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RE: Document #AMS-NOP-17-0057

NOSB Materials Subcommittee Discussion on Protecting the Genetic Integrity of Seed Grown on Organic Land

Dear NOSB Members:

Thank you for the opportunity to provide comments on protecting the genetic integrity of seed grown on organic land. MOSA certifies over 2000 organic operations, and the majority of these are farms in the midwestern United States. The midwest is a GMO hot zone. Avoiding genetic contamination is an extreme challenge for many operators we certify, and many fail to avoid contamination even with extremely sound preventive practices. Organic certifiers stand in the middle of many organic stakeholder groups, including consumers and farmers. We have struggled to find a right balance of sound and sensible enforcement for this issue. And, we have some resentment that the burden for avoidance of genetic trespass currently falls so heavily on organic producers. This needs more balanced - and urgent - attention from the USDA.

We have a pace problem. This has been acknowledged in other NOSB discussions around this issue, such as continuing to define new, rapidly-changing advances in biotechnology and determine their organic compatibility. From our seat here in the heartland, regrettably, we find many instances of GMO contamination on organic farms. Sometimes reasonably-sound prevention practices are still not sufficient to avoid buyer refusal of organic products after harvest, due to excessive (according to buyer standards) GMO content. This comes as a shock to the farmer and a regulatory/enforcement challenge for us as certifier. While it is true that such unavoidable contamination may not affect certification, it still affects sales, trust in the "organic is non-GMO" message, and the precautionary-principled intentions of our organic regulations. These challenges are getting worse, as new types of GMO crops enter the marketplace. Coexistence should not require acquiescence.

Through all of our work around this issue, we agree that the question of solving GMO contamination in organic seed and crops does not have clear answers. And, we are very wary of unintended consequences affecting organic agriculture's growth and integrity, and negatively impacting organic growers and seed breeders. Nevertheless, this is certainly another very important issue facing organic, in terms of consumer confidence and label clarity. As other

labels seek to compete with or redefine organic, we must show that our organic regulations are comprehensive, and have the strongest verification of genetic integrity.

We also need to consider the mantra of "sound and sensible." This balance includes not putting all of the onus for identity preservation on the organic community. We hate to consider a scenario where an organic farmer does everything right, buys organic seed, uses required organic production practices and strong contamination prevention, follows all the right rules, but then comes to harvesting and sales time, and we have to inform that the product can't be certified because it exceeded a GMO content threshold out of his or her control. That doesn't seem right at all.

So, we support the general direction of this discussion and find that the questions asked are appropriate.

As an aside, we also appreciate the new title used for this discussion. The "genetic integrity" terminology is palatable and adequately descriptive. “GMO” terminology is correct and commonly used, but may create defensive reactions that distract from discussion. "Seed purity" was confusing, although indeed we aim to keep our organic seed pure from contamination as a result of excluded methods.

We struggle with the best answers to the questions. But below, we’ll give them some feedback - a compendium of opinions expressed by MOSA staff.

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?
We think quantification of the contamination problem is necessary to ensure proper consideration of how best to address it. We need a baseline understanding of what we’re dealing with. While this has been under organic community discussion and recognition, it seems the barrier is *how* to get this work done.

Whatever mechanisms are put in place, we must get moving. Contamination is only getting worse, and we risk completely losing the genetic integrity of some kinds of seeds. And, we need for the conversation to go beyond the National Organic Program. For fairness, in an environment which seeks coexistence, this quantification work should be taken up and funded by USDA. This kind of work was indicated by the Report of the USDA Advisory Committee on Biotechnology and 21st Century Agriculture (AC21) to the Secretary of Agriculture (https://www.usda.gov/sites/default/files/documents/ac21_report-enhancing-coexistence.pdf). That report suggested quantification of financial impacts due to contamination, recommended that USDA should spearhead and fund a broad-based, comprehensive education and outreach initiative to strengthen understanding of coexistence between diverse agricultural production systems, and also recommended that USDA should fund and/or conduct research in a number of areas relevant to the promotion of coexistence in American agriculture.

