

USDA Advisory Committee on Biotechnology and 21st Century Agriculture (AC21)

Enhancing Coexistence:

**A Report of the AC21
to the
Secretary of Agriculture**

November 19, 2012

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INTRODUCTION:

Committee Charge from the Office of the Secretary

The AC21 has been charged by the Office of the Secretary with addressing the following questions:

1. What types of compensation mechanisms, if any, would be appropriate to address economic losses¹ by farmers in which the value of their crops is reduced by unintended presence of genetically engineered² (GE) material(s)?
2. What would be necessary to implement such mechanisms? That is, what would be the eligibility standard for a loss and what tools and triggers (e.g., tolerances, testing protocols, etc.) would be needed to verify and measure such losses and determine if claims are compensable?
3. In addition to the above, what other actions would be appropriate to bolster or facilitate coexistence among different agricultural production systems in the United States?

These were provided to the AC21 with the proviso that the Committee should address the first two questions prior to addressing the third.

After deliberations and careful consideration, the Committee expanded the scope of the Secretary's charge questions to include all identity preserved³ (IP) crops.

Definition of Coexistence⁴

Coexistence, for the purposes of this paper, refers to the concurrent cultivation of conventional⁵, organic⁶, IP, and genetically engineered (GE) crops consistent with underlying consumer preferences and farmer choices.

¹ "Economic losses," for the purposes of this paper, refer to differences between the payment ultimately received for a crop by a farmer in comparison with the payment defined under the original contract or arrangement which is established for the crop prior to planting. Economic losses do not include any of the expenses incurred by the farmer in producing the crop according to the specifications of the contract or arrangement.

² "Genetically Engineered" is meant to include biotechnology-derived organisms produced through the application of 1) *in vitro* nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA) and direct injection of nucleic acid into cells or organelles or 2) fusion cells beyond the taxonomic family, that overcome natural physiological reproductive or recombinant barriers and that are not techniques used in traditional breeding and selection.

³ An "identity preserved" crop is a crop of an assured quality in which the identity of the material is maintained from the germplasm or breeding stock to the processed product on a retail shelf.

⁴ This definition was modified from a previous working definition of coexistence adopted in a 2008 paper written by an earlier AC21 committee, which is cited in the "Methodology" section below.

⁵ "Conventional" crops in this paper refer to crops produced from non-GE crop varieties that are not produced in compliance with the requirements of the Organic Standards Act. They may be grown with the intent of entering the

Methodology

The AC21 has met 5 times to discuss the current charge. The Committee considered presentations from outside experts and USDA representatives, and listened to comments from members of the public on the Secretary's charge at each of its plenary sessions. In addition, at its first meeting in 2011, the AC21 established four working groups to help frame information for the full AC21's consideration on four relevant subtopics, namely, Size and Scope of Risks, Potential Compensation Mechanisms, Eligibility Standards/Tools and Triggers, and "Who Pays?" The Committee also had the benefit of the work of a previous AC21 committee, namely a report entitled, "What issues should USDA consider regarding coexistence among diverse agricultural systems in a dynamic, evolving, and complex marketplace?" All of the presentations, public comments, meeting summaries from plenary sessions and working group meetings, and earlier reports of the AC21 are available on the USDA AC21 web page (at <http://usda.gov/wps/portal/usda/usdahome?contentid=AC21Main.xml&contentidonly=true>). This paper reflects the broad range of input received and is shaped by the broad collective substantive expertise of the Committee members. This report is intended to capture areas of both agreement as well as areas of disagreement among members, and provides a set of concrete recommendations for USDA action. This report was initially drafted by the AC21 Chair and Designated Federal Official based on Committee discussions, with input and review during the report finalization process.

BACKGROUND AND CONTEXT

- All members of the AC21 acknowledge the premise that American agriculture production practices are diverse in nature and the need for enhancing coexistence between all sectors of agriculture is important. American farmers have the right to make the best choices for their own farms, including the choice to grow GE crops, the choice to grow IP, non-GE, or organic crops, the choice to practice different agricultural management systems, and the choice to grow crops with new functional traits. It is important that every American farmer is encouraged to show respect for their neighbor's ability to make different choices.

general commodity stream, in which case they may be mixed with GE varieties of the crop, if commercial GE varieties exist; or they may be grown under identity preservation conditions and enter the market specifically as non-GE products-

⁶ "Organic" refers to those crops or products produced in compliance with the Organic Foods Production Act (7 CFR 205).

- All U.S. citizens benefit from agriculture: consumers benefit from diverse food choices, export markets support farmers and the overall economy, and the success of agriculture can help strengthen rural communities.
- For decades now, a hallmark of U.S. agriculture has been the ability of American farmers to pursue diverse cropping systems and respond to diverse and changing consumer and market demands ranging from globally competitive commodities to high-value identity-preserved and specialty crops. The diversity and dynamism of our industry would not be possible if not for the past success of coexistence.
- Coexistence is not a new practice in agriculture, nor has it failed in recent times. Farmers operate within communities and most work with their neighbors towards their common success. Rather, the number and scope of opportunities for differentiated products and markets have increased and mechanisms for precisely evaluating the composition of products have become widely used as market tools. In this situation, even small deviations from farming best practices could result in crops (their own or their neighbors) falling out of market or contract specifications.
- The AC21, during its deliberations, considered information from diverse sources within the agricultural community—organic and conventional growers, seed suppliers, the biotechnology industry, and a large organic canola processor—that demonstrated the diversity of risk mitigation tools that have evolved and improved over time and are currently being used successfully. The Committee also heard of new initiatives from members of the organic and agricultural biotechnology industries that demonstrate continued development of tools and approaches to manage potential economic risks as technologies and markets evolve.
- Technological developments as well as increased market demands underscore the need to ensure that farmers are made aware of market needs, of the latest technologies for managing potential economic risks, and of the role that each farmer can play in supporting agricultural production in their community.
- All participants in the development, breeding, marketing, and management of crop production need to be involved in making coexistence work.
- All members of the AC21 acknowledge the benefits that come from coexistence. As a committee we recognize that it is not constructive to argue over who gets the most benefit. Similarly, all farmers face risks in their farming operations, no matter which

production methods they use. There are risks to farmers, big and small, and to the companies serving those farmers.

- The discussion of coexistence focuses on the choices of farmers and consumers among methods of production and legal products. In particular, GE products in the marketplace are legal products which have been evaluated by scientific experts and regulators, and have been determined to be as safe for humans and the environment as conventional crops. The unintended presence of such materials in others' crops should not be a topic for assigning fault or blame. The AC21 is operating under the assumption that farmers are generally acting in good faith, although sometimes problems occur. Prevention of problems is preferable to dealing with negative consequences further downstream, either on farm or in the marketplace.
- Although much recent discussion on coexistence relates to the introduction of agricultural biotechnology, it is important to recognize that the presence of genetically engineered crops does not create risks that are novel in agriculture. The principles of coexistence and the need to manage risk and preserve the integrity of crops apply to all agricultural production, and are particularly important in any identity-preserved (IP) cropping system. Examples of successful coexistence in IP production include the cultivation of specialty crop varieties, such as sweet corn and popcorn, and practices within seed production.
- There has been increasing diversification in agricultural production in recent years. The growth of specialized identity-preserved production niches has opened opportunities for value-added products, which have contributed to job creation and the health of rural communities. For example, according to USDA's Economic Research Service, direct farmer-to-consumer sales increased 77 percent between 1992 and 2007 to a total value of \$1.2 billion dollars, and the number of farmers participating in such sales increased by 58 percent over that time.
- Because of the growing diversity of coexistence challenges and need across all of agriculture for cost-effective, risk management options, the AC21 believes that it is appropriate to address in this report coexistence considerations and potential compensation mechanisms and other tools not only for non-GE and organic producers, but for all producers. This inclusive approach for the enhancement of coexistence will counteract divisions within agriculture and foster learning and collaboration across sectors.
- The AC21 recognizes that any recommendations it makes must also take into account potential economic impacts of those recommendations on agricultural innovation and market competitiveness, both domestic and international. U.S. farmers have long led the

world in overall agricultural productivity and diversity and have established a strong economic advantage in the production of both commodity crops and specialty crops. President Obama's National Bioeconomy Blueprint released in April 2012 emphasized the economic significance of agriculture:

Technological innovation is a significant driver of economic growth, and the U.S. bioeconomy represents a growing sector of this technology-fueled economy. Agriculture, one of the country's largest industries, is heavily based on advances in biological research and development (R&D).

- In this context it must be recognized that technological innovations and market diversity have become key drivers of increased productivity and product quality for all forms of American agriculture.
- This context also is emphasized in another White House report issued in 2012, "Strengthening Rural Communities: Lessons from a Growing Farm Economy." The report states:

The rich heritage of the agricultural economy features a range of new, diverse industries and sectors. Organic certifications, specialty crops, biobased products (products, such as fuels, chemicals, and power, that are developed from biological sources), and agri-tourism (agriculture-based tourism) are a few of the many domestic industries further diversifying the agricultural economy. The retail value of the organic industry grew to \$31.4 billion in 2011, up from \$21.1 billion in 2008. The number of operations certified organic grew by 1,109—or more than 6%—between 2009 and 2011.

- In its examination of the charge provided by the Secretary, the members of the AC21 have concluded that the responses to all three elements of that charge are linked. No member of the AC21 believes that simply putting in place a compensation mechanism to address economic losses to farmers arising from unintended presence of GE or other material would completely eliminate such unintended presence and strengthen relations between neighboring farmers.
- Members agree that a better situation would be where good stewardship leads to effective coexistence, with compensation for unintended presence-related losses necessary only in the rare occurrence when stewardship practices prove insufficient.
- To enhance neighbor-to-neighbor relations and interactions and to strengthen farmer stewardship, there are important actions that can be taken to bolster coexistence under element 3 of the charge, which would lessen occurrences of unintended GE presence with financial implications and promote a spirit of common purpose among American farmers.

- Therefore, the AC21 will present a package of recommendations for USDA-led activities intended to:
 - educate farmers and others in the food and feed production chain about coexistence and the importance of coexistence and their roles, particularly with reference to stewardship, contracting, and attention to gene flow, in making it work;
 - provide farmers with tools and incentives to promote coexistence through its farm programs and coordination with other entities;
 - conduct research in a range of areas that are integral to understanding the current state of coexistence and gene flow management, as well as the development of improved tools and practices to manage coexistence in the future;
 - provide increased assurance about the quality and diversity of U.S. seed and germplasm resources; and
 - provide a framework for the establishment of a system of compensation for actual economic losses for farmers intending to grow identity-preserved products, if the Secretary determines that there are adequate loss data to justify such a step.

- The AC21 recognizes that some recommendations may require collaboration across and among federal agencies, or may require new legislation for implementation. Those considerations are beyond the purview of the AC21 and will not be addressed within the recommendations.

- The recommendations provided under each of the topic areas that follow represent difficult compromises from all sides so that the resulting report does not fit the preferences of any individual member of the AC21. The recommendations are intended to be viewed as a complete package. It should be recognized that what is described here is considered by AC21 members as one step of an ongoing process to strengthen coexistence and increase the resilience and diversity of U.S. agriculture.

CENTRAL THEME: COMPENSATION MECHANISMS

- The AC21 has wrestled with identifying and quantifying actual economic losses to farmers resulting from unintended presence of GE material in their crops. It is difficult to get direct data on actual farmer losses suffered for a variety of reasons, including the fact that this data is often confidential and farmers may be reluctant to disclose that their products may sometimes not meet market specifications. There are, however, clear data that some consignments of identity-preserved and organic commodities have been tested and found to contain GE material in amounts that exceed contractual requirements or *de facto* market standards. Such rejected shipments pose problems for those farmers whose loads have been rejected. The USDA supports the smooth functioning of the marketplace and the maintenance of respectful relationships among the various participants in agriculture.
- Members of the AC21 are not in agreement about the extent to which a systemic problem exists and whether there is enough data to warrant a compensation mechanism to address it. Members recognize that there are unintended GE materials found in commercial products, but differ in their assessment of the significance of unintended presence, the severity of actual economic harm and whether such occurrences are increasing, decreasing, or remaining the same. Some AC21 members believe that there is not adequate evidence of economic losses by farmers at this time to justify the establishment of a compensation mechanism.
- Any compensation mechanism that may be put in place that is perceived by one segment of agriculture as placing unfair burdens on that sector will only divide agriculture. Most AC21 members agree on the importance of having broad participation, access, and responsibility for maintenance of any compensation mechanism, should one be deemed necessary, if such a mechanism is instituted alongside increased stewardship and outreach activities.
- In discussions on potential compensation mechanisms, the AC21 considered three types of potential mechanisms: (1) a compensation fund, which might be funded by technology providers, by farmers, or by the entire food and feed production chain; (2) a crop insurance-type mechanism, which would likely involve both public financing and farmer choice to purchase the insurance; and (3) a risk retention group, which would essentially be a self-insurance tool that could be purchased by those farmers at risk of economic losses (analogous to extant insurance mechanisms for industries like the trucking industry, private campgrounds, etc.).

