/2017

From: Thomas Hebert
Sent: Monday, March 06, 2017 10:28 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Congratulation on the March 2nd Listening Session -- NCGA Comments for the Written Record

Hi Dr. Murray,

Congratulations on a successful session on the 2nd. There were many good and helpful ideas presented and I found much of the day interesting and useful.



Attached, please see written comments that the National Corn Growers Association would like to have included in the record for the meeting.

If you have any questions, suggestions or concerns, please let me know.

Best!

Tom Hebert

On behalf of NCGA

ONLY PDF COMMENTS ATTACHED (AND A REPORT, NOT INCLUDED, ATTACHED)

– FORMATTING MAY HAVE CHANGED DURING COPY AND PASTE

REPORT Was:

C-Ouest: Charting a Course for

Climate Research in Agriculture

ILSI Research Foundation Workshop Summary Report

March 2, 2017

TO: Mr. Seth Murray, Senior Advisor, USDA Office of the Chief Scientist

FROM: Mr. Paul Bertels, Vice President of Production and Sustainability, NCGA

SUBJECT: National Corn Growers Association comments and observations on directions and research needed for making US agricultural systems more sustainable, for submission as part of the USDA Listening Session on Sustainable Agriculture taking place on March 2, 2017.

The National Corn Growers Association (NCGA) offers below comments and observations on the directions and research needed to help make US agricultural systems more sustainable for inclusion in the record you are maintaining for the US Department of Agriculture's Listening Session on Sustainable Agriculture that is taking place on March 2, 2017. We commend the Department for this timely session. There are tremendous research opportunities before agriculture and corn production to advance the critical goals of sustainability and we look forward to working with the Department and the other stakeholders to help US agriculture fully realize these opportunities and their numerous benefits.

NCGA represents approximately 41,000 dues-paying corn growers across the country and the interests of more than 300,000 farmers who contribute through corn check-off programs. Sustainability means very real and practical things to our farmer members. For example, they have been investing in conservation for years. They have fenced creeks, maintained wildlife habitat, utilized conservation tillage and biotechnology to reduce soil erosion and improve soil health while also reducing the use of herbicides and insecticides. Sustainability also means efficient production systems for our members, who routinely and rapidly take advantage of the latest corn varieties and technologies that allow them to use fewer resources, increasing efficiency as they increase production to meet the world's growing need for corn and corn products. Along with these new and improved corn varieties, farmers have increasingly employed precision tools in the use of fertilizers, pesticides, and farm equipment, and they have



worked with crop consultants to utilize their farms’ data to help them farm more intelligently and efficiently.

Corn producers are proud of the fact that these efforts have led to a cleaner environment alongside of faster, efficient and more sustainable ways to farm profitably. We offer the comments below with confidence that sound and practical research programs in agriculture can help the entire sector and corn producers continue to achieve new and larger gains in the sustainability of our production systems.

National Multi-Crop Phenotyping Initiative

In 1988, USDA and the National Science Foundation began the Plant Genome Initiative. This program led to the genetic sequencing of numerous crops of significant economic importance and unleashed a new era in crop breeding. Without this national focus, many of the advances currently in use would not have come about.

It is time once again to take another big picture national approach, this time with phenotyping. NCGA has led an effort to form a National Multi-Crop Phenotyping Initiative. We have solicited input from most major food crops in the U.S. to gain their research needs. These needs across all of plant agriculture was then compiled to form the basis of the initiative. In addition, we have reached out to many of the National Program Leads and key Hill staff to begin the process of building a National approach that benefits all of agriculture.

One example of a commodity specific program that is encompassed in the National Initiative is Genomes to Fields (G2F) and associated phenotyping efforts could fit into this sustainability discussion. G2F and a broader gene-to-phenotype research initiative, will facilitate an accelerated rate of genetic gain that will be required to meet the long term demands of the world, especially in light of the above constraints.

G2F and a broader phenotyping effort will also support precision agriculture and the critical efficiency and sustainability gains that flow from its use. G2F will help develop technologies (e.g. sensors) which will allow farmers to better manage their land and inputs to optimize their outputs. As an additional benefit, many of the sensors developed for phenotyping maize will be applicable across most crops.

