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Organic Seed Growers and Trade Association: Contamination Avoidance & Testing Protocols Project

Project Summary

The Contamination Avoidance and Testing Protocols Project's primary objective is twofold. It seeks to limit transgenic contamination of organic seed while also facilitating early identification of contaminated seed lots. The project focused on creating a comprehensive manual as an educational tool for organic seed growers and organic seed company professionals to achieve these objectives. A sub-goal of this project is to begin documenting the challenges and burdens organic producers must bear in order to maintain genetic purity when faced with the regulatory realities of GE crops.

The project consisted of analyzing and developing variety specific GE avoidance and testing strategies to maintain strict purity standards in organic seed. While particulars are geared to crops with GE counterparts currently in commercial production— corn, soy, cotton, alfalfa, papaya, canola (*Brassica rapa*, *Brassica napus*), sugarbeet, and squash (*Cucurbita pepo*)—the process for determining best management practices remains the same for other crops and is helpful in assessing risk management for potential future GE releases, and even the impact of GE field trials.

While the project schedule has shifted to accommodate the rapidly shifting discourse surrounding transgenic contamination within the organic seed industry, the manual is slated for final review by the OSGATA policy committee and professional consultants later this month. It will be released according to the original distribution plan shortly thereafter.

Surveys of organic farmers and the organic seed industry will follow the outreach campaign (2014) to determine acceptance and adoption of recommended protocols within the organic community.

Introduction to Topic

The agricultural landscape of the US includes a breadth of different growing practices, often broken down into these three basic categories: organic, conventional, and genetically engineered (otherwise known as genetically modified, transgenic, or biotech). While genetically engineered (GE) crops currently out-surpass the total acreage of the latter two categories combined, the organic sector, until 2012, has been consistently on the rise— with organic cropland doubling between 1992 to 2001.

The number of organic farms, of various scales, is continually growing to meet the increasing consumer demand. Consumers are also the driving force behind in-country GE labeling efforts, with a March 2013 Huffington Post poll finding 82% of Americans standing behind labeling.

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While consumer support bodes well for the organic industry, the loose regulatory framework concerning the "coexistence" of these differing agricultural practices is a direct threat to organics. Often relegated to the sidelines as "specialty" crops, the organic interests aren't front and center in the debate of how the differing agricultural sectors can exist and prosper side-by-side.

The very nature of organic, as defined and regulated by the National Organic Program (NOP), considers GE an excluded method. Contamination of organic crops by GE crops— whether via cross-pollination or inadvertent seed mixing along the supply chain— can, and does, result in economic losses for individual farmers, as well as losses in consumer confidence. A ripple effect could irreparably tarnish the organic brand as a whole.

The organic seed industry is at the same time especially vulnerable to transgenic contamination and also a crucial link to reducing contamination. Organic seed, which by definition is free of GE contaminants, is the foundation of organic agriculture. Crops grown with contaminated seed will inevitably yield a contaminated crop. Transgenic contamination, however trace, is unacceptable. Compromised organic seed integrity has broad-reaching impacts on the viability of organic farms and the credibility of organic products. Organic farmers also risk the threat of patent litigation in the face of contamination.

The OSGATA policy committee (the Working Group for this project) created the vision and objectives, initiating research on these issues in 2009.

Objectives Statements

Objective 1: Analyze and Develop *variety specific* GE avoidance strategies designed to maintain strict purity standards in organic seed.

Measurable outcomes:

- Current literature, policies on containment practices, and international standards were reviewed. Solicited input was also ascertained from organic farmers, seed company professionals, and seed breeders familiar with isolation and purity concerns, and implementation constraints in the field. Relevant information was synthesized into the basis of the manual.
- Two voluntary surveys were designed and shared throughout the organic seed community—one targeting organic seed growers, the other organic seed companies—to begin to identify and record practical limitations in the field and economic burdens of implementing avoidance strategies. Survey questions were focus-grouped by our Working Group prior to release.
- "Highly recommended" and "acceptable" strategies for GE avoidance were defined for inclusion in the farmer's manual.