- The AC21 also discussed the historically important role of State agricultural mediation services in resolving farmer-farmer disagreements in many States. Members noted that, while such services did not constitute another “compensation mechanism” per se, they could be an important tool to aid the resolution of disagreements. Though such services have not been widely involved in disputes related to unintended presence to date, the AC21 notes that they could play an increasingly important role in helping to address unintended presence issues without resorting to a formal, Federally-sponsored compensation mechanism.
- Each of the three potential types of mechanisms has its own set of advantages and disadvantages, both administrative and perceptual.
- Some AC21 members acknowledged that, in terms of ease of administration and overall simplicity, a general compensation fund might be best, but the approach posed significant and unacceptable downsides for many AC21 members. Many AC21 members felt that burdens would be unfairly distributed under such a system and also felt that establishing such a fund would suggest to consumers and trading partners that there was something unsafe about the products produced by the entities funding the mechanism. For some AC21 members, however, this approach would have been their preferred option.
- The self- insurance option, i.e., the establishment of a risk retention group to cover losses by the affected parties, would offer the advantages of being focused on those suffering the losses, which at the same time was a disadvantage in that it required no involvement by any other parties whose cultivation or management practices may have directly or indirectly contributed to those losses. In fact, some members argued that a risk retention group should not be considered a “compensation mechanism” at all, since it would involve participants in essence paying themselves when financial injury occurred. Additionally, no actions by USDA would be necessary to establish such a mechanism because insurance laws currently allow the affected parties to do so on their own.
- A crop insurance-type mechanism would have the advantage of being a familiar tool for many farmers, and could build on existing structures administered by USDA’s Risk Management Agency and its Farm Service Agency. As a mechanism that would incorporate both public and private efforts—i.e., some level of public funding plus insurance instruments administered by the private sector, as well as voluntary insurance purchase by those farmers potentially affected—it is an inclusive approach.
- In considering types of potential compensation mechanisms, the AC21 evaluated the potential mechanisms for their impacts on various sectors and interests related to agriculture. These discussions were based on the initial presumption that eligibility for compensation would be limited to farmers suffering actual and documented economic

losses as a result of unintended GE presence and would not be extended to all farmers producing identity-preserved crops. For the most part, there was not adequate time to revisit these discussions incorporating a broader set of potentially eligible producers.

- Discussions included consideration of potential costs and benefits to farmers, to technology providers, and to consumers, and impacts on trading partners, on litigation, on conflict avoidance, and on the development of incentives for the development of technologies to prevent risk.
- In many instances, it was difficult to separate consideration of potential impacts or costs and benefits of a particular compensation mechanism from the question of who would pay for or fund it. This in turn meant that few conclusions were reached with respect to these parameters that were held by all, or most, AC21 members.
- A few general themes emerged, though. Most members felt that putting in place any sort of compensation mechanism would tend to lessen motivation that farmers might have to bring legal action against their neighbors as a result of unintended GE presence (recognizing that there have been few if any such lawsuits in the U.S. to date), but would have little impact on legal challenges that might be brought against USDA relating to regulatory approaches or actions relating to GE products.
- Some members suggested that a private insurance entity responsible for administering any insurance mechanism, having paid out a claim, might have incentive to strengthen measures taken by policyholders to prevent risk, or even to try and recover those costs from other farmers whose actions led to the economic loss. The latter train of action could make additional liability coverage, as opposed to property protection coverage, for farmers more attractive for some farmers. Most farmers currently have general liability insurance for their operations, often through their Farm Bureaus, but while that insurance typically covers negligence, it may not cover impacts of unintended presence of genetic material on a neighbor's crop.
- The AC21 discussed potential impacts on trade relations upon adoption of any of the three potential compensation mechanisms. The entire gamut of potential views was expressed: some members felt that establishing a compensation mechanism would send a signal to purchasers of U.S. organic and non-GE products that there are problems in how the U.S. produces those products, some expressed the opinion that effects would be neutral, and some felt that it would be reassuring to our trading partners in GE-sensitive markets that steps are being taken to ensure containment. All members felt, however, that if a compensation mechanism were to be instituted, that attention needed to be given to potential impacts on trade.

- The AC21 also considered what types of standards USDA might need to develop to enable a compensation mechanism to address unintended presence-related economic losses absorbed by farmers producing non-GE, organic, or, more generally, identity-preserved crops. Most members felt that a few eligibility standards would need to be set, to demonstrate: prior farmer intent to produce an identity-preserved product; the use of “best” management practices (or at least, adequate management practices) in the cultivation of the crop; that the contract requirements under which the product was produced were reasonable and achievable; and that an actual loss occurred due to unintended presence of genetic material from another related crop.
- There was considerable discussion about the meaning of a “reasonable contract” for producing an identity-preserved product, both in the context of farmer responsibility for meeting the agreement to which he or she has signed on, and in terms of whether there should be a limit set as to what types of contracts would be insurable through government-sponsored insurance.
- Some AC21 members believe that the AC21 should recommend that USDA set an insurability trigger or triggers with respect to unintended GE presence in other products; only contracts allowing GE presence at the trigger level or higher would potentially be allowed for insurance coverage, all other requirements being met. Conversely, contracts requiring a lower level than a set trigger would not be eligible for insurance coverage. To proponents of such a trigger, setting such a trigger would provide a benchmark for planning and for behavior of market participants. These members note that markets have adopted a variety of stances toward GE traits, and some do not address the issue at all. These members further note that setting a specific insurability trigger for GE content for non-GE corn and soy products could address the concerns of many who seek to avoid GE product, whether purchasing non-GE or organic products, and would provide U.S. producers open access to almost all GE-sensitive international markets. It would not preclude parties from contracting at lower levels than the insurability trigger -- as long as they accepted the responsibility for unintended GE presence at levels below the trigger.
- Other AC21 members worried that setting an “insurability trigger” would become a *de facto* low-level presence threshold for GE materials, which could be misinterpreted by consumers or trading partners as implying a safety threshold. Given ongoing debates, in these members’ view it is critical that no USDA actions be recommended that might suggest that the U.S. government believes that legal GE products produced in the U.S. might under some circumstances be unsafe. Additionally, in their view, setting such a trigger would artificially distort functioning markets, which can naturally evolve to meet the distinct needs of different market participants and enable value capture.

- It is acknowledged, however, that in order for a compensation mechanism to function, there will need to be standards for insurable contracts. These could vary according to the type, use, and production method of the crop. Whether those triggers should be set by government or by the private sector in conjunction with the development of the associated insurance products has not been resolved by committee members.
- AC21 members recognize that, were USDA to decide to establish a compensation mechanism, the process may require seeking new legislative authority. Developing such a mechanism, developing appropriate actuarial information, and proposing and finalizing regulations, could be a long and complex process. However, the process might be positively affected by a high degree of support from members of the food and feed production chain and consumers.
- One option discussed by the AC21 was a pilot or localized program designed to test, on a smaller scale, some parameters for compensation. Although such a program might be developed somewhat more quickly, Congressional authority would still need to be sought and the effort might still take a considerable amount of time. There was not overall support among AC21 members for recommending the immediate and automatic establishment of such a test program, however.
- Farmer support for any future crop insurance-type mechanism addressing unintended GE presence and applicable to organic and identity-preserved non-GE farming operations would be bolstered if additional attention is given by USDA to improving existing conventional crop insurance coverage for these operations.
- Future support by GE producers for a crop insurance mechanism addressing unintended GE presence may be bolstered by also providing coverage to those farmers if they suffer economic losses as a result of unintended GE presence. Such an effort would be part of overall planning for a future in which many types of “non-commodity” GE crops are grown.
- The AC21 also discussed the fact that unintended presence of material from some new crops that have been commercialized, or may be commercialized in the future, may potentially affect the quality of non-identity-preserved crops as well and thus affect a greater number of farmers and greater farmed acreages. Without careful management, unintended presence of some crops with so-called “functional traits” could potentially disrupt commodity streams because of the new traits they carry, even if present in very small quantities and even though the products themselves meet regulatory safety standards. AC21 members recognized that these situations might pose new challenges in the future. The AC21 did not come to any additional consensus on conclusions specific

to these plants. In addition, the possibility was noted that in the future, producers of commodity crops, including GE crops, who might suffer economic losses should such unintended presence occur, might also have an interest in having unintended presence-related losses insured.

- If a compensation mechanism is needed, the following recommendation brings the greatest support from AC21 members:

Recommendation I.

To strengthen the understanding of the impact of unintended GE presence in identity-preserved products, USDA should evaluate data it has gathered under Recommendation IV regarding actual economic losses by farmers who grow crops for identity-preserved markets. If the Secretary, in considering the loss data, determines that the situation warrants development of a compensation mechanism to help address such losses, the Secretary should implement such a mechanism based on a crop insurance model. Concurrent with this data gathering, USDA should conduct an additional research program that would attempt to identify appropriate actuarial parameters from which a compensation mechanism could be developed. When a compensation mechanism is to be implemented, it should be tested through a “pilot(s)” established in a region(s) where unintended presence-related economic losses have been determined to have occurred. Such a pilot program(s) would have a finite lifespan and would be developed based on data on the frequency and types of losses in the region. The pilot program(s) would include incentives for the development of joint coexistence plans by neighboring farmers as well as a new crop insurance tool developed to address economic losses caused by unintended presence incurred by farmers who grow crops for IP markets. In the design of such a mechanism, consideration should be given to potential inequities in premium cost for IP producers.

Under such a program, farmers growing crops for IP markets would have the option of purchasing insurance, engaging in a joint coexistence activity with his/her neighbor(s), or both. Farmers growing for IP markets who develop an approved joint coexistence plan with their neighbor(s) would be offered a reduction in their IP insurance premium. Growers who enter into an approved joint coexistence plan with an IP producer neighbor would be offered a reduction in their conventional crop insurance premium or a preferred status under USDA

conservation programs, if possible. Special attention should be paid to ensure that incentives offered are sufficient to encourage wide participation in coexistence plans. Standards for eligible joint coexistence plans would be established by USDA, but evaluation of the acceptability of particular plans might be evaluated by USDA personnel or other parties, perhaps by USDA personnel in the Natural Resource Conservation Service, the Farm Service Agency, or Extension, by local conservation district technicians, by cooperating State agricultural officials, or by appropriate accredited third-party providers. USDA should seek public input on what those acceptability criteria should be. Any pilot activity would be considered to sunset automatically. In developing the crop insurance portion of the pilot program, the Secretary should take into account domestic and global policy implications, as well as the potential trade/economic implications of instituting such a mechanism.

Even if a compensation mechanism is not ultimately established, USDA should facilitate development of joint coexistence plans by neighboring farmers. In the absence of a compensation mechanism, farmers, whether producing for IP or non-IP markets, who develop an approved joint coexistence plan with their neighbor(s), if the plan included at least one IP producer, could be offered a reduction in their conventional crop insurance premium, or a preferred status under USDA conservation programs, where appropriate.

The AC21 believes that compensation mechanisms should be modeled on existing crop insurance. To obtain compensation, a farmer would need to demonstrate: 1) prior intent to produce an identity-preserved product; 2) use of practices appropriate for the production of the product; 3) that the product specifications were reasonable and fell within the range of insurable products set forth in the insurance product; and 4) that an actual financial loss was incurred and the magnitude of that loss. Only those farmers who obtained such insurance prior to planting a crop would be eligible to receive such compensation if the above criteria were met. USDA should enlist the assistance of its Office of the Chief Economist to ensure that the program is designed in such a way that it minimizes any potential adverse impacts on innovation or trade.

The AC21 also recognizes that current crop insurance products available to producers who are not growing commodity crops are limited in availability, coverage, and affordability. As such, it is also recommended that the Secretary work with agricultural producers and insurers to address these limitations and provide more comparable base coverage for these producers for their risks.

CENTRAL THEME: STEWARDSHIP AND OUTREACH

- As noted earlier, coexistence is not new for agriculture, but what needs to be done to achieve coexistence has changed with technological and market changes.
- AC21 members have discussed at considerable length the risks, rewards, and responsibilities associated with crop production, whether GE, non-GE, conventional, identity-preserved, or organic, and how those factors shape potential paths forward to bolster coexistence and address any potential economic losses.
- Some members believe that with a farmer's agreement to the terms of a contract, including purity and other specifications and the premium associated with meeting those specifications, the economic risks associated with fulfilling that contract should be entirely assumed by him/her and should be covered by the premium price agreed to under contract.
- Others believe that farmers producing crops that inadvertently show up in neighbors' IP crops or that potentially compromise their neighbors' ability to produce those IP crops bear some responsibility for containing the outflow of the plant genes.
- With this backdrop of often strongly held, differing views that are not readily resolved nor likely to fade away, AC 21 members nonetheless recognize that finding ways to support progress toward coexistence is crucial for the overall health of American agriculture and that this effort needs to involve the entire food and feed production and handling system. Farmers in particular not only bear contractual responsibilities, written or otherwise, for their own production but also are members of agricultural communities that may be affected by their actions.
- Farmers, if they are not fully aware of the implications of coexistence needs for their own operations, need to be made aware of those implications. This will be particularly important when farmers make decisions about what to plant, where to plant particular crops on their lands, how to time planting of their crops, and what steps are needed to ensure the quality of their production.
- Because the decision to produce for a commodity or identity-preserved market is influenced by factors such as price, yield, weather, and the contract terms, it is important that farmers incorporate coexistence considerations in their planning, agronomic, and harvest-handling operations. In particular, farmers need to have ongoing dialogues with their neighbors on how they can work together regarding identity-preserved production.