In the end unlocking the genetic potential within the plant itself is one of the best ways to improve production efficiency, and achieving the goals of sustainability; producing more while using fewer resources.

C-Quest Research findings

On October 23-24, 2016 NCGA through the Soil Health Partnership, along with International Life Sciences Institute, Monsanto, Washington University in St. Louis, FFAR, the Howard G. Buffett Foundation and USDA hosted C-Quest: Charting a Course for Climate Research in Agriculture. This meeting brought together researchers, industry, NGOs and agriculture advocates across multi disciplines to discuss the climate related research requirements. Areas of discussion and identified research needs were discussed in Soil Health, Nitrogen Stewardship, Land Conservation, Carbon Neutral Modeling and Verification, and Pollinator Health. A summary of these proceedings and specific areas of research needs are attached for your consideration.



Soil Health Partnership

Soil health and improving soil health is a key element in the corn sectors’ efforts to improve the sustainability of corn production systems. To help us achieve this goal, NCGA has formed the farmer-led Soil Health Partnership (SHP), which brings together diverse partner organizations including federal agencies, universities and environmental groups to work toward the common goal of improving soil health. The SHP includes a demonstration site network of 65 farmers across the Midwest testing practices that can improve soil health, including reduced tillage, advanced nutrient management, and the use of cover crops. We collect data with the guidance of the SHP Science Advisory Council, which is shared through SHP events, networking, and technical assistance.

The SHP also works at the ground level, directly with farmers. We work with them to identify their soil health concerns and identify which practices would be feasible to incorporate into their existing management. This process allows for farmers to customize how they implement soil health improvement on their farm, while our data collection process helps evaluate how well that management change is performing for soil health improvement and economic feasibility. Our experience with the SHP leads us to suggest the following as important and critical areas of additional research:

1. **Nutrient Dynamics**—There is a great need to update nutrient management recommendations across the United States. Many of the recommendations are based upon data that were collected over limited durations, are decades old and have not been published. In updating nutrient management recommendations, research is needed to better understand nutrient dynamics in mature conservation systems (minimum tillage, cover crops, diversified rotations, irrigation). Studies are needed to better understand nutrient timing, placement, rate and source for agronomic systems management in preparation and through weather challenges.
2. **Large Rainfall Events and Nutrient Losses**—Research has shown that rainfall events drive nutrient losses from crop fields. The majority of phosphorous losses are associated with the three or four largest events, often involving a total of 10 to 14 days. Nitrogen losses are more spread out during the growing season but they are closely associated with rainfall events. Research is needed to help us understand how our conservation, erosion control and nutrient management practices and systems can be best designed and implemented to reduce the risk of nutrient losses created by these rainfall events.
3. **Organic Matter**—Research is needed to help us measure organic matter deposition rates and constituents and understand how these depositions and their rates are affected by how we manage these soils and our corn production systems in the context of the other relevant soil properties. How do organic matter deposition and loss rates differ in light of the inherent and dynamic properties of an agronomic system where management practices and soil types and weather can intersect in unpredictable ways?
4. **Soil Temperature and Moisture Dynamics**—How do soil temperature and moisture dynamics interact and change amongst management, soil properties, cropping systems? How do these



dynamics change throughout the early season, mid-season, harvest, profile recharge timings with conservation systems implementation?

5. Soil Health Assessment Interpretation—Additional research is needed to further calibrate soil health assessments (based upon soil health indicator evaluation) for greater geographies and cropping systems throughout the United States. These calibrations need to be conducted across yield, economic and environmental outcomes.

NCGA Comments for USDA Listening Session on Sustainable Agriculture Page 4 March 2, 2017

6. Economic Evaluation of Conservation Systems—Interactive and locally specific management guidelines with better recommendations for economic risk and benefit in conservation systems-fit by soil type, crop region, management practices, rotation, etc.

Thank you once again for holding this listening session and for offering us the opportunity to submit these written comments for the record. Please do not hesitate to contact us if you or your colleagues have any questions about what we have provided here, or if you wish to discuss any of these topics further, in more detail. We would be happy to do so.

