

**National Organic Standards Board**  
**Materials Subcommittee Discussion Document**  
**Protecting the Genetic Integrity of Seed Grown on Organic Land**  
**February 22, 2018**

## **I INTRODUCTION**

The USDA National Organic Program regulations do not allow the use of “excluded methods” in certified organic production. The term “excluded methods” refers specifically to genetically modified organisms (GMO). In the U.S., 94% of soybeans, 92% of corn, 94% of cotton (cottonseed oil is a foodstuff derived from cotton), 75% of Hawaiian papaya, 90% of sugar beets and 90% of canola crops are genetically engineered. By contrast, less than 1% of crops grown in Europe are genetically modified and that production is limited to a handful of countries in southern Europe. Planting stock can also be genetically engineered, with a GMO non-browning apple poised to be in the marketplace in a few years, as well as fish, pigs, and a wide variety of vegetables and fruits. Various traits are engineered into these patented crops, with herbicide resistance being the main trait, and insecticides incorporated into the DNA of those plants the second main trait.

## **II BACKGROUND**

Currently, in the U.S., no testing is required for presence of foreign genetically engineered materials to meet the requirements of the federal organic label. While so-called process-based standards are in place (buffer distances from GMO crops, temporal separation of when crops are planted etc.) farmers and consumers have no verified Genetically Engineered (GE) free quantitative tests in place even when it’s clear such contamination is increasingly likely. For many years farmers who purchase and plant non-organic seed due to the commercial unavailability of organic seed have needed to obtain non-GE affidavits if their seed is a type that has a genetically engineered equivalent in the marketplace that is a cultivar with and without the transformed GMO trait. These affidavits have been accepted as proof by their organic certifiers that the seed is non-GMO. Even if a seed or crop has been found to be “contaminated” with the genome of traceable GMO traits, technically it does not lose its organic certification status. Depending on the requirements of the end buyer, and the integrity of the seller, some of these known contaminated seeds and crops are likely to make it into the organic production stream and ultimately the organic market.

In the raw crop marketplace, buyers respond differently to the risk of genetic contamination: some buyers are performing extensive and expensive testing to determine if there is contamination, while others perform more inexpensive tests only periodically, or perform none at all. Some buyers do testing of grower supplied samples, of deliveries unloaded at the facility, and/or of cleaned product before it is shipped out to the next customer, while others do not. This inconsistency both for seed and for the final crop, leaves organic growers vulnerable to the varied demands of buyers as well as to genetic contamination that occurred from no fault of their own in the field, during transport, or at the cleaning facility. The European Union, as well as other international and domestic buyers, have set a tolerance limit, allowing some GE contamination (0.9%), while still accepting the product as organic. There are no prescribed or consistent GE tolerance levels for U.S. domestic organic production.

Most organic seed producers take protection of genetic integrity quite seriously. They monitor their custom growers, or their own facilities, when planning location, planting dates, pollination times for their crops, and carefully monitor the integrity of their handling and transport chain. We have heard from a number of organic seed breeder/producers that they elect to drop promising cultivars after investing much in their selection and germplasm evaluation when those cultivars inadvertently become contaminated with GMO genetic material. This has become increasingly problematic with outcrossing crops like maize and canola. Even with this careful oversight, some corn seed breeders report almost 20% contamination of their organic corn seed with foreign GMO germplasm. These seed breeders destroy specific lots of contaminated seed, a loss which they need to compensate for by raising the price of the remaining organic corn seed, resulting in higher prices to organic farmers and ultimately consumers.

### **III RELEVANT AREAS OF THE STATUTE, RULE and RELATED DOCUMENTS**

NOP standards adopted by USDA in a final rule published in December 2000 and fully implemented in October 2002 prohibit the use of GMOs in the production and handling of organic products certified to national organic standards. The terminology used for GMOs in the NOP Regulation, “excluded methods,” is specified under section 205.2 (Terms Defined) as:

***Excluded methods.** A variety of methods used to genetically modify organisms or influence their growth and development by means that are not possible under natural conditions or processes and are not considered compatible with organic production. Such methods include cell fusion, microencapsulation and macroencapsulation, and recombinant DNA technology (including gene deletion, gene doubling, introducing a foreign gene, and changing the positions of genes when achieved by recombinant DNA technology). Excluded methods do not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture.*

At its October 2016 meeting, the NOSB passed a recommendation to update and clarify the definition of Excluded Methods. The proposal (dated August 30, 2016) allows the NOP to be more flexible in addressing new technologies as they are developed. Numerous specific methods have been reviewed under this terminology, using transparent criteria, principles and descriptions. The NOSB has determined some new technologies should be excluded from organic production, and others are still under review.