- Farmers also need to be well-informed about the implications of contractual agreements they may reach for identity-preserved products. When growers use written contracts, those contracts should provide clarity on at least the following parameters: grower practices for producing a crop of desired quality and characteristics; the percentage of unintended presence allowed; point of delivery; time of delivery; and compensation; and should highlight the need for the grower to work with his/her neighbors to address shared concerns.
- USDA should support appropriate industry measures (whether led by technology providers, seed companies, grower organizations, or trading companies or organizations) to increase the clarity of contract requirements. This might include helping to articulate, perhaps through “model contracts,” specific components that could be included.
- Beyond outreach to provide education about the components of coexistence and their importance, it will be critical that farmers be supplied with the best information about what methods work in helping to mitigate potential economic risks from unintended presence and be provided with tools to facilitate farmer-to-farmer communication.
- Stewardship plans increasingly need to focus not only on management practices designed to produce high quality crops but also on measures that support neighbors’ efforts to do the same.
- In considering potential USDA actions to bolster coexistence, the AC21 understands that voluntary innovation and incentives are a tradition in agriculture and are generally more strongly supported by farmers than government mandates or regulations.
- At the same time, some AC21 members feel that a purely voluntary approach to farmer adoption of measures to minimize unintended presence will achieve a level of change insufficient to allow for strong, diversified agricultural production in the future.
- A balance must be struck, therefore, to encourage and incentivize adoption of best management practices and neighbor-to- neighbor cooperation while maintaining market confidence in U.S. agricultural commodities.
- When advantageous to support the diversity of farmers’ needs, the AC21 also encourages farmers to create coexistence zones or other local mechanisms to support farmer

preferences and strengthen communities. Committee members also believe that USDA can play a role in support of these efforts.

Recommendation II.

USDA should spearhead and fund a broad-based, comprehensive education and outreach initiative to strengthen understanding of coexistence between diverse agricultural production systems. USDA should design and make available to the agricultural community voluntary and outcome-based strategies for facilitating production of all types of identity-preserved (IP) products.

Working in conjunction with agricultural stakeholders including, but not limited to, technology providers, seed companies, commodity and farmers' organizations, agricultural trade and marketing companies and organizations, education and extension services, public organizations, and State and local governments, this effort should highlight the need for good on-farm production practices, strategies for neighborly farmer-to-farmer collaboration, the value of private marketing contracts, and the risks and responsibilities associated with meeting private contractual arrangements for IP production. Such an initiative should seek broad grower participation and utilize expertise from a range of production types. It should seek to promote local, voluntary solutions and accommodate local and regional diversity in agriculture and should be mindful of the range of farmer production needs. As more experience is acquired, these education initiatives should be fine-tuned to be regionally appropriate and effective.

USDA should pursue this recommendation by working broadly with the private and public sectors and also engaging the expertise within the land grant universities and the extension networks. As part of the outreach, participants should be provided with tools to measure the success and effectiveness of their coexistence efforts.

Recommendation III.

USDA should work with agricultural stakeholders, including, but not limited to, technology providers, seed companies, commodity and farmers' organizations,

agricultural trade and marketing companies and organizations, public organizations, and State and local governments to develop a package of specific mechanisms that: (1) foster good crop stewardship and mitigate potential economic risks derived from unintended gene flow between crop varieties and unintended presence in general; and (2) promote and incentivize farmer adoption of appropriate stewardship practices.

USDA, in collaboration with the above-listed agricultural stakeholders, should work to strengthen mechanisms that foster communication and collaboration across the value chain and between different sectors of agriculture. Through this collaboration, USDA should build and provide access to “toolkits” or resources that encourage farmers and neighbors to adopt good farming practices that support identity-preserved production and minimize unwanted gene flow, addressing, for example, farmer-to-farmer communication, cropping plans, temporal and physical isolation, harvesting techniques, and inspections. USDA should promote the use of third-party verification of appropriate stewardship practices where it would be useful. USDA should encourage seed providers to include information about the importance of coexistence, the benefits of effective communication with their neighbors about their planting intentions, and stewardship tools to foster coexistence, as a means to address potential conflicts as part of commercial seed purchases and/or technology contracts. USDA should support appropriate measures to strengthen the clarity of contract requirements and of actions that may be taken to meet the requirements set out in those contracts. USDA should create incentives for joint activities by neighbors or regionally to provide buffer strips that facilitate identity-preserved crop production through existing conservation programs where appropriate.⁷ USDA should also support local efforts to develop planting zones that facilitate the production of identity-preserved crops.

CENTRAL THEME: RESEARCH

- USDA occupies a unique and central position in supporting the advancement of agricultural knowledge. USDA conducts or funds a broad range of both applied and

⁷ The AC21 strongly supports the environmental and ecological missions of conservation programs. In some circumstances the goals and requirements of such programs may be consistent with the creation of buffers that also promote coexistence.

basic scientific research as well as important economic analyses that help inform agricultural policymaking. USDA's role as a supporter of all forms of agricultural production enables it to evaluate a range of technologies and methodologies that are relevant to the promotion of coexistence.

- Because of the complexity of achieving coexistence in a changing production landscape and an evolving marketplace, there are a number of areas in which USDA research activities could strongly benefit this effort.
- The AC21 has wrestled with identifying and quantifying actual economic losses to farmers resulting from unintended presence of GE material in their crops. The AC21 considered GE testing data demonstrating that some consignments of identity-preserved and organic commodities were found to contain GE material in amounts that exceeded contractual requirements or *de facto* market standards. However, the data obtained thus far are not measurements of actual losses, nor do they account for expenditures stemming from steps taken to meet contractual expectations.
- Such data may be very sensitive for producers and purchasers. However, because of USDA's long experience with the gathering, protecting, and aggregating of sensitive market data to enable useful statistical and market analyses, USDA (and specifically the Economic Research Service, or ERS) may be uniquely able to seek out and analyze data relating to the economic losses identified in the first element of the Secretary's charge.
- Having such data would help to inform domestic and global policy discussions that may arise regarding potential compensation mechanisms to address any actual and documented economic losses.
- Effective stewardship by farmers of their crops in terms of both their own production and that of their neighbors depends on using the best production methods that are appropriate for their crop, their situation, and their region.
- Information about the efficacy of gene flow risk mitigation techniques, especially at a landscape level and for crops other than major ones, is often anecdotal. Evaluating the performance of current techniques and the development of new ones, as needed, will be very important to further the attainment of coexistence and reduce its cost.
- As more GE crop varieties are commercialized, and particularly as new GE varieties carrying new functional traits (i.e., traits that affect the downstream uses of those crops) are developed, it will become increasingly advantageous to have new genetic tools available that restrict the unintentional transfer of those traits to other plants, without

imposing any adverse impacts on the growth or quality of the crop. Such tools could be useful in helping to protect identity-preserved crop production.

- One final important area of research, which will help in the monitoring of the ability of the commercial seed supply to meet the diverse needs of farmers, would be to gather data from the seed industry on the levels of unintended GE presence in GE, non-GE and organic seed and the overall genetic purity they seek to maintain. This information, which would undoubtedly also be commercially sensitive, could be gathered and aggregated by ERS, and help to provide the public assurance about the continued quality and diversity of the U.S. seed supply.

Recommendation IV.

USDA should fund and/or conduct research in a number of areas relevant to the promotion of coexistence in American agriculture.

This research should include:

- Quantification of actual economic losses incurred by farmers as a result of unintended presence, and occurrences of these losses over time and in different geographies.
- Assessment of the efficacy of existing on-farm and post-farm unintended presence mitigation techniques on a crop-by-crop basis and development of improved techniques as needed.
- Assessment of the efficacy of existing gene flow mitigation techniques in seed propagation/multiplication or production on a crop-by-crop basis and development of improved techniques as needed.
- Development of genetic tools to limit unwanted gene flow to sexually compatible plants.
- Gathering and aggregating, on an ongoing basis, data from seed companies on unintended GE presence in commercial non-GE seed supplies intended for IP uses.

CENTRAL THEME: SEED QUALITY

- All AC21 members recognize the important role of seed quality in meeting their customers' needs and in successfully fostering coexistence at the farm level. The continued success of agriculture depends on a diverse supply of high-quality seed that is of the purity necessary to meet each farmer's needs.
- One key source of potential unintended presence entering into an identity-preserved production system is the starting seed. Seed may unintentionally contain unwanted material either because it was produced without adequate protocols to prevent gene flow or through unintentional commingling at some point in the production-handling-marketing-planting process.
- The unintended presence of genetic traits in seed will carry over into the crop, and will likely only increase as a result of whatever additional gene flow occurs during the growing season, or any additional inadvertent commingling that occurs during or after harvest. For this reason, managing unintended presence in identity-preserved crops entails a partnership between the seed industry and farmers. The seed industry's challenge is to provide farmers seed that offers farmers as much of a cushion in his/her management of unintended presence as is economically viable.
- Some AC21 members have expressed concern that, over time, non-GE seed and germplasm stocks for a given crop will have ever-increasing levels of unintended GE traits as more and more GE crop varieties are developed and commercialized. For the crop for which the largest number of GE varieties have been commercialized, corn, others argue that because GE varieties already account for over 90% of all U.S. corn production, additional increases in unintended GE presence in non-GE corn seed and germplasm are unlikely with continued application of appropriate coexistence and quality management procedures.
- All members, however, acknowledge the importance of attention to the production of seed of high purity to meet farmers' needs. Continued seed industry attention to the continued maintenance of an ample supply of regionally adapted, high quality, GE, IP non-GE, conventional, and organic seeds for people wishing to produce such crops will be critical in order for the associated agricultural sectors to flourish. The planting of high purity seeds provides a biologically based buffer or limit on the effects of gene flow and unintended presence in any given season, and therefore also will limit the frequency of episodes in which unintended presence leads to market rejection and possible loss of market premiums.

- It is important to point out that, especially in an age of ever-increasing technical capabilities for testing and detection, it is not realistic to suggest that commercial seed producers can guarantee zero presence of unintended genetics in seed. Technical consideration of seed purity issues is likely to take place in discussions by another USDA committee, the National Genetic Resources Advisory Council (NGRAC). However, the marketplace and the biological realities of crop production set boundary conditions for what is achievable. But the overall fact remains: continued attention by industry to unintended GE presence in seeds destined to produce crops for GE-sensitive markets is important.
- Seed industry representatives on the AC21 have spoken of their industry’s ongoing commitment for ensuring that quality seed continues to be available to GE, IP non-GE, conventional, and organic growers, and that the supply of such seed will be adequate to meet demands. There are a number of tools used by the seed industry, growers, grower groups and commodity groups, to help meet this commitment, including the use of field isolation “pinning maps,” the use of contracts, seed quality management systems, and grower communication about planting areas. In addition, tracking, recordkeeping, testing and other measures with appropriate management systems are essential parts of seed product development and the commercial life cycle to address quality assurance and seed product integrity.
- While seed purity issues have been highlighted here, it is also important to note that most identity-preserved production is intended to fill niche markets and producers for those markets may not have access to the range of locally adapted seed options for their production that commodity producers may have. Some AC21 members have noted such constraints for their own production.
- It is important that the agricultural community devote resources to ensuring that there is an adequate range of high quality locally adapted seed varieties using elite germplasm available to serve all producers. USDA can help the agricultural community identify market needs. Ultimately, however, the seed industry must operate in a marketplace that responds to grower preferences and to demand.

Recommendation V.

USDA should task the NGRAC to develop a plan in conjunction with the seed industry for ongoing evaluation of the pool of commercially available non-GE and

organic seed varieties and identification of market needs for producers serving GE-sensitive markets. USDA should work with seed suppliers to ensure that a diverse and high quality commercial seed supply exists that meets the needs of all farmers, including those supplying products to GE-sensitive customers. These activities should be conducted in such a way as not to interfere with functioning markets and the activities should be independent of regulatory approvals for GE products. USDA should also recommit to maintaining the original genetic identity of accessions in its germplasm banks.

In addition, for every plant species with commercially available or new GE varieties on the market, the USDA should assure that a credible plan exists and is implemented to monitor and maintain the purity of publicly held germplasm. Each plan should include best management practices for maintenance of purity, and should include measures to:

- Determine the presence of the transgenic trait or traits in publicly held germplasm stocks;
- Conduct ongoing monitoring of unintended presence in germplasm stocks, sufficient to detect any significant increase in its frequency in germplasm and breeding lines;
- Address what to do when unintended GE presence is detected in such germplasm stocks.

USDA should continue its support for the development of an “Organic Seed Finder” database and develop a similar database for non-GE seeds suitable for IP use. It should also strengthen outreach and education on seed quality management systems in general and specifically on existing management systems used for non-GE and organic seed.

AC21 members who have joined in consensus on this report:

Russell Redding, Chair
Paul Anderson
Laura Batcha
Charles Benbrook
Barry Bushue
Daryl Buss
Lynn Clarkson
Leon Corzine
Michael Funk
Douglas Goehring
Melissa Hughes
Darren Ihnen
Gregory Jaffe
David Johnson
Alan Kemper
Keith Kisling
Josephine (Josette) Lewis
Mary-Howell Martens
Marty Matlock
Angela Olsen
Jerry Slocum
Latreasia Wilson

AC21 members who have not joined in consensus on this report:

Isaura Andaluz

For information about affiliations of AC21 members, please see the list on page 62 or consult the AC21 web page.

Comments from members who have joined in consensus

Note: All comments represent comments of individual members, not policy or positions of USDA.

Laura Batcha:

The Secretary of Agriculture convened a group of stakeholders that represents the diversity in American agriculture. The final report delivered to the Secretary while including valuable recommendations in the areas of stewardship, research, and seed quality failed to embrace actionable policy recommendations to guarantee farmer choice and underlying consumer preferences in food and farming. In consenting to the report I urge that the dialog begun at AC21 continues within the committee, USDA and with the public in order to make real progress towards our goal.