*Comments Submission #010
Received 3/03/2017*

From: Marcia DeLonge

Sent: Friday, March 03, 2017 8:07 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>

Subject: RE: March 2 USDA-OCS full listening session details (including remote access)

Dear Seth,

Thanks again to you and your colleagues at USDA for hosting the listening session and for the opportunity to present! I, and my team, are very appreciative.

As you requested, I wanted to send along my notes on the final thoughts that I shared as the session was wrapping up yesterday: Something that we didn't hear much about during the day was nutrition and health. This includes health across the supply chain, from laborers to farmers to consumers. Furthermore, it includes everything from better understanding the relationship between healthy soils and healthy foods, to breeding more healthful varieties, to planting more healthful crops across agricultural lands.

Another thing I did not mention but that did occur to me later, is that I didn't hear anything about the Climate Hubs. I do believe the Climate Hubs could play a really important role in fostering a more sustainable US agricultural system.

We will also be submitting our formal, complete comments next week by the deadline.

Thank you again!

Sincerely,
Marcia

Comments Submission #009



Received 3/03/2017

From: Soukup,
Sent: Friday, March 03, 2017 3:08 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Listening Session

Good afternoon, Seth. I am Mary Soukup with the Kansas Department of Agriculture. Secretary of Agriculture Jackie McClaskey would like to submit written comments regarding research priorities. Are there specific instructions we need to be aware of as we finalize these comments?

Thanks so much.

Mary

Mary Soukup
Assistant to the Secretary
Kansas Department of Agriculture
www.agriculture.ks.gov

Comments Submission #008
Received 3/03/2017

From: Paul Shapiro
Sent: Friday, March 03, 2017 10:39 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Thanks again, Seth

Hi Seth,

Thanks again for putting on the listening session yesterday. I found it very useful and was honored to be a part of it.

Hope you have a nice weekend!

Paul

Paul Shapiro
Vice President of Policy Engagement
The Humane Society of the United States
HumaneSociety.org –

Comments Submission #007
Received 3/03/2017

From: Tad Sonstegard
Sent: Friday, March 03, 2017 10:02 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>; Vallet, Jeff
Subject: thanks!

Seth,



Thanks again for the opportunity to speak and for all your efforts in organizing the listening session yesterday!

Best Regards,

TAD SONSTEGARD, PH.D.
Chief Scientific Officer - Acceligen
St. Paul, MN 55104

Comments Submission #006
Received 3/03/2017

From: Leah Douglas
Sent: Friday, March 03, 2017 9:38 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Re: USDA listening session March 2nd - press

Seth,

Thanks much for making space for me at the listening session yesterday--it was really great!

I just had a quick context question which is, where will the information collected during the listening session go now? Who in USDA will be reviewing this input and how will it be used to shape decision-making?

Thanks again,
Leah

Comments Submission #005
Received 3/02/2017

From: Scott Yager
Sent: Thursday, March 02, 2017 9:52 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: March 2nd USDA Listening Session Comments

Seth,

Please find NCBA's written comments attached. Thank you.

Scott Yager
Environmental Counsel
National Cattlemen's Beef Association
Washington DC, 20004

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March 2, 2017

Office of the Chief Scientist
U.S. Department of Agriculture

Re: *Visioning of United States, (U.S.) Agricultural Systems for Sustainable Production Stakeholder*

I submit these written comments on behalf of the National Cattlemen's Beef Association (NCBA). NCBA is the oldest and largest trade association representing the nation's cattle producers. As the leading voice for our industry, we are happy to provide written testimony to your office on our vision on sustainable beef production in the U.S.

NCBA has been involved in numerous conversations and specific efforts over the past decade specifically revolving around the term sustainability. But our involvement and the involvement of U.S. cattle producers goes much farther back. Our members are the primary stewards of our natural resources and the first defense against land conversion. As I am sure you agree a viable and vibrant agricultural economy, including the cattle industry, is good for our nation's economy as well as its bountiful natural resources. The complex nature of sustainability has led our members to one primary foundational belief. Sustainability is an individual determination at each ranch, farm, or feedyard. Contending with a host of local and individual variables from weather to labor makes the recognition of this belief critical if we are to move forward as an industry, and as a nation. Producers must be given all available tools and non-market barriers removed to allow beef producers to operate at their most sustainable level.

