Senate Committee on Environment and Natural Resources
Hearing date: April 12, 2017

Testimony from Dr. Ray Seidler, Ph.D. in support of SB 1037

I support SB 1037, a bill to restore local communities' rights to make decisions about their diverse agricultural needs

I have worked in Oregon all my professional career. Initially a professor of Microbiology at Oregon State, the second half of my career I was Team Leader and senior research scientist with the U.S. Environmental Protection Agency. I personally wrote the first national research plans on how to evaluate the safety of genetically engineered microbes and plants.

USDA S**uccessful coexistence can be defined as**: "concurrent cultivation of diverse agricultural crops consistent with underlying consumer preferences and farmer choices." (Appendix).

We are aware of two genetically engineered (GE) bent grass test failures that have probably permanently contaminated at least the Central and Eastern Oregon regions with Roundup Ready grass resulting from the original seed escapes. Few realize that over the last 13 years these original grass clones have now cross pollinated with indigenous grasses in this region. Further spread in the future will be detrimental to any existing and future pastures and forage for organic beef and organic dairy operations, not to mention threatening the future of Oregon's billion dollar grass seed industry. Here we can say coexistence was a failure.

One year after Roundup Resistant alfalfa (RRA) was first approved, the Idaho Alfalfa & Clover Seed Growers Association reported 11 of 16 certified conventional alfalfa seed lots were contaminated with the RRA trait in Montana, Wyoming, and Idaho.

Eight years after GE canola introduction, Canadian scientists found that 95% of the certified seed stocks were contaminated with 3 GE herbicide resistant genes from 3 companies. Also, RR canola has escaped Midwest farms and cross pollinated wild and patented canola varieties. It has been reported that every Canadian organic farmer has lost the ability to sell organic canola into Europe. For canola, perhaps it is too late to establish coexistence.

In the last month we learned once again of a serious cross pollination event in the U.S. This one is due to approved Syngenta GE Enogen yellow corn which is grown for ethanol production. Such cross pollination can render the white corn flour biochemically and economically worthless for its intended use in masa corn products. The North American Miller's Association warned this could happen in 2013 when Enogen became widely available.

Over 400 other documented cases of cross pollination, seed comingling, and GE plant escape events have now been recorded worldwide in the last 20 years.

Claims that USDA "deregulated" GE crops are safe only means they do not contain DNA derived from a plant pest. This **"safety" declaration obviously has nothing to do with cross pollination potential. Furthermore**, there is no scientifically credible argument that cross pollination problems can always be avoided through voluntary "handshake" agreements.

Oregon farmers need your help to protect their higher value crops because coexistence does not work! Scientific, agronomic, and consumer based preferences make SB1037 the right approach for local farmers. Please support SB1037 for our farmers.

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APPENDIX, Seidler Testimony, April 12, 2017
in front of the Senate Committee on Environment and Natural Resources

Impediments to the expansion of value added Oregon crops:

• Defining coexistence:
Putnam, D. H., T. Woodward, P. Reisen, and S. Orloff. 2016. Coexistence and Market Assurance for Production of Non–Genetically Engineered Alfalfa Hay and Forage in a Biotech Era. In: Crop, Forage & Turfgrass Management 2. doi:10.2134/cftm2015.0164
https://dl.sciencesocieties.org/publications/cftm/articles/2/1/cftm2015.0164

• In 2001, Bayer Crop Sciences was fined $750 million in damages by U.S. rice growers as a result of contamination from its GE rice coming from a test plot in Louisiana.

• China impounded and restricted importation of Pacific Northwest alfalfa due to trace amounts of GE alfalfa plant components

• The Oregon legislature and Oregon State University recognized the threat that Roundup resistant (RR) canola cross-pollination poses to specialty seed producers in the Willamette Valley that produce seeds of Swiss chard, Brussels sprouts, mustard, etc., all of which can be cross pollinated by the RR canola. HB 2427 was passed by the Oregon Legislature to provide funding for OSU to study the spread of RR canola pollen throughout the Willamette Valley and its impact on the $50 million Willamette Valley specialty seed market.

• The Chinese imposed a ban on the importation shipments of a variety of GE corn from the U.S. in 2013 that had not been approved for human consumption within China. This caused an estimated $1 billion of damages from reduced corn prices for American farmers.

• Interstate spread of RR bentgrass between Idaho and Oregon coming from USDA approved test sites have contaminated irrigation ditches, the Snake River, the Crooked River National Grassland, lawns and parks in two states. Now Oregon taxpayers are left to pay for further monitoring, and destruction of future outbreaks of the patented GE grass. In addition, gene flow from these short-term bentgrass tests can result in establishment of transgenic plants at multi-mile distances from GM source fields or plants. Selective pressure from direct application or drift of glyphosate herbicide could also enhance the spread of Roundup resistant genes into the wild grass population. Obligatory outcrossing and vegetative spread could further contribute to persistence of transgenes in wild grass populations, both in the presence or absence of herbicide selection. (*Molecular Ecology, 2006; Blackwell Publishing Ltd. "Establishment of transgenic herbicide-resistant creeping bentgrass (Agrostis stoloniferaL.) in nonagronomic habitats*

• In 2000 Star Link corn not approved for human consumption in the U.S. is found in over 200 food products. Corn prices plummet and U.S. farmers file $100 million class action lawsuit.