The Secretary and Deputy Secretary met personally with the committee on multiple occasions and implored the committee to move to the middle, accept that data will be inadequate, and take seriously the need to make whole any farmer whose livelihood is damaged by the adventitious presence of unwanted genes. I believe the committee failed to fully meet this call to action. In many ways the committee was limited by the, while forward leaning, narrow charge of the Secretary. In consenting to the final report I hope the conversation amongst stakeholders continues and we have an opportunity to discuss openly the underlying and root causes that limit choice in agriculture—the movement of genetically engineered crop traits to farms and food where they are unwanted.

Regardless of legal status, and disagreements about safety assessments, failure to contain gmo's takes away choice from consumers and farmers. The committee recognized there is data sufficient to demonstrate this is happening. Incentives for containment and penalties for failure of containment, mandatory stewardship practices, a revamped framework that regulates containment at the time of commercialization specific to the crop and trait(s) will be necessary. The status quo, at taxpayer expense, incentivizes only one choice in agriculture. A solution must balance this equation.

I offer the following specific comments and recommendations to protect diversity in American agriculture.

Compensation

- As constructed the recommendation creates no incentives for containment and places the burden on the very farmers harmed. The working group on compensation mechanisms

evaluated a number of options and the focus in the report's recommendation on crop insurance exclusively does not in my opinion reflect the working group's discussions.

- I strongly urge USDA to adopt a mechanism based on the fund model, even if adopt as a pilot. RMA stated to AC21 that crop insurance was not suitable mechanism because adventitious presence of gmo's is manmade and inevitable. The right mix of policy would dramatically reduce that inevitability and when compensation is necessary the "maker" should be where the burden is placed. Technology exists today to accurately assign responsibility.
- It was acknowledged in the report that any solutions that place the burden disproportionately with certain stakeholders will increase conflict in agriculture. I do not agree that a system paid for by non-gmo producers and taxpayers is a viable or fair system. It seems to me an axiom that the origin of the unwanted gene flow be accountable rather than the recipient.
- I encourage USDA to make crop insurance products better serve organic producers in terms of risk management in general by to focusing it's efforts on the final removal of surcharges for organic producers premiums, adopt organic price elections, and offer products better suit for diverse farms with on average longer crop rotation cycles, rather than considering AP policy riders to a product that is currently inadequate.
- The commit failed to address the question of trigger. USDA will need to do so in order tot implement policy solutions. For non-functional traits the free markets have answered this question. Failure of the committee to recognize the need for triggers and the de facto thresholds for non-functional traits is exemplary of the challenges we faced moving beyond the status quo.

Stewardship

- In addition to the recommendations in the final report USDA should include mandatory stewardship practices, based on sound and demonstrated science to contain the gene flow and prevent market loss, concurrent with any new approvals. These measures should be specific to the crop and trait. Steps should be taken to ensure USDA's scope of authority for such action.
- USDA should require that these stewardship measures be included in technology contracts.

Research

- The research recommendations are the strongest in the final AC21 report and I urge swift implementation. The results of his critical research can inform mandatory stewardship (containment) measures.

Seed Quality

- Swiftly implement these recommendations as a critical step to preserving choice in the U.S. seed, feed and food supply.

Charles Benbrook:

Despite strong support for the recommendations in the Stewardship and Outreach, Research, and Seed Quality Central Themes, I join my colleagues supporting this report reluctantly because it does not address in a meaningful way the central charge given to the AC21 by the Secretary. I applaud the good-faith effort to find common ground by Chairman Reading and the AC21 designated federal official, Michael Schechtman, but regrettably on the core compensation issues, the capable leaders of AC21 were unable to move the Committee much beyond talking points shared in the first meeting.

Throughout our work, it has been clear that around one-third of AC21 members feel that coexistence problems are minor and isolated occurrences that can be worked out among neighbors, and for this reason, no USDA response is necessary or justified. Several members argued consistently that any farmer seeking a premium price in a non-GE market should bear all the risk inherent in meeting non-GE market specifications. In short, they argued that farmers and food businesses were, and should remain free to pursue non-GE forms of agriculture, as long as no limits or costs are imposed on GE technology providers or farmers planting GE crops. Despite an understandable desire to characterize the Committee's report as a carefully balanced combination of compromises, on the core element of its charge, the report does not embody significant compromise and it dodges key issues.

There are several fundamental shortcomings in the report's recommendations.

This AC21 report rejects the notion of shared sacrifice in dealing with, and paying for, the loss of net farm income caused by unwanted gene flow from GE crop fields. Technology providers have the ability to substantially promote coexistence through provisions added to mandatory technology agreements. Indeed, advancing coexistence would seem a wise business decision since it would promote good will and broader acceptance of the technology. Despite these

compelling reasons supporting a role for technology developers in attaining coexistence, the report provides them an essentially free pass and full immunity.

The biotechnology industry, in partnership with supporters in the farm community, clearly has the economic means and political clout to put in place a workable, prevention-based coexistence scheme grounded in the notion of shared sacrifice and shared responsibility. Doing so at this time would cost the industry almost nothing compared to the technology premiums that farmers are paying for access to GE crops. The “I’d rather fight than switch” attitude evident in the Committee’s deliberations is a sign of the times and a sobering reminder that non-GE farmers, food businesses, commodity exports, and the reputation of U.S. agriculture will likely suffer substantial collateral damage along the path to coexistence.

The Committee places its faith in a crop insurance model to cover economic losses from gene flow. While politically expedient, there are fundamental problems with the crop insurance model for dealing with economic losses triggered by unintended presence. Crop insurance is best suited to covering largely uncontrollable and randomly distributed risks, like those caused by a serious storm event or severe drought. The risks faced by one insured farmer typically do not differ greatly from their neighbors. But in the case of economic losses from gene flow, the risks are not spread randomly across the farm community. The actions of one or a few farmers planting GE crops can adversely impact other farmers, or might impact none.

Taxpayers, via the USDA budget, cover one-half to three-quarters of the total cost of crop insurance. To the extent a crop insurance policy is offered to cover economic losses from gene flow, taxpayers would cover a significant share of its cost. The Committee’s core recommendation suggests that growers working together on coexistence plans should receive crop insurance at a lower cost, thereby further increasing the public share of the cost of coverage.

Why should taxpayers cover most of the costs associated with coexistence crop insurance? Why should profitable technology developers bear no cost or responsibility for a problem they are largely the cause of? The grossly inequitable division of costs and benefits inherent in the AC21’s crop insurance recommendation will be hard to defend in this era of shrinking public resources and will likely assure that gene flow, and resulting economic costs on non-GE farmers, will persist, and indeed grow, exacerbating tensions associated with GE crops.

Early on in the deliberations of the AC21, it became clear that the crop insurance model was the only possible mechanism a majority of the Committee might endorse, and so crop insurance was discussed repeatedly and in depth. Several members made the case that for a crop insurance model to work, there would need to be a threshold set that would trigger payments when GE gene flow exceeds the threshold. Such a limit is necessary to protect insurance providers, USDA, and indirectly taxpayers, from providing compensation for exceptionally low levels of unintended presence. No one on the AC21 could explain how a crop insurance program could

work without such a trigger, yet several members insisted that the Committee should not set or suggest a threshold, or even provide guidance regarding how to set one. Failure to deal with this and other crop-insurance related issues will make it much harder for Congress to act on the Committee's core recommendation. After five meetings and innumerable calls, we should have done better.

There are a number of technical and factual problems with the Committee's report. The report implies on page 5 that unintended presence will only occur if best management practices are not followed. This is not true; gene flow will occur in some cases, despite growers following to a "T" all recommended BMPs for the prevention of unintended presence.

On page 6, the report implies that regulators have evaluated the safety of GE crops and determined that GE foods are as safe as foods from conventional crops. This is not correct in the case of risks to human health. Neither the Food and Drug Administration, nor any other U.S. government agency, conducts an independent evaluation of the nutritional quality or safety of GE foods. Voluntary food safety consultations involving the FDA and technology developers are carried out during which the technology provider asserts that a new GE event produces food that is as safe as, and substantially equivalent to, non-GE crops. The FDA does not conduct an assessment of such assertions, and does not take a position on whether such claims are supported by sound science. In its letter to technology providers at the end of voluntary food safety consultations, the FDA simply accepts the assertions by the technology provider. For example, in its September 26, 1996 letter to Monsanto closing out the voluntary consultation on MON 810 (*Bt* corn for control of the European corn borer), the FDA states:

"Based on the safety and nutritional assessment you have conducted, it is our understanding that Monsanto has concluded that corn products derived from this new variety are not materially different in composition, safety, and other relevant parameters from corn currently on the market, and that the genetically modified corn does not raise issues that would require premarket review or approval by FDA.

"Based on the information Monsanto has presented, we have no further questions concerning corn grain or fodder containing transformation event MON 810 at this time. However, as you are aware, it is Monsanto's responsibility to ensure that foods marketed by the firm are safe, wholesome and in compliance with all applicable legal and regulatory requirements." [Source: <http://www.fda.gov/Food/Biotechnology/Submissions/ucm161107.htm>]

These two paragraphs appear, essentially verbatim, in all ~93 FDA food safety consultation letters issued to date. Because the FDA does not independently verify or analyze data submitted by technology developers, nor conduct or sponsor GE food safety studies, the agency has no basis to render judgment on issues of safety. The absence of independent FDA confirmation of

safety claims made by technology developers undermines widespread acceptance of GE crop technology, both in the U.S. and abroad.

The report states (page 6) that GE crops do not “create risks that are novel in agriculture.” This is untrue, since GE crops create, for example, new risks of allergenicity and loss of markets that would not come about in the absence of GE crop technology. There are many other potential risks that can arise only as a result of, or via the genetic engineering process. To assert that GE technology cannot trigger novel risks requires a level of confidence in the technology grounded more in wishful thinking and faith than science.

Barry Bushue:

While I personally don't endorse every detail of the final AC21 report, I am pleased that, after much lively debate, the report accurately reflects the diversity of opinion on our committee and includes balanced, compromise recommendations. If pursued with caution, requiring further due diligence and consultation, I am optimistic that our recommendations can help identify coexistence practices where they are working, improve stewardship where needed, and mitigate much of the underlying concerns and the real and perceived risk related to coexistence. I am especially supportive of the recommendations related to stewardship and outreach and I do not believe developing a compensation mechanism is necessary or justified at this time. In fact, most committee members were opposed to continuing to pursue compensation as a solution to coexistence as a result of the lack of evidence or strong rationale. The resulting recommendation to encourage the Secretary to gather data on actual loss was the compromise.

My comments below attempt to summarize how I and other farmers on AC21 have tackled the charge the Secretary gave our committee and how our views are reflected in the final report.

Principles of coexistence in IP cropping

I am pleased our report has been expanded to include all identity-preserved cropping, rather than limiting it to genetically engineered crops. There is a long history of successful coexistence in U.S. agriculture and it is important to recognize that genetically engineered crops do not create new risk for agriculture production and that there is no environmental, safety or regulatory issue related to coexistence of IP crops that are approved for production. Within all IP cropping, it has long been the principle that the farmer who is growing a higher-value, differentiated crop accepts responsibility to implement the production practices necessary to preserve the value of that crop. That includes the additional costs of production and the costs associated with accepting additional risk, which are offset by price premiums. That fundamental principle is the basis for my concern that any coexistence policy proposal, particularly those involving compensation, preserves grower responsibility and does not erode the price premiums that farmers earn for their work. It is also important for any proposal to not interfere with farmers' ability to engage in

private contracts and account for the constraints on their own farm when fulfilling their contractual obligations. I'm pleased our committee arrived at suitable compromise recommendations that emphasize improving stewardship and neighbor-to-neighbor coexistence, and that a compensation mechanism, if any, be modeled after crop insurance and be actuarially sound.

Size and scope of risk

Our committee spent a lot of time debating the size and scope of the “problem”. It would be unreasonable to deny that there is risk in IP agriculture, but the question we tried to answer is: Are economic losses frequent, large and unavoidable through basic stewardship practices to justify expending public resources to create a compensation mechanism? After a year of work, we have not seen any meaningful or valid evidence of actual economic loss. The limited data that we did review was for the presence of GE material not economic loss, was not a representative sample, and could not be attributed to a lack of coexistence. Moreover, not a single specific case was presented of a farmer who has lost crop value due to a breakdown in coexistence that is outside of his or her control. It would be unreasonable to recommend a costly policy solution or claim that there is a “war in the countryside” when farmers themselves are not actually reporting a widespread problem of any size. In fact, the organic growers who spoke to our committee did not express a desire for a compensation mechanism, but instead expressed the sentiment that all they needed to be successful was access to quality seed and the freedom to do what they do best. The limited evidence and the testimony from farmers are why I am supportive of the committee’s education and outreach recommendation, but I remain wary of the need or justification for a publicly supported compensation mechanism. It is also important to note that organic production, which much of our discussions focused on, remains a relatively small market, is often geographically concentrated, and is most common for crops that don’t have any commercial GE traits, like fruits and vegetables. The growth in organic and other consumer-driven, value-added agriculture markets is one of the recent success stories of U.S. agriculture and one we should celebrate. However, the facts don’t suggest these markets are suffering from a breakdown in coexistence or that a costly compensation mechanism is necessary or appropriate. Given the characteristics of these niche markets, the region-specific and crop-specific education and outreach is much more likely to be a helpful solution that is targeted and flexible to the needs of growers.