It would be very interesting to know GMO contamination effects with regional comparisons. We have some data from the upper midwest. In 2017, MOSA conducted some random sampling of a couple certified seed handling operations for GMO contamination. These results showed GMO

contamination at .4% or less. Additionally, we received some test results for NOP sampling of a handful of MOSA-certified producers' grains received at feed mills in 2016. These operations had years of experience in organic production. These detects were at 1% or under, except for one, at 2%. In recent years we also have had several complaints regarding harvested crops, planted from organic seed, that approached 10% contamination. We have not been able to pinpoint the cause of such contamination levels, whether it's coming from contamination in the seed growing environment, in the seed stock used in breeding, or from GMO pollen throughout our midwestern air, or whether these higher levels represent a sum percentage of contaminant proteins.

Additionally, we were aware that a couple different MOSA-certified feed mills have been conducting routine GMO testing, and we asked them to summarize their findings for purposes of this discussion. Their tests were conducted using the Envirologix Quickscan system. This involves using a test comb which can also be read by an optional optical scanner to determine the level of GMO between a lower limit of detection and 3% maximum on a given protein test strip. A GMO level can be determined within about seven minutes from when the sample is collected. This system gives a cumulative GMO result stated as a percentage, and it allows objectively reading and capturing the results in real time. Unfortunately, the optical scanner equipment costs several thousand dollars, and to get an accurate percentage, the test has to be read by the scanner at a specific time interval. Use of the test strips alone would be less expensive, but would only provide an unquantified positive or negative result. Strip tests without a reader can't reliably detect anything below 1%. In theory then, a nine-strip comb could show each strip reading below 1% GMO, but the reader could also show you a cumulative GMO sum of over 8% or better. That's an unlikely scenario. However, some tests don't show any positives on any strips, but still may show up around 2% on the cumulative result, which adds the trace results. Most cases that show a 2-5% GMO sum are getting low levels of contamination across multiple proteins. And since each strip on the comb will only read a maximum of 3%, the reader might show a sum of over 3%, so reaching a 3% limit on a single protein can help account for that difference.

One mill operator tested approximately 470 corn deliveries received in 2016 and 2017. Approximately 44% of those tests came in at less than 2% GMO contamination, and about 68% came in under 5% contamination. The rest are presumed to have been above 5% contamination. This operator informs producers of the results, but is not yet categorically rejecting deliveries based on testing. Rather, they see their testing as helping to establish a baseline from which they might make future decisions.

Another operator summarized over 2,000 tests conducted in 2017 alone. About 75% of the loads tested at 1% or under, but as described above, under 1%, the minimum limits of detection and margins of error become very significant. Very few loads tested over 3%, and around 10% tested higher than 2%. This operation rejects loads of corn or soybeans at 5% total GMO result on any one truckload, or 3% on any one protein (since that is the limit shown on the individual strips on the comb). Producers don't keep bringing loads to this mill after they've been rejected or if they have a good reason to believe they have a contamination problem. So, this operator did not have a good sense of how much corn or soybeans would test over 5%. They also noted that some

producers are in a position where they can do some remediation: they may test seed sources, or bin samples, or samples from unharvested fields to identify where the contamination may be coming from. This mill operator reports that, using those methods, several producers have been able to identify where the GMO contamination is coming from, and in a few cases have been able to segregate contaminated crops. This operator also noted part of their experience in GMO testing; they were trying to hold a 1% limit, but their feet got put to the fire over rejecting organic corn that test results with a sum of 10-16% GMO. They commented that it would have been extremely helpful to all parties involved to have some sort of a stated limit from the NOP.

