DRAFT FOR AC21 DISCUSSION ONLY August 17, 2012

EXECUTIVE SUMMARY?

**INTRODUCTION:**

**A. 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 losses by farmers in which the value of their crops is reduced by unintended presence of 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 preserved[[1]](#footnote-1) (IP) crops.

**B. Definition of Coexistence[[2]](#footnote-2)**

*Coexistence, for the purposes of this paper, refers to the concurrent cultivation of conventional[[3]](#footnote-3), organic[[4]](#footnote-4), IP, and genetically engineered (GE)[[5]](#footnote-5) crops consistent with underlying consumer preferences and farmer choices.*

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**C. 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. 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.

**OVERALL CONTEXT FOR THIS PAPER**

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 genetically modified crops, the choice to grow IP, non-GE, or organic crops, to 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.

* 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 leads to strong 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 demand 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 problem-s 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 diverse market diversity have become key drivers of increased productivity and product quality for all forms of American agriculture.
* 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 other interested stakeholders) 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][ DELETE][on a regional pilot basis, subject to strict parameters].

**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 demands. 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 *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 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 an appropriate 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 the 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 gene movement to date, the AC21 notes that they could play an increasingly important role in helping to address gene flow 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 perceptional.
* 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 or 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 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 work to address gene flow-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. There was no agreement within the AC21 about the advisability of setting such a limit.
* 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 an insurability trigger of 0.9% GE content for non-GE corn and soy products would 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.
* 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 across all stakeholders.
* [One option discussed by the AC21 was a pilot or localized program designed to test out, 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 establishment of such a test program, however.][DELETE]
* 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 ntional crop insurance coveragefarmers if they suffer economic losses as a result of unintended GE presence. Such an effort would be part of overall planning for a future with in which many types of “non-commodity” GE crops are grown.
* The AC21 also discussed the fact that gene flow 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 conclusions specific to these plants but noted the possibility that in the future producers of commodity crops, including GE crops, who might suffer economic losses should such gene flow occur, might also have an interest in having gene flow-related losses insured.
* The following recommendation brings the greatest support from AC21 members:

**Recommendation I.**

***[Option 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 determines based on such loss data 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. Prior to seeking authority to implement the development of such a compensation mechanism, the Secretary should take into account domestic and global policy implications, as well as the potential trade/economic implications of instituting such a mechanism. Any such insurance instrument, if created, should be made available to all identity-preserved producers on a voluntary basis for gene flow-related economic losses.***

Should the Secretary decide to establish a compensation mechanism for identity-preserved producers who suffer economic losses caused by unintended presence, the Committee believes the compensation mechanism 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.]

**[Option II**:

***The AC21 reviewed several different potential compensation mechanisms.  None of the compensation mechanisms discussed presented an ideal solution.  However, the Committee determined that the closest and best solution is based on an insurance model where all stakeholders participate at some level, and no stakeholder bears the full cost burdens associated with the insurance.  It is critical that the model does not lay fault at the feet of any of the participants.***

***Because the insurance model is not perfect, and implementing such a program will raise novel challenges in terms of payment rates and eligibility, AC21 recommends that the USDA begin a pilot program of insurance open to producers in the 2013 crop year, to test the parameters and understand the limits.  A GE-sensitive producer should be able to enroll in the program by demonstrating his intention to participate in a GE-sensitive market (i.e., by producing a written contract with a .9% threshold) and his plan for producing the crops to limit adventitious presence.  The area’s GE producers would be required to enroll in the program, as a condition of enrollment in any USDA- supported commodity, crop insurance or conservation program. This would encourage all producers’ engagement in stewardship programs to limit unintended presence on the GE-sensitive producer’s crops.  The GE stewardship programs would be managed and implemented via the technology agreements associated with the purchase of GE seeds.***

***Following harvest, the GE-sensitive producer’s crops would be tested to determine whether the harvested grain meets the market’s needs, reflected in the producer’s enrollment documents.  If the producer has suffered an economic loss because of adventitious presence, then that loss would be compensable under the terms set forth in the insurance contract.***