Grower disputes

It is unfortunate that our committee started from the premise that there are widespread grower disputes that have led to a “war in the countryside”. Some farmers may have a tendency to complain about their neighbors, but by and large they know how to communicate and work effectively with other nearby farmers when their crops and livelihood depends on it. For those of us on the farm, any so called “war” in agriculture seems to mostly be stirred up among activist organizations and does not reflect the best interest of growers or the industry. In fact, I am not

aware of any significant legal disputes among farmers related to coexistence or any cases of farmers being threatened for unintentional gene flow, as is often claimed. The only lawsuits I am aware of are procedural challenges to USDA's regulatory decisions for genetically engineered crops. It is unlikely that the proposals our committee discussed would address legal and regulatory challenges that USDA faces. Where grower disputes do occur, education and outreach focused on improving stewardship practices and neighborly communication would seem to offer the most promise for mitigating those disputes. I'm concerned that some proposed compensation mechanisms would only serve to penalize farmers who have done nothing wrong and could actually make disputes more frequent and more heated.

Diversity and innovation in agriculture

Throughout our report there is reference to concerns related to the market impacts of any coexistence proposals. It is my belief that avoiding interference with the marketplace is the best way to promote diversity and innovation in agriculture and ensure our industry is responding to consumer trends. Farmers' ingenuity and responsiveness to changes in domestic consumer preferences and international markets has kept our industry vibrant and growing. That is why I am especially wary of any reference to "de facto standards", "insurability triggers" and other marketing thresholds that have no scientific or regulatory justification. Endorsing or codifying such standards and thresholds could send a negative signal to our trading partners and stymie the dynamic market response that has helped our industry thrive.

Existing policy

USDA has also repeatedly articulated the role of the Department and the responsibility of farmers in IP production. For example, USDA report from June 2012 stated:

USDA supports the use of all types of agriculture, including organic, conventional, and GE. The decision to grow a crop for a specialty market is an individual choice. Growers consider the risks and the returns when making those decisions. There is a risk to producing an identity preserved product whether organic, conventional, or GE. The burden of protecting one's product is upon the person growing the seed, regardless of the type of seed.

USDA policy reflects this and, for example, the National Organic Program has been carefully crafted to acknowledge that the absence of genetic material in agriculture is purely a market preference and that organic farmers have the responsibility for implementing practices like buffer strips to maintain crop integrity. In fact, the NOP's processed-based standard is deliberately designed to protect farmers, and the Secretary has recently acknowledged that no growers have lost their certification for inadvertently having genetic material in their crop. We should be very cautious not to undermine the protections in the NOP or expand USDA's limited role in a way that would steer the market toward arbitrary standards with no public health, plant health or scientific justification.

I appreciated the opportunity to serve on the committee and believe that the healthy and candid discussions brought us all closer to serving the diversity and health of our industry. The recognition of the importance of grower choice and the value of all forms of agriculture remains critical to a future that will demand even more of farmers.

Lynn Clarkson:

The AC21 committee chair and secretary did well in fairly representing the shared, diverse and often conflicting opinions of the committee. I am agreeing with the recommendations framed in the final report with the following comments:

Unfortunately, our committee deflected a good opportunity to address squarely the issues of "adventitious presence" besetting organic, non-GMO and, increasingly, even GMO producers. Instead we nibbled at the edges. As a committee, we represented a good cross section of US agriculture. We had the credibility and talent to define acceptable limits of adventitious presence or at least a process to define such limits, to suggest a process for dealing with the introduction and management of functional traits that disrupt the valued characteristics of other corns, even GMO corns, at levels too low to detect with practical tools. We did acknowledge that "adventitious presence" can lead to economic losses. We did suggest gathering information that would be helpful in limiting if not preventing "adventitious presence." We did suggest some important steps toward determining and improving the level of "adventitious presence" of GMOs in our commercial seed supply and in our seed reference banks. But we did little to allocate responsibility for minimizing or preventing problems.

What can we and the USDA do to support continued development of biotech traits while holding "adventitious presence" to acceptable levels for markets that are biotech sensitive or potentially disrupted by functional traits? We can

- Set rules and define labels - the essential work of government on display throughout conventional markets and increasingly organic markets. We can determine the acceptable levels of "adventitious presence" for various market designations. What does "non-GMO" mean? Is there an acceptable level of GMOs in certified organic products? If so, what is it?
- Distribute responsibilities for maintaining acceptable purity levels across stake holders, sharing costs.
- Develop "Best Management Practices" for increasingly differentiated agricultural production.
- Develop a reasonable plan to cover market losses for farmers who follow Best Management Practices but are innocently damaged by or innocently causing issues of

"adventitious presence." But, as our committee appeared to unanimously agree, focus on preventing the problem rather than compensating damages from the problem.

- Improve the regulatory process for approving new traits to match the increased sophistication of the biotech seed industry. This is not just an issue of safety. It is an issue of market disruption. As the introduction of corn based functional traits such as amylase indicate, markets can be seriously disrupted at levels of "adventitious presence" well below levels of concern to most biotech sensitive markets. Government should not wait for problems to happen before managing them. The potential damage to our industry is too great. If we continue regulating the introduction of functional traits only by considerations of safety, we encourage de facto private zoning of the American Midwest by companies insensitive to the risks to any markets other than their own. We need regulators who can evaluate market impacts and work with trait petitioners to minimize disruption before approving introduction.

There is common ground for all players. With few exceptions and caveats, most agree that it impossible to achieve zero "adventitious presence" in open air agriculture. But today with > 90% of US soybeans being GMO and > 85% of US corn being GMO, US farmers can still reliably deliver soybeans and corn with less than 0.9% adventitious presence. The spatial segregations needed to meet those standards are minimal, generally less than 20 feet for soy and less than 70 feet for corn. So for corn and soybeans, a 0.9% standard would seem to offer potential for defining an acceptable level of "adventitious presence" for loss coverage and the goal of Best Management Practices, perhaps even for defining what a non-GMO label would mean. It costs little. It is practical. It can be easily measured. Best of all, it lets American farmers participate in markets throughout the world, even the biotech sensitive markets that regularly block shipments of US grains and oilseeds.

Some committee members expressed concern that any government acknowledgement of a GMO distinction, any setting of a tolerance level for determining damage or guiding development of programs to encourage market integrity would undermine the argument that biotech traits are safe. The market itself has already made obvious distinctions, domestically and internationally. Although the recent GMO labeling referendum in California failed to pass, it is obvious that many consumers want to avoid GMOs. So I have difficulty in understanding how the development of tolerance levels is critical of any particular trait or trait development process. I do see that it is critical to maintaining distinctions in a differentiated market.

The commercial planting of amylase corn threatens non-GMO and GMO markets alike. At levels of ~ 0.25% "adventitious presence", this amylase corn can ruin any other corn, GMO and non-GMO alike, for use in making tortillas. At levels of ~ 0.01%, it can ruin any other corn for use in making grits, the material for corn flakes. What milling company wants to buy any corn raised within miles of such amylase corn? Isn't the farmer who plants such corn eliminating his neighbors' market choices? This ability to raise crops that can do serious market damage to

others' crops is not something that should be left unregulated. Dr. Nicholas Kalaitzndonakes' report to the committee covered in part Brazilian policies in protecting the integrity of non-GMO crops. It is clear that Brazil, a significant supply competitor, is doing more than we to assure buyers of product integrity. I hope that the USDA will take steps to help insure differentiated market integrity. I want a US agriculture that will be in fact and perception the world's leading supplier of GMOs, non-GMOs and specific GMO's. I want buyers of US crops to be able to avoid what they do not want and to get optimal purity in what they do want. The AC21 dialogue needs to continue. It has a long way to go to address the challenges of technological development, lost revenue, lost opportunity, and lost confidence in purity of product.

Leon Corzine

I appreciate the opportunity to offer comments as a supplement to my endorsement of the AC21final report. I signed the report because it reflects a compromise position. However, at this time, I do not support any compensation mechanism. In fact, the majority of the committee did not support any compensation mechanism. It was Secretary Vilsack's charge that compelled the committee to continue exploring various compensation mechanisms in the absence of any data on economic loss.

We are a committee representing a variety of viewpoints that identified potential solutions to enhance coexistence without new mandates. As stated in the Background and Context section, the Committee acknowledged that "coexistence is not a new practice in agriculture, nor has it failed in recent times." How else could both GE and organic production expand and continue as important parts of U.S. agriculture? Coexistence is also not about health, safety or one product being more nutritious than the other. It is about finding ways for different production methods to continue improving their working relationship.

I am confident that the report refutes the theory that there is a war in the countryside. Any "war" is created by organizations with headline grabbing sound bites. I have two organic neighbors and, as a lifelong farmer, I see no such war.

In my lifetime, I have witnessed tremendous innovation that allows me and my children to better care for our land while meeting the needs of an ever-growing global marketplace. These new tools make me a better farmer by helping me increase my productivity while lowering my environmental footprint. With new products, there are new opportunities for me to work with customers to enter into contracts, manage my risk, and receive a premium. These IP opportunities are occurring in all segments of agriculture and are contributing to record farm income and record farm exports.

We must be careful to not remove all risk to the producer. IP production thrives because there is a premium paid to producers for their extra effort, including the risk associated with producing a specific product for a consumer. If all risk is removed, the added value goes with it as verified by the panels of producers who spoke during AC 21 plenary meetings and farmers who testified during public comment periods. It is important to note that none of the producers offering testimony asked for a compensation mechanism. Instead some expressed concern that a compensation mechanism would put their premium in jeopardy.

This is also very important to my family as we evaluate IP opportunities and contracts each growing season. We make decisions whether to grow white corn, blue corn, popcorn, seed corn, seed soybeans, and non GE. Decisions are based on our ability to meet contractual obligations verses the premium paid for the product. The tolerances within the contract determine the risk to our farm and are part of the value we receive. It is our decision and our responsibility.

Having a great deal of familiarity with USDA research programs, I understand resources are scarce and in high demand. I urge the Secretary to weigh opportunities and costs associated with each new ask in this report. First and foremost, as noted in the report, there is no data of actual economic loss. We must have this data before we proceed to next steps, otherwise we are creating a solution in search of a problem.

There is a reference in the report, specifically under the central theme of Compensation Mechanisms, which calls on the Secretary to consult with Congress prior to implementing a pilot or localized program. As a producer, I believe such consultations are crucial and I continue to question whether it is appropriate to link conservation programs to coexistence plans. Too often, programs with good intentions are found to be impractical in the countryside. Agriculture committees in both the House and Senate are well equipped to define USDA authorities and priorities, provide historical context for the parameters of existing programs, and design new tools that get to the heart of the real challenges in rural America.

For example, it is important to note the National Organic Program language. In the preamble to the NOP, USDA specifically addressed the buffer zone requirement in the context of what the agency then referred to as “genetic drift.” Although the NOP does not consider the products of excluded methods (i.e., GE genetic material) to be “prohibited substances,” USDA explains that the buffer zone requirement is similarly applicable to avoid genetic drift and is the responsibility of the organic grower. This passage also shows that USDA never considered the presence of inadvertent, low levels of GE genetic material to constitute a violation of the NOP.

Farmers rely on the Risk Management Agency (RMA) to develop actuarially sound crop insurance products. I stress the term “actuarially sound” since it is not explicit in the final report.

The Secretary must seek RMA's input on the amount and types of data necessary to construct a crop insurance product with integrity. I am encouraged that prior to any crop insurance pilot program commencing, USDA must collect and evaluate a robust data set to determine if establishment of a system of compensation is justified. If data shows a problem exists, it is then appropriate to recommend consideration of a pilot of a crop insurance type program to test its feasibility.

Throughout committee negotiations, I have expressed concern over the implications these recommendations could have on trade. It is important that USDA's Chief Economist give his or her due diligence to evaluating the recommendations, specifically the mechanism modeled after crop insurance. As the world's largest producer and exporter of corn, the United States cannot risk important export markets over a misinterpretation of USDA's recommendations on coexistence. As the report states, we cannot send a signal to the international marketplace that products derived from biotechnology pose a novel risk to agriculture. The economic health of our rural communities simply cannot afford it.

To this end, additional consultations should occur with agencies such as the U.S. Trade Representative and Department of State. During our meeting in August 2012, producer representatives referenced a letter signed by the entire biotechnology value chain that urged the U.S. government take a leadership role in addressing asynchronous approvals of biotech traits. The letter, sent to U.S. Trade Representative Ron Kirk and Secretary Vilsack, is an excellent example of industry and government working together to solve a problem. I remain concerned that, if interpreted incorrectly, ambiguous messaging on the safety and contents of grain shipments could weaken the United States' negotiating position in the international arena. Similarly, the State Department drives our role in international food security. It would be irresponsible to send a signal to developing countries that U.S. grain shipments are potentially unsafe.

It is for these reasons and others that I remain opposed to the term "insurability trigger" or "de facto low level presence threshold" in the report. Contractual obligations establish these numbers, and they vary by contract, by product, and by region.

In the Background and Context section, AC 21 recognized that any recommendation must also take into account potential economic impacts on agricultural innovation and market competitiveness, both domestic and international. This is a question I have asked myself time and again - what will happen if the public, venture capitalists and universities get the message that our government doesn't stand behind agricultural innovation? How does that benefit small companies, the specialty crop sector, or me as a family farmer? As stated in the Bioeconomy Blueprint authored by the Obama administration earlier this year, biotechnology is driving the

U.S. economy. According to USDA, revenues in 2010 tied to the use of biotech crops were approximately \$76 billion.

I appreciate the work of the United States Department of Agriculture and the Advisory Committee on Biotechnology and 21st Century Agriculture. It is an honor for me to participate and represent farmers in the process. Thank you for the opportunity!

Michael Funk:

I join consensus in support of the AC 21 final report with serious reluctance.