Changes as project unfolded:

The project Working Group (OSGATA's Policy Committee) constituency changed since the initial grant proposal. While the individuals differed, those involved still represented the interests of organic seed growers and small seed companies. They did not convene on a bi-monthly schedule, but rather as necessary.

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Objective 2: Develop and analyze *variety specific* GE testing protocols to assure presence or absence of GE content in organic seed.

Measurable outcomes:

- Specific testing protocols were surveyed to establish presence or absence of GE material. This process included analysis of international literature, as well as communication with scientific leaders in the testing industry.
- Protocols for testing and representative sampling, scalable by size for farming operations and seed companies, were determined in order to facilitate early identification of contaminated seed lots.

Changes as project unfolded:

The technology for testing continues to develop on an ongoing basis. Our recommended protocols are therefore based on the best currently available testing and may not remain contemporary as the technology continues to advance.

Objective 3: Create a *variety specific* comprehensive manual showcasing “best practices” for GE avoidance strategies and testing protocols.

Measurable outcomes:

- Our manual will be finished undergoing its peer-review process and released later this summer.
- Another series of surveys will be designed in order to determine acceptance and implementation of strategies amongst organic farmers and seed companies (2014).

Changes as project unfolded:

The manual was originally slated for dissemination in March of 2013. Due to pressing and timely developments (see below) concerning the organic seed industry, the initial timeline for adoption and publishing of the manual—and the subsequent education and outreach—has changed.

- AC21
- NOSB Seed Purity Discussion
- Pervasive GE Contamination
- Ruling in *OSGATA et al. v. Monsanto* lawsuit regarding liability

Objective 4: Create supplemental sections re: economic burdens and updated farmer liability.

Measurable Outcomes:

- Two voluntary surveys were designed and shared throughout the organic seed community—one targeted organic seed growers, the other organic seed companies—to begin to identify and record practical limitations in the field and economic burdens of implementing avoidance strategies.
- The Working Group has been invited to participate in the discussion on seed purity by the NOSB GMO Ad Hoc Subcommittee.
- Research regarding farmer liability concerns when contamination occurs has also been included.

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Changes as project unfolded:

Ruling in *OSGATA et al. v. Monsanto* lawsuit regarding liability.

Objective 5: Disseminate information broadly and present workshops to farmers, seed companies and certifying agencies. Make available to non-GE and conventional growers.

Measurable outcomes:

- Following the release of the manual this summer, we will distribute hardcopy manuals at the Organic Seed Growers Conference.
- It will also be made available for download on the OSGATA website, with links on OSGATA members' and seed companies web sites. News of this accessibility will be posted to OSGATA's blog, social networking platforms, and through our organization's newsletter. A press release will also accompany the debut.
- OSGATA has applied to present the manual at two national conferences geared towards organic seed growers and breeders, organic farmers, and the organic community at large:
 - The 7th Organic Seed Growers Conference (January 30- February 1, 2014)
 - The MOSES Organic Farming Conference (February 27-March 1, 2014)
- The PowerPoint for the presentations will be made available on osgata.org (2014).
- We will assess distribution through monitoring downloads from OSGATA website and comments received through our social media network media (2014).
- Attendees' evaluations at workshops will also be considered (2014).
- Another series of surveys will be designed in order to determine acceptance and implementation of strategies amongst organic farmers and seed companies (2014).

Changes as project unfolded:

The education phase was scheduled to begin in March of 2013, with completion by March 2014. While it is starting this fall, a full assessment of the campaign will be completed on target.

Educational Approach

The project works to ensure the integrity of the organic seed industry by supporting organic farmers and organic seed companies with both science-based research on GE contamination avoidance practices and testing, and input directly from the field. To that end, synthesis of research included a broad review of international literature along with contributions from experts from within the organic seed community. Organic seed growers of various scales, seed companies dealing in organic seed, and genetic testing specialists were contacted throughout the research, adoption, and editing phases of the manual.