As I have said, NCBA represents the nation's cattle producers in a number of different efforts, all of which are different, but have at least this one common theme—they are industry initiated and industry driven. This fact should not be overlooked. While we very much appreciate the opportunity to discuss these efforts and achievements in our common goal of improved sustainability, NCBA does believe the industry is taking the appropriate leadership role. That said, there are a plethora of programs here at USDA, state and local agencies that provide the needed research, financial and consultation services that have helped our industry become the most sustainable beef production system in the world. Those services will continue to be of necessity into the future, as the opportunities for improvements are bound to narrow over time.

One such effort NCBA has been very involved in is the U.S. Roundtable for Sustainable Beef (USRSB). The USRSB believes a sustainable U.S. cattle industry must be economically viable, environmentally sound and socially responsible. They have recognized the decision-making at each operation or facility must have the flexibility to make decisions that are right for its operation to reach the most sustainable production available. Additionally, its members have agreed to an approach of focusing on education, training and resource development, maintaining a voluntary approach to improving sustainability.

NCBA believes the best thing USRSB and anyone else in the cattle industry can do for improving sustainability is to maintain a non-regulatory approach that focuses on helping rather



than mandating change. Cattle producers are fiercely independent. They will adapt when provided the tools and educational resources, and will willingly volunteer their time and money if they believe the cause to be morally just. But, they will also fight tooth and nail at the first inclination of anyone trampling on their private property rights or their right to operate. Any effort must remember this fact, because without the cow-calf producers in this country who maintain open spaces and grasslands, little improvement can be made. USRSB, and NCBA particularly, will continue to focus our efforts on voluntary, educational efforts designed to achieve maximum buy-in by the producer sector. It is our firm belief this is the only approach that will allow cattle producers to continue to adapt and improve on all the various aspects of sustainability. Again, sustainability is not something new to cattle producers. They have been changing, adapting, and improving for generations. Their operation depends upon it and they will welcome it with open arms if done with respect to their rights. NCBA requests that the Office of the Chief Scientist continue to focus your efforts and resources on research and providing those important tools, programs and expertise that have helped our industry become the most sustainable in the world. You are an invaluable tool to the industry led efforts that will drive improvement. Thank you for your time and attention. I am happy to try and answer any questions, and if I cannot answer them I would be happy to address them in our written testimony that we will submit in the near future.

Sincerely,
Scott Yager,
Environmental Counsel

*Comments Submission #004
Received 2/10/2017*

From: hometownfoods12106@*****.*** (Anna Dawson)
Sent: Friday, February 10, 2017 8:36 AM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: written information for meeting

Hometown Foods, LLC in Kinderhook, NY 12106 received food safety reviewed permission to freeze and vacuum pack local produce, grains and dry beans from the North East Center for Food Entrepreneurship in Geneva, NY in 2004. They wrote about this process in their 2001 fall newsletter indicating that the following words needed to be on the front of the package in bold print. **"Important—Keep Frozen Until Use."** However, few Ag. & Mkts. food incubator kitchens in the country actually promote this process. They primarily have users do canning, catering, baking and candy making. This should be changed since no HACCP plans are needed and the process is faster, more flexible and easier than canning.

Local food entrepreneurs can compete successfully with the latest (2016) large scale frozen food manufacturers—Eating Well in 5000 stores and Paleo at Walmart—who place a vacuum skin film on top of a plastic dish filled with ten or less ounces of deposited foods for microwaving at a price between \$6.40 and \$7.50 per pound. Today's color laser printers, upright tray freezers and in-chamber vacuum packagers can easily be added to community kitchens, school or commercial kitchens for training, experimentation and production.



Unfortunately, Cooperation Extension, is focused on "Home" Food Preservation training which only has one paragraph in their 2014 book SO EASY TO PRESERVE on vacuum packaging. On line, Seal-a-Meal "out of chamber" vacuum packagers abound for home use with training videos on line for home vacuum packaging cooks with plastic bags for sale at a \$.50 per bag cost to seal one cup of food compared to \$.05 for an in-chamber vacuum packager machine.