***For the GE-sensitive producer who does not enroll in the program, the loss of market premiums may not be recovered.  For the GE producer who does not enroll in the program, that producer may be subject to liability and possible ineligibility for other USDA programs.  The seed providers will require participation in the program and will provide distinct stewardship mechanisms that prevent unintended presence.  Failure to adequately engage producers in stewardship programs may increase economic losses triggered by unintended presence and impose new costs and liability exposure along the value chain.***

***The pilot program would be regionally based, using an area with an average number of GE-sensitive producers in comparison to GE producers.***

***The committee further recommends that integration of the pilot program with the research and data collection on economic losses may result in the most reliable set of data on which a permanent national program could be based.]***

**[Option III (new Chair’s “bridging” option):**

***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. Upon evaluation of that data, USDA should establish a pilot program(s) 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 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.***

***Under a pilot 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. Non-IP growers who enter into an approved joint coexistence plan with an IP producer neighbor could be offered a reduction in their conventional crop insurance premium or a preferred status under USDA conservation programs. Standards for eligible joint coexistence plans would be established by USDA but evaluation of the acceptability of particular plans might be evaluated by local conservation district technicians, USDA personnel (in the Natural Resource Conservation Service or the Farm Services Agency) or by accredited third-party providers. Criteria would be established prior to implementation of a pilot program for what would constitute success for the program. USDA should seek public input on what those criteria should be. The pilot would be considered to sunset automatically unless all the criteria for success were met. 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.***

The AC21 believes that the compensation mechanism component of any pilot program 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.]

**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 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 gene flow 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 gene flow 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 awareness of coexistence and the importance of coexistence for 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 all agricultural stakeholders, 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. To the extent that measurable, concrete goals for coexistence are not being met locally via initial measures, further steps to improve performance should be undertaken. There is no one “coexistence shoe” that will, in all situations, prove the perfect fit, and indeed, the AC21 sees considerable value in regional experimentation with a diversity of approaches.

USDA should also utilize the capacity and technical expertise within the land grant university and the research extension system. As part of the outreach, stakeholders should be provided with tools to measure the success and effectiveness of their coexistence efforts.

**Recommendation III.**

***USDA should work with agricultural stakeholders 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 (2) promote and incentivize farmer adoption of appropriate stewardship practices.***

USDA, in collaboration with 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. USDA should encourage seed providers to include information about stewardship practices with commercial seed purchases and monitor adoption. 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 or zones that facilitate identity-preserved crop production through existing conservation programs.

**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 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 taken in the unfulfilled attempt 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 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 gene flow 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 seed supplies.

**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 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 gene flow 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 continued attention to the production of seed of high purity to meet farmers’ needs. 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: special 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 the 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 industry to help 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 recommit to maintaining the highest purity in its germplasm banks. USDA should also 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.***

For every plant species for which a new, genetically engineered variety enters the market, the USDA should assure that a credible plan exists and is implemented to monitor and maintain 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 gene flow to germplasm stocks, sufficient to detect any significant increase in the frequency of AP 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 strengthen outreach and education on seed quality management systems in general and specifically on existing management systems used for non-GE and organic seed. 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. 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.

Names and affiliations of AC21 members who have joined in consensus on this report:

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Names and affiliations of AC21 members who have not joined in consensus on this report:

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Comments from members who have joined in consensus:

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Comments from members who have not joined in consensus:

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1. 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. [↑](#footnote-ref-1)
2. 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. [↑](#footnote-ref-2)
3. “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 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~~.~~ [↑](#footnote-ref-3)
4. “Organic” refers to those crops or products produced in compliance with the Organic Standards Act. [↑](#footnote-ref-4)
5. “Genetically Engineered” [refers to organisms, or products derived from them, produced through recombinant DNA processes] [is meant to include biotechnology-derived plant products derived by 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.  This definition of modern biotechnology has been adopted by the Cartagena Biosafety Protocol under the Convention on Biological Diversity and by the Codex Alimentarius Commission. ]

   . [↑](#footnote-ref-5)