Our resulting comprehensive education package includes our peer-reviewed manual and an accompanying 90-minute overview presentation— both of which will be available as a free download from osgata.org, as well as in hard copy. While the manual outlines standards of mitigating risk of transgenic contamination of currently at-risk crops, it is intended to act as a resource applicable to any crops that are threatened by potential future GE releases.

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Project Results / Discussion

The topic of transgenic contamination is increasingly addressed within the context of organic seed. Since the start of this project, the USDA's Advisory Committee on Biotechnology and 21st Century Agriculture (AC21) was charged with strengthening coexistence amongst agricultural sectors. The NOSB also started an ongoing discussion regarding seed purity and GMOs.

There is a growing awareness that contamination prevention will become increasingly difficult. As this report is submitted, the number of GE crops awaiting deregulation looms large and adoption of contamination avoidance practices will remain integral to protecting the organic seed industry. With OFRF's support, OSGATA has been able to produce the first comprehensive manual on the subject.

Manual content includes:

Part 1. Introduction

- Overview of risk of contamination from genetically engineered (GE) crops and impact on organic seed integrity, the viability of organic farms, and the credibility of organic products.

Part 2. Avoidance & Testing for Threatened Varieties

- General overview of avoidance and testing protocols.
- Delivery of the protocols in an easy-to-reference variety specific format with each section detailing: crop biology, avenues of gene flow, seed contamination avoidance strategies and variety-specific testing.
- For each of the threatened varieties, different options for both avoidance strategies and testing are discussed.
- Breakdown of currently at-risk crops:
 - *Zea Mays*: corn
 - *Glycine max*: soybeans
 - *Gossypium spp*: Cotton
 - *Medicago sativa*: Alfalfa
 - *Beta vulgaris*: sugar beet, table beet, Swiss chard
 - *Curcubita pepo*: summer squash/zucchini, acorn squash, spaghetti squash, striped/warty gourds
 - *Brassica napus*: canola, rutabaga, Siberian kale
 - *Carica papaya*: papaya

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Part 3. Supplemental Sections

- Economic Burdens: What are the practical limitations in the field and the related economic burdens of implementing avoidance strategies?
- Farmer Liability Concerns: What happens when contamination does occur?
 - Industry standards of contamination
 - Obligations of farmers (to not sell as organic)
 - Who is responsible for preventing contamination? (legal precedents impacting farmers; farmer patent infringement liability for contamination; *OSGATA et al. v. Monsanto*)

To date, the project results have met our objectives. We look forward to submitting copies of the manual, as well as other supplemental outreach materials and photographs compiled during the final phase of this project.

Outreach

To accomplish reaching this target audience, we have worked to develop a comprehensive outreach package to disseminate both our peer-reviewed manual (for organic seed farmers and seed company professionals) and an accompanying 90-minute overview presentation. The products of this project will be made available for free via a printed manual, on a CD and for free download from the web.

As the project has evolved, OSGATA has grown their network of partners and collaborators for additional outreach upon completion of the manual. Announcements will be made through a nationally disseminated press release, a regular newsletter to our membership, and via social media on OSGATA and affiliates' websites. Letters will be sent to ~50 certifying agencies that they can in turn choose to share with their clients.

A full assessment of the project's education approach, originally slated for 2014, will follow the completion of our initial outreach timetable.

Financial Accounting

All budget expenditures have been spent accordingly; see the detailed budget submitted. OSGATA has financial policies and procedures in place to ensure internal systems compliant with all federal mandates.

Leveraged Resources

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OSGATA provided matching funds totaling \$4,198. No other funds have been leveraged to date. However, we plan to increase our print number from the original 50 copies to 500. Additional funds will need to be raised to cover the increased material costs.

Additionally the project has received volunteer time by the Working Group during the editing and peer-review process.

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