Local, individually frozen and vacuum packed ingredients can be combined in Freezer Meal Kits for soups, stir fry meals, crock pot meals, fruit sauces and compotes, vegetarian heat and eat dishes and more. A color laser printed label with a picture of the finished product is easily done with Publisher. Nutrition analysis software provides easily inserted nutrition information onto the label. Inserting the individually frozen foods, cooked whole grains, hard cheese, cooked dry beans, savory sauces and separate spice packets allows the flexibility to meet the needs of individuals, families and small group feeding sites. Food business incubator kitchens run by **culinary trained dietitians** like the students being trained **at Johnson and Wales in Providence RI** can easily rearrange ingredients to meet the health needs of consumers due to diabetes, kidney failure and food allergies. Stories about the farmers and cooks can be found on the inside of the labels for a sustainable local food system where communities work together to meet the cultural needs of community members as well as the financial needs of farmers and cooks.

In addition, Family and Consumer Science teachers in NY state have a Food Science one year course that includes food preservation. Certainly training young people in these classes, in high school culinary Vo-Tec and in college culinary programs influences the future health of this country's citizens. Meals can be designed to meet cultural preferences and health needs.

Local farm food waste could be eliminated when there is a local frozen and vacuum packed food processing market for cooking club member consumption in church kitchens or for sale being produced in food entrepreneurship oriented commercial kitchens. The extra income from the sale of cosmetically challenged produce to these kitchens before the farmers market and the sale of unsold produce at the end of the farmers market could support the farmers adding missing minerals to their soils that result in healthier plants that insects do not like to eat. Local consumers get more nutritious foods and more local culinary jobs will be created while short transport distances address the issues of climate change.



Attached is an example of this simple packaging idea.



Anna Dawson
Hometown Foods, LLC
Kinderhook, NY 12106
www.hometownfoods.harvestkitchens.net

*Comments Submission #003
Received 1/27/2017*

From: Dick Pierce
Sent: Friday, January 27, 2017 9:49 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Re: Updated information for listening session on Visioning Agricultural Production Systems research needs

Thanks for reply - it appears that you have a tiger [alligator here] by the tail - great topic, great interest, lots of b'storming avail/needed - now how to harness the energy and run a winner...good luck with all that - it will be great. Thanks.

I'm hoping for good news re: a call-in number or an internet meeting chat set up for us outsiders who would like to listen in live...here's hoping.

If you are taking topics from the field/airwaves, here's a couple that I hope can get discussed:



-Carbon Farming, aka carbon sequestering via agriculture - a way to substantially lower atmospheric CO₂; simply, put it back in the soil. Back in the soil it provides the basis for, a boost for life, food, productivity; in the air it, obviously is a greenhouse gas. Best is it is quite low tech and easy on a broad scale - use natural, organic, local, recycled/composted inputs to enrich the soil, while cutting out harsh levels of harsh chemical additives. Create, again, soil that allows microbes to flourish and to decompose organic biomass into nutrients and sequestered carbon via increased animal and plant biomass. The stats and the technology are clear, and are within our grasp. Carbon farming or Soil Carbon Restoration is a focus of IFOAM and is mentioned in the Paris Accords, and is a priority of the French Ministry of Agriculture. The US, via the USDA, can get on this already available bandwagon. Please brainstorm on it - remember, in brainstorming, it is not necessary/appropriate to argue or debate or compete - it is only appropriate to propose ideas and listen to others and to discuss possible positives - necessary to say because I'll guess there are big voices instantly ready to trash this idea - we can feed the world and put the carbon back in the soil.

Good luck with your meeting.

Dick Pierce

*Comments Submission #002
Received 1/26/2017*

From: Karla Johnson
Sent: Thursday, January 26, 2017 2:34 PM
To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>
Subject: Message from Buck Vandersteen at Louisiana Forestry Association

Good afternoon, Seth,

Buck Vandersteen asked me to get this to you. If you have any questions, please let me know and also, if you would, let me know you received this ok.

Thank you.