By joining consensus, I am acknowledging that the final report takes a step in the direction of enhancing co-existence and I wish to support the Secretary and USDA staff in their efforts to use this as an initial starting point in which to protect and encourage all forms of agriculture, specifically organic and Non-GE agriculture.

While the final report contains some good recommendations around education, prevention and avoidance, I have serious reservations about the compensation mechanism recommendation. The insurance model put forth by the committee would either place most of the burden on the injured parties, or on the taxpayer through subsidies. At the same time, no real responsibility was given to the seed companies/patent holders, who are the logical party to pay for any damages.

To me, this issue of genetic drift (like pesticide drift), should require the party who is causing the damage to be responsible. The laws of trespass as well as the fence laws requiring farmers to keep their livestock out of their neighbors land are the best examples we have used to historically deal with these types of situations. Basic fairness says that a farmer should not have the right to negatively impact their neighbors operations or marketability of their crops. There should at least be true shared responsibility, and I don't believe we have created that with this recommendation.

While the committee struggled with the Secretary's charge of creating a compensation mechanism for losses incurred by Non-GE farmers who suffer unwanted genetic contamination of their crops, there was at least acknowledgement for the first time that there are negative economic impacts of GE contamination on non-GE farmers. Most on the committee agreed that compensation for damages was the least desired outcome of all. I concur with most members that the focus needs to be on education, prevention and best management practices to insure the contamination doesn't occur in the first place. However, without **economic incentives** for ALL parties to avoid this contamination, I don't believe we can have an effective system that accomplishes this goal. I believe USDA needs to create mandatory GE prevention strategies, and penalties for non-compliance. (Or real economic incentives for compliance)

One of the highlights of the report is the commitment to a viable, non-GE seed supply. It is my belief that the majority of genetic contamination issues are occurring because of seed being planted which is already contaminated. If we can greatly increase the availability of pure, NON-GE seed, a large number of occurrences of unwanted gene flow can be prevented. Protecting seed diversity is a matter of national security and should be prioritized as such.

It is difficult to predict the future and where agriculture may be headed. It's important for USDA to support diverse forms of agriculture and stay away "from picking the winners and losers". Ultimately, consumers will decide what farmers will plant. With growing demands for transparency on what's in their food and how it is grown, it is a good bet that consumers will demand to know if GMO's are in the food they are eating. 4.3 million Californians just voted to have their food labeled if it contains GMO's. While that initiative may have been defeated for now, 23 other states are working on some type of mandatory label law. Any number of things could occur to significantly alter the crops that are currently being planted. It is very important that the USDA creates an environment where supply for these changing consumer choices can be fulfilled.

I appreciate being part of the USDA Advisory Committee on Biotechnology and 21st Century Agriculture. It was an honor to participate and I especially appreciate the opportunity to provide some representation for organic and Non-GE farmers and American consumer and business interests who wish to preserve and promote Non-GE food choices.

Douglas Goehring:

As a farmer and a state Agriculture Commissioner, I serve as an advocate, regulator and a representative for agriculture, which includes managing over sixty (60) different programs relating to all aspects of agriculture, from regulating milk, meat, pesticide, fertilizer, plant and animal health, managing phyto-sanitary program, organic certification, etc... to development and marketing of the livestock industry, trade actives, small business planning, crop insurance development fund, etc...

The AC21 committee dealt with some very complex issues such as; compensation mechanisms, thresholds and triggers. We lacked the expertise and experience to really address some of the things requested but I believe we did an extraordinary job given the lack of, or limited data available. Many of these issues concerning product development, triggers to activate a claim and establishment of a pilot program need consultation from the private and public sector who grasp underwriting, loss adjustment, modeling, experience, actuarial science and rating to provide a basis for developing such a product.

It was problematic to address issues surrounding compensation when no organic or identity preserved growers asked for or suggested a compensation mechanism. To the contrary, a few even inferred it would undermine the premium they receive in a risk/reward premium system because it guarantees price for a practice and system verses providing a safety net for production. This could ultimately invite abuse and fraud and compromise the integrity of the insurance program by allowing bad actors to participate or continue to produce without taking adequate measures to manage their own risk. We did find consensus that if data collected supports developing a product based on real economic losses, there would most likely be support from a broad base in the ag community with only a few objections for congress to grant authority to USDA to outline the parameters for product development.

Some growers on the panels mentioned communication as a tool to inform identity preserved, organic and all other growers about management practices and respecting choices of all growers. Those producing for special markets and those producing food, feed and fiber under a long-standing policy directed toward national security/ food security can I believe, grow food and feed for many different markets without compromising our ability to produce abundant, affordable, safe and nutritious food for society. Outreach and education can play a crucial role in coexistence while assisting producers in understanding the different challenges that exist with growing different crops for different markets, in different climates under reasonable or restrictive contractual obligations.

Mediation is another tool offered in thirty seven (37) states in the nation. The Mediation Program and mediators are certified by USDA to provide confidential conflict resolution to two disputing parties. Mediation could prove to be very valuable if growers are aware of it and utilize it as a tool to gain a better understanding of the challenges while creating a communications bridge for both parties.

It would be remiss of me not to mention that in “1997” congress passed a law allowing “Risk Retention Groups” (RRG) to be developed very easily over many states to insure and manage various forms of risk and a product could be developed for this issue. We did as an AC21 committee discusses a RRG, but there were objections to it by a few because it did not mandate that everyone from all growers to biotech companies participate. It was a bit discouraging because it would have been a legitimate and legal product to create with a great deal of flexibility to insure for various losses including an economic loss that was discussed by our committee.

It was disappointing that this issue had to escalate to the point that it did. There was an occasion when the situation was characterized as a war between the organic industry and the ag community, it appears to be driven mostly by politics and agendas and that was unfortunate. There is merit in the issue and situation, we need to use as many tools as possible such as communication to bridge the gap and gain a better understanding of practices, systems and

challenges that growers face when growing an identity preserved crop. It will bode well for all of us to build a better relationship and understanding that will support coexistence.

Agriculture is simple in its design and mission but has many complexities and layers to it and promoting, stating or implying a solution may be as simple as being liable or keeping you property on your side of the fence is not as easy or practical as it sounds. There are several areas in agriculture where this problem already occurs. One example is the movement of pathogens like spores, viral and bacterial infections that exist in one field that are not being managed adequately that migrate to adjacent fields (a neighbor) and require extra or different management schemes at a great deal of expense to prevent, control or eradicate a disease. Or perhaps extensive cultivation that exposes soil and seed to wind and rain can/ and do transfer seed borne and soil pathogens such as nematodes to neighboring fields as well as weed seeds that end up spreading throughout a community. These issues are not new to agriculture. Many producers try to manage it to the best of their ability to minimize the impact knowing they really don't control much of the environmental conditions they are subject to. I believe the fear is where do you start and where does it end when you apply liability.

Melissa Hughes:

The USDA has consistently supported biotechnology in the marketplace and in US agriculture in the past twenty years. The USDA has never denied deregulation of a GMO product, and has refused to put in place any regulations that comprehensively address a responsible review of products before they are introduced into the environment and the marketplace. Despite the passage of the Plant Protection Act in 2000 which broadened its authority, the USDA has continued to regulate GE crops under its 7 CFR Part 340 regulations it promulgated in the 1980s and 1990s, under its narrower previous authority from the Federal Plant Pest Act of 1957. Twelve years have passed without APHIS updating its regulations to implement its newer, broader authority. The agency began the process of updating its regulations in 2004, leading to proposed regulations in 2008, but since then, the agency has failed to take any further action. The USDA has not released the final revised Part 340 regulations on biotechnology despite having closed the comment period on the draft final rule almost four years ago. The USDA continues to review 21st century technology with antiquated rules that never contemplated the current wave of biotechnology.

In the midst of the failure to revise regulations, the USDA continues to deregulate crops with no contemplation of the consequences. Round-Up Ready Alfalfa was deregulated in

the face of the many in the non-GMO dairy industry rejecting the technology and requesting the USDA not risk a key tool on the dairy farm. All indications are that the USDA will release 2,4-D resistant corn, and Dicamba resistant corn, with no regard to the desperate onslaught of additional, volatile, toxic chemicals that will ensue, devastating traditional crops like tomatoes and grapes and creating many more known and unknown environmental consequences.

I strongly disagree with any indication in the AC-21 Committee's report that the health and safety of GMOs and biotechnology has been thoroughly reviewed and accepted. I also disagree with any referenced concept that "coexistence" has for the most part been successful and simple refinements are all that is needed.

The USDA's overwhelming support of biotechnology is so stalwart that many in the biotechnology industry fear that any wavering of the support will result in total devastation to that industry on a global basis. Any nod in favor of non-GMO markets or farmers will bring down the house of cards. Such a position is untenable, and disregards the need for the USDA to also comprehensively support and protect non-GMO agriculture. "Successful" coexistence means the USDA must take its fingers off the scale in favor of biotechnology. "Successful" coexistence means that the USDA must accept that non-GMO agriculture is critical to the success of American agriculture and give it the recognition that critical means crucial. We are far from successful coexistence.

As a member of those on the AC-21 Committee representing the non-GMO agriculture community, my goal in participating in the discussions and process was to try, yet again, to motivate the USDA to engage in a dialogue about the other side of agriculture, to recognize that the diversity that is referenced in any conversation about "coexistence" is worthwhile, and indeed needs protection. To be clear, the farmers in the organic cooperative I represent do not want biotechnology on their farms, or in their crops. To them, coexistence means US agriculture successfully finding a means to keep biotechnology off their farms, and out of their crops. These farmers are representative of the organic community of farmers and our cooperative's customers are representative of organic consumers. They simply do not want to grow or consume GMOs. Their definition of coexistence is being able to do that on their farms and in the stores. The dialogue I think many of us in the non-GMO side of the Committee hoped for was narrowed by the Secretary's charge to only seek a compensation scheme for the economic damages suffered through the loss of a market from the unintended presence of biotechnology. In my mind, any usefulness of a compensation mechanism is to incentivize prevention by forcing people to adjust current behaviors. In order to incentivize prevention, those who control the technology must have a reason, a financial reason, to act differently, to adjust their behavior from how they are currently acting. The

current recommendation of the AC-21 does nothing to incentivize prevention by the parties controlling technology. They have, unfortunately, no skin in the game, and the financial burden remains squarely on the backs of non-GMO agriculture. There will be no reason to change behavior.

If then, the purpose of a compensation scheme is no longer prevention, but simply to remunerate for a lost premium, it is no surprise that the Committee would land on a crop insurance model, as it is a model already deeply entrenched in current US agriculture. As was repeatedly outlined in public comments, this model, which is based on an industrial, large commodity crop scale, has not been successful in providing a safety net for more diverse, smaller scale farms. I do not believe that a crop insurance model will provide a meaningful solution to compensate for lost premiums in the instance of unintended presence of biotechnology. I cannot rely on an already broken system to solve this new and emerging problem as the non-GMO market blossoms, and we will only see continuing collisions between the two worlds of GMO and non-GMO. I cannot recommend a model that puts all the burden and risk on the non-GMO farmer.

However, I appreciate that there is finally recognition, however slight, that farmers are losing markets and premiums due to the unintended presence of biotechnology in their crops. There is recognition, however slight, that there are markets and consumers within and without the United States that desire non-GMO foods. But I have deep regret that we did not find a solution for a compensation model that works to involve everyone in a goal of prevention of unintended presence.

The related recommendations of research, stewardship practices, and seed purity are building blocks for seeking additional ways to promote coexistence. I am encouraged that the AC-21 Committee has put these recommendations forward, although I would hope that they can be strongly supported and mandated within the USDA. Neighbor to neighbor work and communication is excellent. But it cannot be a reliable foundation for coexistence, especially in light of traits that travel miles (such as alfalfa) or functional traits (such as corn amylase) which can impact farmers who are not neighbors. I am confident that we can continue to use these foundational areas to understand the diverse needs of US agriculture. Because fundamentally, a strong agriculture is a diverse agriculture, and the policy of the United States must be to continue to support diversity in all aspects of agriculture.

Because of the recommendations on research, stewardship practices and seed purity, and because I believe strongly that this conversation must continue, I consent to the report of the AC-21 Committee. I believe that to dissent may indicate a desire to discontinue the conversation. I strongly believe that all sides of agriculture must continue to meet at the

table, and that the USDA must witness those conversations to find ways to find true and successful coexistence.

Darren Ihnen:

Thank you for the opportunity to serve as a member of AC 21. It was a valuable learning experience for me. I will join in consensus. During our meetings the conversations between producers were the most constructive, and I believe provided the most accurate representation of rural America. Farmers have one thing in common- each wants to choose what is right for his or her individual farm. Removing the noise from the conversation, farmers agree that the best situation would be where good stewardship and neighbor-to-neighbor communications lead to effective coexistence. I also concur with the comments submitted by Leon Corzine and Barry Bushue.

Russell I appreciate your leadership of this committee.

Gregory Jaffe:

The Secretary of Agriculture charged the AC21 to address issues surrounding the coexistence of conventional, organic, identity-preserved, and genetically engineered (GE) crops, including what type of compensation mechanism might be appropriate to deal with economic losses from the unintended presence of GE material. The AC21 committee report that will be submitted to the Secretary provides a number of recommendations that are a first step to address some of the issues raised by the committee's charge. However, the report and its recommendations do not go far enough in reducing the potential economic losses from unintended presence of GE material nor do they provide a sufficient roadmap for the Secretary to establish a compensation mechanism.

The following are additional activities that USDA should implement if they want to begin the process of making coexistences a priority of all farmers and seed developers so that American consumers will continue to have access to the variety of foods they want to eat.

