Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

# 20

George W. Smith  
Associate Director  
MSU AgBioResearch  
Associate Dean for Research  
College of Agriculture and Natural Resources  
Michigan State University

*Oral / no slides*

Jimmy Bramblett, Ph.D. (USDA-NRCS) moderating

# 21

Peter Bachmann  
Manager, Government Affairs  
USA Rice

*The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA*
Reducing rice’s carbon footprint and heavy metals

- Research continuing on alternate wetting/drying (AWD) irrigation methods for rice to reduce methane emissions.

- Research continuing on the correlation of As and Cd in rice using AWD irrigation methods.

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA.
Sustainability as a driver for global competitiveness

- Consumers, food companies and retailers are demanding sustainable food production

- Sustainability defined: Greater output per unit of input while minimizing environmental impact and improving society
  - USA rice is unarguably the most sustainable source of rice in the world

Sustainable, practical irrigation practices

<table>
<thead>
<tr>
<th>Crop, Water management</th>
<th>Acre Inches H₂O Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice, flood-irrigated, contour levee§</td>
<td>36</td>
</tr>
<tr>
<td>Rice, flood-irrigated, straight-levee§</td>
<td>34</td>
</tr>
<tr>
<td>Rice, flood-irrigated, zero-grade§</td>
<td>22</td>
</tr>
<tr>
<td>Rice, zero grade, AWD¥</td>
<td>11</td>
</tr>
</tbody>
</table>

§Massey, 2011 Irrigation trials, Mississippi State University
¥Whitaker Farms, McGehee, Arkansas, 2016

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

Rice fields support many organisms, including commercial crawfish production in Louisiana.

# 22

Helen Spafford, Ph.D.

Associate Professor and Chair
Department of Plant and Environmental Protection Sciences
University of Hawaii, Manoa

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
The challenges for sustainable agricultural production in Hawai‘i

Helen Spafford, Ph.D.
Associate Professor and Chair,
Department of Plant and Environmental Protection Sciences

Hawai‘i

Unique commodities
Diversified agriculture

Food security: ca 90% of food consumed is imported
Energy security: Oil is primary source of energy
Water Security: Rainfall dependence
Invasive pests: Estimates range from 17-20 new insect species introduced every year
Declining human resources in agriculture sector
Declining infrastructure for agricultural development

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

What’s to be done?

Better biosecurity in the US and Hawai‘i
Develop novel pest management approaches that decrease reliance on broad-spectrum pesticides
Support local food production including urban agriculture
Change consumer preferences and acceptability in relation to food including what we eat
  • e.g. Insects as a viable food source for animals and humans
Change grading standards to reduce food waste
Increase human resources in agriculture sector

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
The lessons from Hawai’i

Significant pressures against sustainable food production

- Impacts and pressures from invasive species
- Declining human resources and infrastructure
- Limited local food and energy production

We need to seriously investigate alternative paradigms for food production in Hawaii in relation to:

- Biosecurity and pest management
- Where, how and what is produced and by whom

Max Fisher

National Grain and Feed Association

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

National Grain and Feed Association

More than 1,000-Member Companies:
- Grain elevators
- Feed, feed ingredient manufacturers
- Oilseed processors
- Flour, corn mills
- Biofuels producers
- Many other related agribusinesses
- 30 State/Regional Associations

- NGFA activities are focused on providing services and advocating policies that enhance the climate for growth and economic performance of U.S. agriculture participating in a global marketplace.

At Risk for Conversion to Cropland?
U.S. Cropland and Agriculture are under Assault

<table>
<thead>
<tr>
<th>Year</th>
<th>Cropland</th>
<th>CRP Land 2/</th>
<th>Developed</th>
<th>Pastureland</th>
<th>Rangeland</th>
<th>Forest Land</th>
<th>Other Rural Land</th>
<th>Federal Land</th>
<th>Water Areas</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>420.6</td>
<td>-</td>
<td>71.9</td>
<td>131.3</td>
<td>419.4</td>
<td>430.3</td>
<td>42.8</td>
<td>398.2</td>
<td>40.8</td>
<td>1,944.1</td>
</tr>
<tr>
<td>1987</td>
<td>406.4</td>
<td>13.8</td>
<td>77.9</td>
<td>127.4</td>
<td>413.9</td>
<td>412.3</td>
<td>42.9</td>
<td>398.7</td>
<td>50.8</td>
<td>1,944.1</td>
</tr>
<tr>
<td>1992</td>
<td>382.0</td>
<td>34.0</td>
<td>85.2</td>
<td>129.8</td>
<td>410.2</td>
<td>412.2</td>
<td>43.2</td>
<td>401.0</td>
<td>50.5</td>
<td>1,944.1</td>
</tr>
<tr>
<td>1997</td>
<td>376.4</td>
<td>22.7</td>
<td>95.9</td>
<td>120.7</td>
<td>408.1</td>
<td>413.3</td>
<td>43.5</td>
<td>402.6</td>
<td>51.1</td>
<td>1,944.1</td>
</tr>
<tr>
<td>2002</td>
<td>367.7</td>
<td>31.8</td>
<td>104.9</td>
<td>119.3</td>
<td>407.8</td>
<td>413.7</td>
<td>43.4</td>
<td>404.1</td>
<td>51.5</td>
<td>1,944.1</td>
</tr>
<tr>
<td>2007</td>
<td>358.9</td>
<td>25.5</td>
<td>111.1</td>
<td>119.7</td>
<td>407.2</td>
<td>413.1</td>
<td>46.9</td>
<td>404.8</td>
<td>51.9</td>
<td>1,944.1</td>
</tr>
<tr>
<td>2012</td>
<td>362.7</td>
<td>24.2</td>
<td>114.1</td>
<td>121.1</td>
<td>405.8</td>
<td>413.3</td>
<td>45.4</td>
<td>405.3</td>
<td>52.1</td>
<td>1,944.1</td>
</tr>
</tbody>
</table>


2/ CRP land is only CRP general sign-ups and does not include CRP continuous sign-ups.