Karla Johnson
Administrative Asst.
LFA

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January 26, 2017
Mr. Seth Murray
Senior Advisor, Office of the Chief Scientist
Department of Agriculture

Via email: seth.murray@osec.usda.gov



Re: Visioning of US Agriculture Systems for Sustainable Production Listening Session, March 2, 2017.

Forest cover over 700 million acres in the United States representing about 2/3rds of the nation's land area. Approximately 50% is in private ownership and the balance in the public domain.

Managed forests provide forest products for every citizen and jobs for nearly 1 million people. The economic impact approaches \$200 billion annually. Forests however, are not just for manufacturing products.

Well managed forests provide a sustainable source of clean water and air. They provide recreational opportunities and a quality of life that refreshes the body and mind for more healthy living.

Private forest lands by their significant number are critical in providing sustainable benefits to the public and society.

To grow and enhance the value of forests they must be managed. The sustainability of the resource depends on long-term conservation programs that guide the private landowner in their management. Research and extension outreach of forest science provides private landowners with knowledge to make critical decisions on the long-term management of their forests. Research on climate change, Best Management Practices, soil and water conservation, and renewable energy are a few examples where research and outreach have aided the private landowner.

Challenges to the future sustainability of the forest focuses on management. In many areas where forest management is lacking wildfires have consumed forests and threatened communities with devastation. Incentives for forest programs will keep forests as forests and avoid the cost and property loss from wildfires.

Public forests also provide many benefits but lately have been plagued by the high incidence of wildfires. These are costly fires that put a strain on Forest Service budgets and the agency's ability to consistently perform sustainable forest management on public lands. It would be more sustainable and a better use of public dollars to conduct forest management work to improve the health and productivity of the forest rather than fighting fire that results in a loss of forests and services.

Forests are a source of products we consume daily. Many private landowners have the objective of one day being able to sell their timber and earn a return on their investment. Without sustainable long-term markets and favorable tax treatment of forestry investments, an investment in forest resources will not compete with other non-forest investments.

Forest sustainability depends on public policy that encourages the long-term investment in forestry. From tax policy encouraging private investment to research that provides



innovation to managing dynamic forests, the future of forestry and the health of our nation is dependent on the long-term vision and application of forest management.

Thank you for considering my comments for this visioning session on the sustainability of agricultural and forestry systems.

Sincerely,
C. A. "Buck" Vandersteen
Executive Director]

Comments Submission #001

Received 1/25/2017

From: jean public

Sent: Wednesday, January 25, 2017 4:16 PM

To: Murray, Seth - OSEC <Seth.Murray@osec.usda.gov>; humanelines; PETA Info; SCOOP; CONTACT@thedodo.com; info; Erica Meier;

Cc: INFO

Subject: Re: usda research agncy that did those horrible experimjents on animals in nebraska - insane people worked there who liked to abuse animals evidentlyh - no reason for the brutality

PUBLIC COMMENT ON FEDERAL REGISTER

I CANNOT ATTEND THIS MEETING DUE TO COMMITMENTS BUT DO HAVE COMMETNS FOR THE RECORD OF THE MEETING RECOUNTED IN THE BELOW FEDERAL REGISTER NOTICE.

UNFORTUNATELY, THESE FEDERAL SWAMP AGENCIES DO PICK OUT PAL STATKEHOLDERS WHO BECOME A CLAQUE OF CLAPPING HANDS FOR ALL THAT THE SWAMP AGENCIS DO BECAUSE THEIR "STAKEHOLDERS" ARE MAKING OUT LIKE BANDITS AND PROFITING FROM THESE FAT CAT FEDERAL AGENCIES LIKE THE USDA.

THERE ARE SO MANY NEGATIVES IN THE USDA WORK. BEES ARE DYING ALL OVER FROM TEH REGULATIONS THAT THIS LOUSY AGENCY ALLOWS. AG PROFITEERS SNEAKILY SELL GMO AND GE PRODUCTS TO CONSUMERS WHO ARE PREVENTED FROM KNOWING WHAT THEY ARE BUYING AT THE STORE. WHAT A COMPELTY LOUSY CORRUPT SITUATION THAT IS FOR AMERICAN CONSUMERS. NOBODY ELSE IN EUROPE DOES ANYTHIGN CORRUPT LIKE THAT.