1. USDA should establish a pilot compensation mechanism . While the committee searched unsuccessfully for comprehensive data on the farm level economic impact of unintended GE presence, there clearly are farmers in the US who incur economic losses due to no fault of their own or of any other particular party. By establishing a pilot compensation mechanism, farmers would be able to submit claims and those claims would provide real data on the extent of this problem to determine if a more permanent solution is needed. It is essential

that the Secretary of Agriculture support all forms of agriculture that meet different consumer preferences and if legal products unintentionally cause harm to part of the agricultural community, fairness dictates addressing those instances in order to preserve the diversity of food that Americans and the rest of the world want. Establishing a pilot compensation mechanism would be the first step to meet those important policy objectives.

2. USDA should propose actions to foster coexistence when it grants a GE crop non-regulated status. In the U.S., almost all GE crops can't be grown commercially until USDA determines that those crops are no longer regulated because they are not "plant pests." Simultaneously with the public release of its "non-regulated status" determination, USDA should provide to the GE crop developer, farmers of the crop (both the GE and non-GE varieties), and members of the food chain, recommended actions that will foster coexistence when that new GE crop begins commercial production. USDA identified some coexistence measures when it completed its decision process to grant non-regulated status to GE alfalfa and also stressed the importance of such measures in its letter to the developer of GE Kentucky blue grass.

For every future determination of "non-regulated status," USDA should identify coexistence measures, such as best management practices for farmers of both the GE and non-GE varieties of the crop, testing protocols to identify unintended presence, actions to ensure seed purity for public and private seed varieties, and segregation tools for food chain actors. If USDA makes coexistence a priority by providing this information when it releases each regulatory decision, that will send a clear message to all parties involved in producing our food from the seed developers and farmers through to consumers, about the importance of coexistence and the need for everyone to participate in risk management and mitigation measures.

3. USDA should require biotech seed companies to include coexistence measures as one of the many mandatory requirement in their seed contracts with GE farmers. Biotech seed companies place numerous requirements on farmers who purchase their seeds, including restrictions that protect intellectual property (IP), limitations on the use of the seeds for research, and insect resistance management (IRM) practices for varieties that produce biological pesticides. USDA should require that biotech seed companies also mandate that farmers purchasing GE seeds carry out coexistence measures that will limit their crop's unintended impact on neighboring farmers. For the vast majority of farmers who already work with their neighbors to prevent unintended consequences on neighbors from their farming activities, such a requirement might not impose any new obligations. However, it would make such practices mandatory and elevate them as a critical farm management priority. In addition, USDA should require GE seed developers to identify farm management practices for GE farmers that would foster coexistence (such as staggered planting times, planting refuge plots adjacent to neighboring farms, etc. . .) and educate their customers (i.e. seed companies and farmers) on those practices.

4. USDA should provide incentives for farmers to carry out measures supporting coexistence on their farms. The charge given the committee limited discussion on risk mitigation measures until after fully discussing the compensation mechanism. This prevented the committee from having sufficient time to adequately explore different ways that USDA could creatively establish incentives that support coexistence. If coexistence is a priority for USDA, then it needs to create incentive programs to make it attractive for farmers to carry out coexistence compliance measures. For example, USDA could reduce crop insurance premiums or provide other financial incentives for farmers who set aside buffer land between their GE crops and their neighbor's non-GE crop. Similarly, USDA could use its conservation programs and try to see if those lands also can be used to help farmers with coexistence (getting two benefits for the price of one). USDA staff and future AC21 discussions should further explore this area and provide the Secretary with additional creative ways to foster on-farm coexistence.

5. USDA should conduct research to obtain data on (1) non-GE seed purity and (2) the extent of economic losses due to unintended GE presence. While the committee's report identifies a number of important research areas for USDA, it will be necessary for USDA to prioritize which research to conduct first. One of the most important ways to limit unintended GE presence that leads to economic losses by non-GE farmers is to ensure that the seed those farmers purchase has as little unintended GE seeds as is biologically and humanly possible. Therefore, it is critical that USDA collect data on the amount of GE seeds in public and private non-GE seed varieties being sold to farmers. This might mean collecting seed testing data from seed producers or it might involve actually sampling and analyzing different seed varieties sold in the marketplace. With data on level of unintended GE presence in seed varieties, all different members of the food chain can then establish reasonable and achievable contract specifications as well as the necessary on-farm management practices.

USDA should also prioritize the collection of data on the extent of economic losses due to unintended GE presence. This data is critical to determining the policy options surrounding whether to establish a permanent compensation mechanism, including its scope and how it will be funded.

Alan Kemper:

As an American farmer I appreciated the opportunity to serve to the Secretary of Agriculture on the AC21 Advisory Group. The decisions that the report is based on are hypothetical at best. After numerous requests for facts and data on the various issues in our charge, USDA could not and did not provide any data,(period). By having no real factual data to work with the group had to at best use a guess approach system, in finding possible answers to the Secretary's charges to the AC21 group.

Consequently, there is no real warranted need for a compensation mechanism. If warranted by new USDA data in the future, a crop insurance mechanism could be put in place.

In this farmer member's opinion the best way to solve the numerous issues in coexistence is by education, stewardship and incentives at the local level.

In my view, all of American agriculture has a unwritten contract with society to provide them with various choices for their food.

Keith Kislring:

I appreciate the opportunity to serve as a member of the AC21 committee and am pleased to offer my endorsement of the final report with the following comments.

I concur with the general comments submitted by Barry Bushue and Leon Corzine. In addition, I would like to add some additional comments of importance to wheat growers.

After participating in the AC21 meetings, I agree with the foundation of the report that no new mandates or regulations on conventional agriculture producers are warranted at this time. As stated in the report, the issue of coexistence is not new to agriculture. Farmers have been engaged on a local level to work together on agriculture production issues for years, and solutions can be achieved without new mandates.

The use of biotechnology in corn, soybeans, and other crops has been broadly adopted because it is a proven and safe method to increase production sustainability. Biotechnology is also increasingly accepted and utilized by our competitors.

It is important that the AC21 refrained from establishing arbitrary thresholds for the presence of biotech traits in organic and IP shipments in the report. Thresholds are commercial terms, and it would have been entirely inappropriate, especially with the lack of data presented, for this group to negotiate an artificial limit on behalf of the marketplace.

Furthermore, how would our trading partners react to the premise that although these products have been deemed safe by global regulatory bodies, including in many cases their own national agencies if arbitrary thresholds are exceeded in certain shipments? One subset within the supply chain should not be compensated for that presence. This would send the wrong signal to other countries regarding the confidence in our regulatory process for biotech crops that could result in new market barriers.

Throughout the AC21 deliberations, I have stressed the need to consider the trade implications of any recommendations coming out of AC21. Trade is important to U.S. farmers with roughly

\$140 billion in exports for each of the past two fiscal years, including roughly 50 percent of U.S wheat production each year. Trade implications need to be taken into consideration and I urge the Secretary to evaluate the data regarding the need for a compensation mechanism before considering one. I recommend the Secretary confer with experts within USDA, other agencies, and Congress regarding the viability of a crop insurance mechanism and the potential impact of that mechanism on our export system and our trade partners.

Josephine (Josette) Lewis:

I am pleased to join in the consensus outlined in this report. The data we reviewed suggests that a lack of co-existence is not a widespread problem and that there are a growing number of tools to facilitate co-existence management. The proposed compensation mechanism reflects a productive compromise: it proposes a mechanism that is incentive-based and one that supports the diversity of farming practices that underlay the strength of U.S. agriculture. The report recognizes that co-existence is market-driven, rather than an issue of safety, and thus gives weight to actions by which USDA can facilitate, rather than regulate, market diversity. The report's recommendations are the appropriate policy compromise, to which I am pleased to add my signature.

Mary-Howell Martens:

I join consensus in support of the AC21 final report with serious reservations. The main reason I join with consensus is that I appreciate that over the course of the deliberations, the committee moved firmly away from a solely compensation-based model to one strongly grounded in education, prevention and avoidance, and one that acknowledges the need for shared responsibility and shared action between the GM and non-GM communities.

I also appreciate (1) the re-commitment of USDA to a viable, sustainable non-GM seed supply, (2) the development of programs that enhance and encourage good neighborliness and cooperation, and (3) the opportunity for data collection to better quantify the situation and better develop effective containment/prevention strategies.

However, I believe that the Final Report describes a model that falls quite short of what is both needed and ethical. If 'sustainable coexistence' is our goal, then the Report's stated definition of coexistence, and therefore the core principle of the Report, defines a simplistic, discriminatory and inadequate understanding to the problem and the possible solutions.

A much better definition would be “Coexistence, for the purposes of this paper, refers to concurrent cultivation of conventional, organic and genetically engineered crops of sufficient quality to satisfy current and future markets and consumer specifications in a manner that does not negatively impact the choices made on other farms.

Certainly diversity is a key feature of American agriculture, and I fully recognize that all farmers have the right to make the best crop, agronomic and market choices for their own farms. American farmers should have the right to control what happens on their own farm, but . . . they should NOT have the right to negatively impact their neighbors’ crop choices or agronomic plans, nor the marketability of their neighbor’s crops.

The farmer choosing to grow non-GM crops should not be expected to bear primary responsibility and cost for avoidance strategies and/or possible market loss due to something they have no control over. To them, quite logically, unwanted adventitious genetic presence is a form of trespass and therefore should be legally and practically treated as such, with the trespasser bearing all the costs and responsibility for prevention, and liability if there is damage. Viewed through this lens, the burden of responsibility for the prevention of unwanted adventitious genetic movement should be on those choosing to grow GM crops and on the technology providers claiming patented ownership of the errant genes. The current paucity of data on documented damage does not absolve the users and providers of the responsibility for controlling their property.

For most organic and non-GM farmers, compensation for unwanted adventitious genetic presence is a highly offensive concept. They do not want to be paid to accept contamination of their crops - they simply want it NOT to happen. They certainly do not want to be forced to pay for ‘protection’ against a situation that is neither of their making nor under their control, but, unlike with adverse weather, is indeed the result of someone else’s making and is indeed under someone else’s control. Ultimately, this is a problem that non-GM farmers should not have to handle at all, since the responsibility of keeping the genes away from where they are not wanted should not be theirs, it should be the responsibility of those growing and developing them. In this, I firmly agree. Crop insurance is already a very expensive approach to providing farm subsidies, especially for American taxpayers who pay nearly two thirds of the premium costs through USDA farm programs. Crop insurance is also extremely profitable for insurance companies. I fully understand that there are situations where crop insurance is appropriate, such as with erratic and adverse weather. However, I honestly feel there would be little need for any compensation mechanism in the case of unwanted adventitious genetic presence if those growing and owning GM genes committed to strictly keeping them on their side of the fence, through aggressive and proactive effective containment and prevention strategies. Taxpayers should not be asked to pay for a situation that could be avoided, if those developing and using the technology truly wanted to.

I also feel that the USDA is doing American farmers a grave disservice by not recognizing the strength and importance of the growing international and domestic non-GM grain market. The USDA should provide serious tangible assistance to farmers wishing to enter that market, through the development and testing of effective prevention/containment strategies, a more careful consideration on market impact by new technology introductions, and the establishment of a widely accepted and recognized definition, congruent with international markets, of what level of adventitious genetic presence qualifies as ‘non-GM’ for different crops. A USDA commitment to supporting and facilitating a robust non-GM international trade opportunity for American farmers would benefit many, and would greatly enhance our reputation in the world market. Such a commitment should not be interpreted as weakness or ambiguity; indeed, it should be seen as a strong and vibrant commitment to all American farmers, to agricultural innovation of all types, and to the valuable diversity of products that American farmers grow! I am also becoming increasingly concerned about the GM-facilitated overuse of critical agricultural tools, such as Bt and Roundup as pesticides, and that this is leading to the decline of their efficacy for all farmers, not just those choosing GM crops. These tools are important for the “common good”, they have had a long history of safety, low environmental impact and success, but with the almost ubiquitous use of these in and with widely GM planted crops, there is rapid increase of resistance in weeds and insects. USDA needs to recognize that the loss of the effectiveness of these tools is another grave long-term disservice for American farmers, and that the value of the continued efficacy of these and other such tools should be part of USDA’s consideration of and restraint in the approval of new technological introductions and management.

It is my sincere hope that by including prevention, neighbor-to-neighbor cooperation, and shared responsibility as key features of this AC21 Final Report, we are moving the conversation forward to a significantly new point of understanding. This is my primary reason for joining consensus.

However, it is very important that this is not the end point. The conversation must continue to move forward toward an understanding (1) where the rights of all farmers are respected and considered equal, (2) where “non-GM” is officially defined by a widely accepted and recognized adventitious genetic presence level that is congruent with international markets, and (3) where GM farmers and their suppliers acknowledge that while new technologies may have value and utility, they are ultimately just another agricultural tool and therefore must be designed to stay solely on the farms choosing to use them and not negatively impact farms that do not choose to use them, and that they must not lead to the loss of effectiveness of other key agricultural pest control tools.

In conclusion, I appreciate the work of the United States Department of Agriculture and the

Advisory Committee on Biotechnology and 21st Century Agriculture. It has been an honor for me to participate and represent farmers in the process. Thank you for this opportunity!

Angela Olsen:

Thank you for the opportunity to serve as a member of the Advisory Committee on Biotechnology and 21st Century Agriculture (AC21). I am pleased to join the AC21 report – “Enhancing Coexistence: A Report of the AC21 to the Secretary of Agriculture” in consensus, but qualified with the comments, context, and perspectives provided in this document.