With data as summarized above, our MOSA staff has some concerns that quantification could be damaging. Perhaps at this stage, our coexistence battle is already lost. It simply may not be practical for organic farmers to avoid GMO contamination, from pollen. In previous comments on this topic, we did some extrapolation based on research which showed that at least 660 feet of buffer is needed to reasonably ensure 99% genetic purity for organic corn seed. That works out to requiring around 80 acres of buffer to protect a hypothetical 10 acre square field. That is impractical. We wonder whether understanding the scope of the problem will truly help us to find practical solutions.

Nevertheless, it seems we must start with knowledge.

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?

Our staff has not come to consensus on these questions, partly because we we don't have sufficient baseline info on contamination levels, as discussed above. If setting thresholds is thought to be appropriate, we can't suggest any specific numbers at this time. Understanding the extent of contamination has to be the first step before putting limitations on it.

Having established GMO thresholds would bring more clarity to our enforcement, and would provide consistency among certifiers. If thresholds are established, it seems sound for those to be most restrictive for seed, and to have lower thresholds for food than for feed. We question whether anything other than zero tolerance for GMO contamination in seed exacerbates the contamination problem. A strict threshold could be a way to verify that NOP organic is at least as stringent on GMO contamination as other labels.

However, our staff has identified a number of concerns about the threshold question.

One opinion is that "organic seed is organic seed." Organic is process-based, and it may be impossible for many producers to produce a GMO-free crop or know what level of contamination they will have, depending on their location and conditions. Individual seed groups or buyers or other stakeholders can choose to test products for contamination, but we should still support producers who use sound organic practices. We worry about thresholds hurting organic producers, and consider that perhaps a threshold should be mandated only for nonorganic seed.

We also have some concern that establishing GMO tolerances could end up causing another organic community divide. They may be too strict for those who are trying to abide by the threshold and are doing everything right, but unintentionally are contaminated by the environment or by parent seed stock, out of their control. On the other hand, those who feel the established threshold is too loose may lose trust in the organic label, as it may seem contrary to our "organic is non-GMO" messaging. Organic messaging often struggles to communicate necessary nuance, reasoning, and practicality.

Use of thresholds could also add burden for organic producers and certifiers and add to more questioning about strength of the organic seal. The document asks, 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? We'd answer, that'd be very likely. A 100% GMO-free requirement would be much more difficult for the U.S. than for the EU and other places which have far more restrictions on growing GMO crops.

Suffice it to say, this is a very difficult issue. We are dealing with very real contamination issues, and we need to do something about it. Let's start with data, and then consider thresholds, and be fair and balanced about where we place the responsibility for contamination.

c. Should there be an approved list of tests, and/or testing laboratories, for tracking the presence of GMO in seed and/or crops?

And, 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?

Our staff has some differences of opinion on this as well, from thinking that organic should not include regular testing, which might create more harm than practical change, to seeing a need for guidance on appropriate and accurate testing techniques and sampling methods. We recognize the Accredited Certifiers Association guidance document on GMO sampling to be a good first resource. Yet, more work, and tracking mechanisms, will probably be needed. For establishing baseline data, consistent testing protocols lead to more reliable outcomes. Approved methods should be identified. Lab criteria needs to be compared and similar among labs. Labs should set the amount of seed or crop needed for testing, and perhaps that can vary based on product type - for example, more stringent for seed than for food.

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.

For organic seed, if thresholds are established, then we think no additional labeling should be needed. However, our regulation includes some allowances for use of non-organic, untreated seed. We'd support mandated GMO-content labeling for nonorganic seed in order for it to be

allowed for use in organic systems, but we recognize this would be controversial, and requires support beyond our organic community.

So, that recognition again leads us back to a primary concern. It's extremely unfair to put comparatively so much burden for preserving genetic integrity on the organic community. Again, that's not how we understand that coexistence should work. The AC21 Report clearly spoke to shared burden. We request and expect USDA to ensure that unintended genetic contamination is controlled, by stewardship plans, outreach, voluntary innovation and incentives, and also by regulations directed at those who use GMO technology.

Thank you for your work on this urgent and challenging concern.

Respectfully submitted,

The MOSA Certification Team