**Detection and Testing Requirements:** Under the residue testing requirements of NOP, products from certified organic operations may require testing when there is reason to believe that certified products have come into contact with prohibited substances or have been produced using excluded methods. This requirement is specified in Subpart G (Administrative) of the regulations:

**§ 205.670 Inspection and testing of agricultural product to be sold or labeled “organic.”**

(b) The Administrator, applicable State organic program's governing State official, or the certifying agent may require pre-harvest or post-harvest testing of any agricultural input used or agricultural product to be sold, labeled, or represented as “100 percent organic,” “organic,” or

“made with organic (specified ingredients or food group(s))” when there is reason to believe that the agricultural input or product has come into contact with a prohibited substance or has been produced using excluded methods. Such tests must be conducted by the applicable State organic program's governing State official or the certifying agent at the official's or certifying agent's own expense.

**NOP Policy:** The NOP finalized a Policy Memo on July 22, 2011 (Policy Memo 11-13) on GMOs. This policy memo reiterates that the use of GMOs is prohibited under NOP regulations, and answers questions that have been raised concerning GMOs, organic production, and handling. The clarification provided is consistent with the explanations provided in the preamble, thus emphasizing that organic certification is a process-based standard and the presence of detectable GMO residue alone does not necessarily constitute a violation of the regulation.

#### **IV DISCUSSION and PUBLIC COMMENT**

The NOSB put forth discussion documents on this subject in 2013, 2014, 2015, 2016 and 2017. Public comment has clearly shown this to be an important issue for organic producers, food processors and consumers. Organic stakeholders would like to see consistency in the organic certification process as it relates to excluded methods and to protect organic integrity overall in order to maintain consumer trust. The genetic integrity of seed used on organic land continues to be at risk, and the risk appears to grow each year. The questions at the end of this document are intended to continue this conversation and inform possible next steps.

Since there is an allowance for the use of non-organic seed when organic seed of an equivalent variety in the quality and quantity desired cannot be found, this increases the risk of GMO contamination of organic crops. If a farmer starts out with GMO contaminated seed, then many of their defensive management tactics are entirely ineffective. The very contaminated seed they plant will freely cross fertilize other cultivars of that crop on their farm greatly compounding the contamination problem. In most cases, non-organic seed producers do not perform the same due diligence in testing and oversight to protect against GMO contamination as organic seed breeders. Some may state in their non-GMO affidavits that their assessment of non-GMO presence is “to the best of their ability”, since they are not actually testing to prove this statement as true.

The issue of maintaining the genetic integrity of organic and non-organic seed and planting stock grown on organic land and sold in the organic marketplace is complex, but not an insurmountable task. The respective interests of organic seed and planting stock growers and the farmers who buy their products can be at odds, even though they are both seeking the same ultimate outcome of avoidance of GMO contamination whenever possible. Non-GMO labeling such as the Non-GMO Project does not guarantee 100% GMO free products, with a 0.9% tolerance level allowed in foods for human consumption and a 5% allowance of GMO contamination in livestock feeds whose final product would then be labeled as non-GMO. The Non-GMO Project has a tolerance of 0.25% for seed.

Tolerance levels can also present problems. How are these seeds and products to be tested, and by whom, and where in the supply chain? Would a 100% GMO free standard in organic result in large regions of the United States not being able to grow organic crops, preventing the growth of organic acreage and commercial activity in the US? Could those businesses that sell or buy the GMO crops that

are causing the contamination be assessed a fee to cover the losses caused by GMO contamination? If so, how could this be implemented in an efficient and fair way?

The question of solving GMO contamination in organic seed and crops does not have clear answers, and might result in the unintended consequence of causing damage to the growth and integrity of organic agriculture, as well as negatively impacting organic growers and seed breeders. However, both growers and consumers feel contamination of organic seed and crops by GMOs negatively affects the integrity of organic foods.

## **V DISCUSSION QUESTIONS**

The following list of questions is by no means comprehensive, but is a starting point for discussion on possible options to address GMO contamination. This is a big topic, and we welcome all types of ideas and proposed solutions.

- a. Should we move to quantify the extent of GMO contamination in order to better understand the scope of the problem? How could this be accomplished?
- b. Should a requirement be in place establishing a seed purity threshold for purchased seed (either organic or nonorganic, or both) planted on organic land? If so, what should the threshold be? How will that threshold vary with crop?
- c. Should there be an approved list of tests, and/or testing laboratories, for tracking the presence of GMO in seed and/or crops?
- d. Should there be an approved method of sampling for GMO traits? How much of a seed or crop should be tested to provide confidence that the entire lot is likely to be GMO free?
- e. Would a seed label statement indicating the percentage of GMO traits detected by an approved testing regime, be sufficient in providing the information needed by the purchaser of the seed? No detectable level of GMO traits, .1% or other levels are examples that could be provided.

## **VI Subcommittee vote**

Motion to approve the discussion document on Protecting the Genetic Integrity of Seed Grown on Organic Land

Motion by: Dan Seitz

Seconded by: Dave Mortensen

Yes: 5 No: 0 Abstain: 0 Absent: 0 Recuse: 0

**Approved by Harriet Behar, Subcommittee Chair to transmit to NOSB, February 27, 2018**