This AC21 report reflects the diligence, hard work, and challenging discussions of the AC21, and for many members, reflects compromised positions and in some instances, continued areas of respectful disagreement among Committee members. Notwithstanding these compromised positions, this report contains many positive, innovative, and proactive suggestions that USDA may choose to explore in order to continue to foster coexistence including, but not limited to, education, outreach, and risk mitigation. Prior to implementing any of the recommendations discussed in the final AC21 report, USDA should confirm that these actions are based on actual data and sound science, take into account domestic and international policy implications, and are legally defensible. In addition, USDA and the AC21 should seek input from broader agricultural stakeholders. As was recognized during the AC21 discussions, the Committee did not include seed and grain handling and processing interests, expertise on financial loss and risk management, as well as other agricultural industries. These interests have significant experience dealing with the issues related to seed purity, identity-preservation, and adventitious presence, which are relevant to the coexistence discussion. The benefit of this input and expertise, in addition to the AC21 recommendations, would be useful to USDA, particularly given the AC21’s expanded scope of the Secretary’s charge questions to include all identity preserved (IP) crops.

I applaud USDA’s leadership in bringing together the AC21 – a diverse group of individuals – to collaborate, to compromise, and to engage in thought leadership. I offer the following comments below, which reflect statements that I made during the AC21 meetings and on AC21 working group calls, and reflect draft language that I provided for consideration during the AC21 report drafting process.

Enhanced Coexistence Through Education, Outreach, and Risk Mitigation

For decades, a hallmark of US agriculture has been the ability of farmers to pursue diverse cropping systems and respond to consumer demand for high-value IP and specialty crops. The diversity and dynamism of the US agricultural industry would not be possible but for the past and continuing success of coexistence. As an AC21, we discussed how coexistence has been

accomplished through local and regional farm level practices such as separating crops by distance, utilizing different planting times, using field isolation “pinning maps,” using contracts, seed quality management systems, minimizing physical seed mixing, and respecting and communicating with neighbors. The AC21 was supportive of efforts to enhance coexistence through education, outreach, and risk mitigation measures.

An education and outreach initiative should leverage and improve on existing knowledge and practices in the industry. The food and agriculture industry has developed many effective tools and methods that prevent commingling of crops, and that foster crop diversity and farmer choice. To be most effective, any education and outreach initiative should be guided by the following priorities:

- ***Grower leadership and expertise.*** These efforts should be led by farmers that have expertise in crop production, and that have an interest in identifying and promoting effective local solutions. Farm and commodity organizations could be engaged as partners to provide valuable and effective support through existing organizational capacity, and they also would have the ability to reach a broad farmer constituency.
- ***Local solutions.*** A key objective of efforts to promote coexistence should be to identify, disseminate, and empower farmers to adopt effective solutions at a local level. Therefore, any program should be flexible and take into account the local and regional diversity in agriculture and needs related to coexistence. Local efforts could be facilitated by partnering with the land grant university and research extension system, to take advantage of existing capacity and technical expertise.
- ***Crop specific.*** Because of biological differences, any program should be designed to be flexible and responsive to the specific agronomic and coexistence needs of individual crops and cropping systems.
- ***Outcome-based.*** Effective coexistence efforts should target specific objectives and define metrics for success. Clearly and objectively defining how to identify and measure effective coexistence is essential to know where efforts have been successful and where there are opportunities for improvement.

Compensation Mechanisms

In the first charge question, the Secretary asked the AC21 to examine, “What types of compensation mechanisms, if any, would be appropriate to address economic losses by farmers in which the value of their crops is reduced by unintended presence of genetically engineered (GE) material(s)? (Emphasis added.)

Many members on the AC21 recognize that sound, defensible policymaking requires the AC21 and USDA to complete the requisite due diligence to determine if a problem exists before prescribing a solution. Towards that end, examination of the “if any” question – and examination

of data on actual economic losses in order to understand and quantify the scope and scale of loss, if any – is critical prior to implementing any solution. As is explained in the AC21 report, it is paramount that USDA first understands whether there has been significant and widespread documented loss due to adventitious presence before determining if a compensation mechanism is warranted. Some additional context, which may be helpful to interpreting the “Compensation Mechanisms” discussion in the AC21 report include:

1. notwithstanding our best efforts, the AC21 was not able to find or examine any data on actual economic losses;
2. no organic or other IP growers that spoke to the AC21 during grower panel discussions or in the public comments asked for a compensation mechanism;
3. one IP grower group specifically asked that a compensation mechanism not be implemented, for fear that a compensation mechanism would undercut the risk premium(s) that they receive in growing IP specialty crops;
4. many AC21 members recognized that growers receiving a premium for any IP products should retain responsibility to maintain the purity of their crop and the steps and tools/resources needed to meet the contractual obligations that they voluntarily entered into;
5. no evidence was presented to the AC21 of any growers that lost their organic certification due to unintended presence of biotech materials; and
6. a majority of AC21 members did not support any type of compensation mechanism.

Notwithstanding the fact that the majority of AC21 members did not support any type of compensation mechanism, as an AC21, we were asked to continue to examine potential compensation mechanisms, pursuant to the Secretary’s first charge question. These discussions led to the AC21 report discussion of a crop insurance mechanism; this section of the AC21 report reflects a compromised position of many members at the table. Prior to making any decision on whether to seek authority from Congress to implement the development of any compensation mechanism or any associated pilot program, USDA should:

1. examine actual data on economic losses, to determine the size and scope of harm, if any;
2. engage in inter-agency consultation to gain perspectives from other relevant US agencies on this topic;
3. consider domestic and global policy implications of instituting a compensation mechanism;
4. study the potential trade and other economic implications of such a mechanism; and
5. work with USDA and the crop insurance industry to ensure that any proposed insurance product is actuarially sound.

Seed Quality

At this time I do not support the recommendation in the AC21 report regarding “[G]athering and aggregating, on an ongoing basis, data from seed companies on unintended GE presence in commercial non-GE seed supplies intended for IP uses.” It remains unclear to me how this data

would be collected, who would collect it, how it would be used, and what questions it would seek to answer. Nor have any facts come to light in our deliberations that would justify such an unprecedented national program. I look forward to continuing this dialogue and to exploring this discussion further. Seed quality is important to the seed industry. I offer the following context, which underscores some of the information shared at the AC21 table by me and by others.

Seed quality standards are based upon market expectations and the limits of biological systems. Therefore, thresholds or tolerances are a component of seed quality standards. There is an on-going commitment within the seed industry to ensure quality seed continues to be available to organic, biotech, and non-biotech growers. Communication and cooperation during the process of seed production are fundamental to this commitment. Tracking, recordkeeping, testing and other measures with appropriate management systems are essential parts of seed product development and the commercial life cycle to address quality assurance and seed product integrity. The US seed industry routinely employs seed production best practices to manage genetic purity, including: seed production isolation; roguing of off-types; and prevention of physical mixing during the entire seed production process including seed harvest and processing. These tools, used in conjunction with appropriate genetic based tools allow the industry to meet market specifications.

Maintaining a seed variety's trueness to type is critical for market acceptance, regardless of the type of seed being produced. The breeding strategy for most crops has been to conduct basic germplasm development and breeding in a conventional (i.e., non-GE) background and if GE traits are to be introduced, elite conventional breeding lines are "converted" to a GE-traited equivalent through a backcrossing program. US breeding companies have generally adopted a rigorous and documented quality management system (e.g. BIO's Excellence through Stewardship or USDA's Biotech Quality Management System) to prevent unintentional physical mixture and gene flow between GE and non-GE breeding lines.

The seed industry operates in a marketplace that is responsive to grower preferences and demand, and the industry is confident in and proud of the products it sells. We support continued advocacy for a strong and broad-based national plant germplasm system that meets the needs of plant breeders. Thus, we encourage efforts by the USDA National Genetics Resources Advisory Committee (NGRAC) to make recommendations regarding the national plant germplasm system.

Conclusion

I appreciate USDA's strong interest in the continued coexistence of different cropping systems that facilitate grower and consumer choice, without undermining the exceptional record of innovation, productivity, and product stewardship in US agriculture. Continued success will require farmers, industry partners, public servants and all those that support them to continue to

be responsible stewards of technology; to maintain an economically viable seed industry; and to continue responsible government oversight that engenders both consumer choice and confidence.

Thank you for the opportunity to be a member of the AC21 and to engage in this rewarding discussion with USDA. I believe that the AC21 has met the Secretary's directive to us to engage in the challenging discussions, to compromise, and to "lead from the middle."

Jerry Slocum:

Coexistence in American agriculture is alive and well. Never have farmers had as many options of what crops to grow, what production systems to use, and what markets to grow their crops for. Never have consumers had as much variety of safe, healthy foods from which to choose. Coexistence in American agriculture is alive and well.

Since the introduction of biotech crops in the U.S., regulatory approval of such crops has been based on rigorous scientific evaluation, not market preference. This system has served us well. The whole discussion around compensation mechanisms and levels of unintended presence that would trigger compensable claims is a dangerous one. It risks starting us down the slippery slope of allowing market preference, not scientific evaluation, to regulate the introduction of new crops and foods. Surely, this is not in our best interest.

Latresia Wilson:

I would first like to thank the Secretary for allowing me to serve on the AC21 Committee and to offer a view from those who have not often had an opportunity to serve on USDA Committees in the past. I would like to also thank Russell and Michael for all their hard work and efforts.

I am pleased to join in the consensus even though I feel the crop insurance model, if implemented would still pose an unfair burden on small and minority farmers. However, I do feel this report best reflects our Committee's work with its limitations and all.

Comments from members who have not joined in consensus

Note: All comments represent comments of individual members, not policy or positions of USDA.

Isaura Andaluz:

These final comments are respectfully submitted after review of the year-long process. The report fails to meet the Secretary's charge. In my opinion, this stems from the process design. It set parameters that could only conclude with federal insurance as the mechanism, potential eligibility standards/tools could never be defined, and economic losses were limited only to lawsuits from deregulated genetically engineered material.

At the first meeting, a draft compensation mechanism (indemnification fund) was presented by another committee member, although I and maybe others were unaware of the Secretary's charge prior to this meeting. This preemptively set the agenda for the committees' report.

The report:

- Does not meet the Secretary's charge nor encourages rural economic development for all agricultural sectors.
- Uses language -- sometimes almost verbatim -- from biotech technology use guides, other co-existence sessions, and published research. In some cases the language is from twenty years ago, showing that no progress has been made.
- Puts the onus on non-GE farmers to keep their seed and crops free of GE material.
- Fails to recognize on-going economic losses non-GE farmers are incurring trying to keep their product clean.
- Faults seed producers who are contaminated for "not having adequate protocols to prevent gene flow." The GE manufacturer and biotech farmer assume no responsibility.
- Consistently gives precedence to biotech crops and farmers in the Recommendations listed by reinforcing that everything is subject to the "market place" or "growers' demands."
- Makes the US taxpayer assume costs for compensation, education and training that should be assumed by the GE manufacturer who owns the patent on the unintended GE presence.
- Makes no mentions of non-commodity and smaller farmers who provide food on a local basis that also face contamination issues from patented GE and non-GE hybrids.
- Fails to mention or incorporate public input from farmers and consumers who attended the meetings in Washington, DC or those who submitted comments.

Compensation Mechanism

In a presentation by USDA staff, I asked if any current USDA insurance programs covered a "man-made" incident. The answer was, "No." Insurance is for the exception. The reason no compensation mechanism can be created is because the "unintended presence of genetically

engineered material” is patented. GE seeds are performing as designed and contain patented pollen; in nature movement of pollen occurs. All parts of GE plants – stalk, leaves, pollen, seed – are patented. Any farmer/ seed grower contaminated will not want to disclose the contamination because they are illegally in possession of a patented material and could be subject to legal action for theft of intellectual property. This was also discussed in one of the first documents we received “A Private/Public Potential Solutions...by Watts and Associates, 2011.”

The committee refused to ever recognize this fact. A few weeks ago, I was invited to a Coexistence Forum in New Mexico where I asked a Monsanto representative for a threshold level for adventitious presence, de minimus, etc. He responded that there is no such thing as adventitious presence, only “de minimus.” He refused to provide a number and referred me to court actions on “de minimus.”

The reports states that it is not realistic to guarantee zero presence of unintended genetics in seed. Three of the major GE manufacturers: Syngenta (Switzerland), BASF (Switzerland) and Bayer (Germany) are all foreign companies that do not allow planting of GE crops in their countries.

“Mack (CEO of Syngenta) said that he believed Switzerland was **‘the first best example’** of a country where protectionist agricultural tendencies worked well and **that GM organisms would not necessarily be needed...**“...One of Switzerland's greatest natural resources is that it is a beautiful country that brings in a lot of tourism. If the Swiss could lower their consumption spending by one per cent by applying high productivity farming, they probably would not do it if it requires changing their approach to how they think about food. **Countries like Switzerland are a good example where such things as GM food would be very difficult and perhaps commercially inadvisable.**” (Syngenta CEO promotes stronger Swiss-US ties, Swissinfo.ch, June 29, 2009).

If it is reasonable for Switzerland, then why is it not reasonable for our seeds and food to have zero (0%) contamination? Why should we put at risk our seed stock production that has, and continues, to feed our country?

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Marcia Holden, National Institute of Standards and Technology
Mary Lisa Madell, Office of the U.S. Trade Representative

Note: Under the AC21 Charter, *ex officio* members may not join in consensus on AC21 reports.

Michael Schechtman, AC21 Designated Federal Official