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA.
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

What is Sustainable Agriculture?

This is not Agriculture
Retiring large tracts of cropland is not agriculture. However, a large share of the limited Federal conservation funds are used to prohibit farming and almost completely forbid haying and grazing on retired land.

This is Sustainable Agriculture
Research is needed on soil health and its economic benefits to farmers and the rest of the agricultural value chain as well as to communities. This research is needed to help agricultural stakeholders understand the importance of adopting conservation practices and to help Congress design and wisely fund conservation programs that target sustainable agriculture.

Research Ideas to Help Producers & Policymakers

• Conservation Stewardship Program $1.8 B/yr
  • No-till
  • Cover Crops
  • Conservation Crop Rotation
• Environmental Quality Incentive Program $1.75 B/yr
  • Nutrient Management
  • Filter Strips
  • Anaerobic Digesters

Don’t Lose Sight of the Big Picture for U.S. Agriculture
These are the two conservation programs that are capable of assisting farmers sustainably produce on the 362 million acres of cropland and 527 million acres of pastureland and rangeland. Sustainability is critical for the future success of U.S. agriculture.

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

# 24

Jimmy Bramblett
Moderated Questions and Discussion Time
George W. Smith
Peter Bachmann
Helen Spafford
Max Fisher

reminder: if no live comments, go to WebEx chat

# 25

Juli Obudzinski
National Sustainable Agriculture Coalition (NSAC)

Oral / no slides

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

**# 26**

**Mitch Hunter**

PhD Candidate in Agronomy  
NSF Graduate Research Fellow  
Plant Science Department  
Penn State University

**Agriculture in 2050: Recalibrating Targets for Sustainable Intensification**

Mitch Hunter  
mhunter@psu.edu  
PhD Candidate in Agronomy  
Penn State University  
March 2, 2016

*The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA*
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

**Updated Projections of Food Demand**

*Updated Projections of Food Demand*

Cereals: World Historical Production and Projected Future Demand

- **Tilman et al. projection**
- **FAO projection**
- **Doubling from 2014**

Alexandratos and Bruinsma 2012. FAO.
FAOSTAT 2016.

**GHG Emissions**

80% reduction goal

Agricultural Greenhouse Gas Emissions

- **FAO projection**
- **Foley et al. goal**

FAOSTAT 2016.

---

*The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA*
The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

# 27

Marcia S. DeLonge, Ph.D.

Scientist, Food & Environment Program
Union of Concerned Scientists

Investing in Agroecology

Credits: PR Westerman, L Schulte Moore, T Carter, Savanna Institute

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
The Case for More Public Investment in Agroecology Research

<15% of funds included agroecology

> 400 PhD signers

www.ucsusa.org
MDeLonge@ucsusa.org

Thank You

The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

# 28

Montague (Tag) Demment

Vice President International Programs
Association of Public & Land-grant Universities

Professor Emeritus
University of California, Davis

The Challenge of Change:
Harnessing University Engagement, Learning, and Discovery to Achieve Food and Nutrition Security

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

Universities are uniquely equipped, by virtue of their broad-ranging subject matter expertise and global experience, to respond to the multi-dimensional issues that impact global food security.

At public and land-grant universities all relevant disciplines are present and can come together to address these complex issues.

Systemic change, new funding patterns, innovations in public policy and governance, and unprecedented global partnerships are needed.

Commission Objectives

Identify the key challenges critical to achieve domestic and global food and nutrition security

Determine how universities, working with key partners, can mobilize their resources to more effectively address the challenges

Recommend actions that will enhance and align private and public sector resources to foster innovative solutions to the identified challenges

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

**AVAILABILITY**
Increase yields, profitability, and environmental sustainability simultaneously
Develop the varieties and breeds needed for sustainable food systems
Decrease food loss and waste through more efficient distribution systems

**ACCESS**
Create and share resources that serve food insecure populations
Ensure inclusive food systems

**UTILIZATION**
Eliminate the dual burdens of undernutrition and obesity
Ensure a safe and secure food supply

Report Release

University Food Security Summit – May 16, 2017 in Washington, DC
Hill Briefing – May 17, 2017 in Washington, DC

*The comments and opinions expressed herein are those of individual stakeholders made publicly and do not necessarily represent those of USDA*
Stakeholder presentations for the USDA-OCS March 2, 2017 public listening session “Visioning of United States Agricultural Systems for Sustainable Production”

# 29  
**Jimmy Bramblett, Ph.D. (USDA-NRCS)**  
**Moderated Questions and Discussion Time**  
Juli Obudzinski  
Mitch Hunter  
Marcia S. DeLonge  
Montague Demment  
*reminder: if no live comments, go to WebEx chat*

# 30  
**20min Break and Networking**  
*reminder: stop and restart WebEx Recording to reduce file size*

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