



# BEYOND PESTICIDES

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Ms. Michelle Arsenault  
National Organic Standards Board  
USDA-AMS-NOP  
1400 Independence Ave. SW.,  
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## Re. HS: Short DNA Tracers

These comments to the National Organic Standards Board (NOSB) on its Fall 2015 agenda are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers and farmworkers, Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that reduce or eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

Beyond Pesticides opposes the allowance of short DNA tracers for use in organic foods. They are unnecessary and not compatible with organic production. The Handling Subcommittee (HS) has not investigated the effects on human health.

## Short DNA tracers have not been shown to be safe.

The HS did not request a technical review for short DNA tracers and apparently relies solely on information provided by the petitioner. The petitioner's claim of safety is based on the claim, "When manufactured as described here, short DNA tracers are indistinguishable from the DNA that is naturally present in all living things, except that short DNA tracers are much smaller molecules, and they are present only outside of living cells." However, DNA is not a random collection of nucleotides, and its impact is not determined by the nucleotides, but by their arrangement. The petitioner states that the short DNA tracers are unstable during normal use, and although they may be too short (50-150 base pairs) to convey genetic information by themselves, they may undergo recombinatory reactions. The petitioner makes contradictory statements, "Naturally occurring genetic material is well known to undergo natural recombination reactions, adding and swapping between genomes. This provides is an important means for generating mutations, especially in bacteria and viruses." "There is no evidence that these molecules can be assimilated by living things, other than as food, which entails digestion and thereby destruction." There is no control over the effects that might be caused by the amplified DNA segments used as tracers in food. Before the NOSB can approve

this material, it must determine that short DNA tracers do not cause adverse effects on human health and the environment.

### **Short DNA tracers are unnecessary.**

The Organic Foods Production Act (OFPA) requires that materials added to the National List be “necessary to the production or handling of the agricultural product because of the unavailability of wholly natural substitute products.” Short DNA tracers are not necessary. Other means of tracking organic produce are available, including those mentioned by the petitioner. The use of short DNA tracers is not cost-effective. The petitioner says, “The grower can swab the surface of apples from both sources, put them into a test device, and show the grocer how only the authentic product bears the short DNA tracer. Testing currently takes less than an hour, and less than \$100.” “Less than an hour” and “less than \$100” is a considerable added expense for tracing each box of fruit.

We believe that organic consumers deserve a consistent system of tracking organic products and ingredients, but adding short DNA tracers to organic food is not the answer. Rather consistent chain-of-custody tracking methods should be required by regulations and used by certifiers.

### **Short DNA tracers are not compatible with organic production.**

This is the definition that appears in the regulations:<sup>1</sup> (7 CFR 205.2; Terms Defined):

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). Such methods do not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture.

The process for manufacturing short DNA tracers meets the definition of excluded methods. It is a process that is not possible under natural conditions. Although it does not involve “gene doubling,” it does involve polymerase chain reactions (PCR), which is used for multiplying DNA fragments *in vitro*. It also meets conditions for excluded methods approved by the NOSB as part of its recommendation on excluded methods terminology:<sup>2</sup>

**Genetic engineering (GE)** – A set of techniques from modern biotechnology (such as altered and/or recombinant DNA and RNA) by which the genetic material of plants, animals, organisms, cells and other biological units are altered and recombined.

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<sup>1</sup> 7 CFR 205.2; Terms Defined.

<sup>2</sup> NOSB recommendation, Fall 2016. Excluded methods terminology.  
<https://www.ams.usda.gov/sites/default/files/media/MSExcludedMethods.pdf>.

**Modern Biotechnology** – (i) in vitro nucleic acid techniques, including recombinant DNA and direct injection of nucleic acid into cells or organelles, or (ii) fusion of cells beyond the taxonomic family, that overcomes natural, physiological reproductive or recombination barriers, and that are not techniques used in traditional breeding and selection.

In view of the fact that short DNA tracers are excluded methods, they are not compatible with organic production and handling.

## **Conclusion**

The petition for short DNA tracers should be rejected because there is not sufficient evidence of no harm to humans and the environment, there is no need, and they are not compatible with organic production and handling.

Thank you for your consideration of these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Terry Shistar".

Terry Shistar, Ph.D.  
Board of Directors