THIS KIND OF ADMINISTRATION IS HURTING THE HEALTH AND CAUSING DEATHS ACROSS THIS COUNTRY WHERE 248 TOXIC CVHEMICALS FROM FOOD ARE IN THE BODIES OF AMERICANS. AMERICANS ARE EATING TOXICS. AG IS ALSO POISONING OUR STREAMS, RIVERS AND THE FISH IN OUR RIVERS HAVE BECOME HORMONALLY AFFECTED AND ARE CARRYING CHEMCIALS FROM AG IN THEIR BODIES. CHICKEN FARMS IN MARYLAND, NORTH CAROLINA HAVE POISONED CHESAPEAKE BAY AND OTHER SITES.



THE AG RESEARCH DIVISIN IN NEBRASKA WAS EXPOSED BY THE NY TIMES ON HOW THEY DID RESEARCH ON ANIMALS CAUSING THE ANIMALS DEATHS. IT WENT ON LIKE THIS:

U.S. Research Lab Lets Livestock Suffer in Quest for Profit

[Animal Welfare at Risk in Experiments for Meat Industry](#)

By [MICHAEL MOSSJAN](#). 19, 2015

1439

Photo

Cattle dot the pastures at the U.S. Meat Animal Research Center in southern Nebraska, along with bunkers that once stored ammunition for World War II. Credit Leslye Davis/The New York Times

At a remote research center on the Nebraska plains, scientists are using surgery and breeding techniques to re-engineer the farm animal to fit the needs of the 21st-century meat industry. The potential benefits are huge: animals that produce more offspring, yield more meat and cost less to raise.

There are, however, some complications.

Pigs are having many more piglets — up to 14, instead of the usual eight — but hundreds of those newborns, too frail or crowded to move, are being crushed each year when their mothers roll over. Cows, which normally bear one calf at a time, have been retooled to have twins and triplets, which often emerge weakened or deformed, dying in such numbers that even meat producers have been repulsed.

Then there are the lambs. In an effort to develop "easy care" sheep that can survive without costly shelters or shepherds, ewes are giving birth, unaided, in open fields where newborns are killed by predators, harsh weather and starvation.

Last Mother's Day, at the height of the birthing season, two veterinarians struggled to sort through the weekend's toll: 25 rag-doll bodies. Five, abandoned by overtaxed mothers, had empty stomachs. Six had signs of pneumonia. Five had been savaged by coyotes.

There seems to be no limit to the greedy insensitivity of our species, who continue to live within the delusion that we are 'human beings' and these 'animals' are nothing more than another profit center.

"It's horrible," one veterinarian said, tossing the remains into a barrel to be dumped in a vast excavation called the dead pit.

These experiments are not the work of a meat processor or rogue operation. They are conducted by a taxpayer-financed federal institution called the [U.S. Meat Animal Research Center](#), a complex of laboratories and pastures that sprawls over 55 square miles in Clay Center, Neb. Little known outside the world of big agriculture, the center has one overarching mission: helping producers of beef, pork and lamb turn a higher profit as diets shift toward poultry, fish and produce.



Since Congress founded it 50 years ago to consolidate the United States Department of Agriculture's research on farm animals, the center has worked to make lamb chops bigger, pork loins less fatty, steaks easier to chew. It has fought the spread of

WE NEED CLEAN UP AT THE USDA. IT IS CORRUPT, THERE IS NOTHING
"HOLISTIC" ABOUT WHAT GOES ON AT THE USDA AND ITS VARIOUS
MONEYMAKING ACTIVITIES. IT IS A SWAMP AGENCY CRYING OUT FOR
CLEANUP AND FIRINGS. IT CONSORTS WITH PEOPLE LIKE CLIVE BUNDY
WHO HASNT PAID FOR HIS LEASING OF NATIONAL LAND FOR YEARS. THE
RECORD OF THIS AGENCY CRIES OUT TO BE ADDRESSED. THIS COMMENT
IS FOR THE PUBIC RECORD. PLEASE RECEIPT. JEAN PUBLIEE