• Molecular Ecology. 1994. Symposium Issue. “Ecological Implications of Transgenic Plant Release. 90pp. Blackwell Scientific Publications.

• GMO-ethanol corn contamination raises concerns about another “StarLink”disaster
http://www.huffingtonpost.com/entry/gmo-ethanol-corn-contamination-raises-concerns-about_us_58e52857e4b0ee31ab9533dd

THE HUFFINGTON POST

Ken Roseboro, Contributor
Editor, The Organic & Non-GMO Report

GMO-ethanol corn contamination raises concerns about another "StarLink" disaster

04/05/2017 01:55 pm ET

Food corn buyers say *Syngenta's Enogen GMO corn* is contaminating non-GMO white corn fields, creating a potential *"trainwreck;" may be linked to* bad masa flour in California.

Enogen, a genetically modified corn for ethanol production, has contaminated non-GMO white corn grown in Nebraska that is used to make flour for tortillas and other products.

Contaminated farmers' corn

According to Derek Rovey, owner of Rovey Specialty Grains, Inland, Nebraska, a few of his contract farmers who grow non-GMO white corn had their crops contaminated by Enogen corn.

*"We've had some growers who've had some problems (with En*ogen). Their *corn was right next to Enogen fields,"* says Rovey.

Enogen's GMO trait was detected in the white corn using GMO strip tests, says Rovey.

He also says that flour made using his company's white corn tested positive for Enogen last summer.

Enogen GMO corn can contaminate food corn through cross pollination in the field or improper segregation during grain handling.

B.J. Katzberg, a corn seed dealer for Pioneer Hi-Bred, says one of his customer farmers had to abandon 25,000 bushels of corn due to Enogen contamination. He also knows of other farmers who've had Enogen contamination of their non-GMO white corn including one who had to remove 600 feet of his cornfield and sell it to an ethanol plant.

Farmers whose white corn crops are GMO contaminated face market rejection and lost income, as they have to sell their corn to a cheaper market such as those for animal feed or, ironically, ethanol.

Jim Clark, owner of Clark Specialty Grains in Gothenberg, Nebraska, also knows of farmers who've had contamination problems with Enogen corn.

"A farmer has a contract, delivers the corn and Enogen is detected; the corn must be sold for feed. It's a nightmare," he says.

"Will ruin corn for milling"

Enogen is genetically engineered with an enzyme that converts starches in corn to sugars, the first step in the process of making corn ethanol. The problem is that Enogen could mix with corn grown for food and break down its starches and ruin the corn for processing, which would lead to crumbly corn chips and soggy cereals.

It would only take one kernel of Enogen corn mixed with 10,000 kernels of food corn to ruin the food processing abilities of food corn, according to the North American Millers Association.

In a 2013 article in The Organic & Non-GMO Report, Lynn Clarkson, president of Clarkson Grain, predicted problems with Enogen.

"This will ruin corn for milling," says Clarkson, whose company sells non-GMO and organic corn to food processors and millers. *"The ethanol industry is happy but other industries are seriously undermined by this corn."*

When asked about contamination problems experienced by the Nebraska farmers, Syngenta claimed in a statement that it *"has never had a verified incident."* The company said it has been committed to provide Enogen technology in a way that *"respects other uses of the crop and other corn growers"* and works *"proactively with* growers and industry to avoid potential *conflicts."* Syngenta said Enogen is grown in a closed-loop system with contracted growers that follow a comprehensive stewardship program to prevent commingling. For example, Syngenta developed a purple tracer that offers growers a visual way to ensure grain is properly segregated from planting to delivery.

Ron Lowery, an expert in crop nutrition and management, says Syngenta is working to be good stewards of Enogen corn. But he also says that the GMO corn "has negative possibilities for non-GMO and organic corn growers and for the baking and milling indu*stry."*

Those negative possibilities are likely to increase as production of both white non-GMO corn and Enogen corn increase in Nebraska.

"There are a lot of ethanol plants and lots of white corn. And those don't mix," says Joel Starr, an organic farmer in Hastings, Nebraska. *"That equals a trainwreck."*

Linked to bad masa flour problem in California?

Several people also suspect that Enogen GMO corn may have caused problems with masa flour in California. According to media reports, scores of people reported problems with flour purchased at Amapola Market, a Hispanic grocery chain in Los Angeles. They said the tamales they made from the flour—a Christmas tradition for Hispanic families—were gooey, fell apart, and even made some people sick.

Amapola vice president Juan Galván says the bad flour affected thousands of people. The problem was traced to a shipment of 120,000 pounds of white corn delivered to Amapola right before Christmas.

"The starch content is obviously different in this corn," Galván says. *"Tamales don't bind. When you make the product, it falls apart."*

This is the kind of effect that Enogen corn would have on food corn. In fact, Rovey says the same thing happened with white corn flour sold to one of his retail California customers last summer though on a much smaller scale than the Amapola incident.

"It was a similar type of product; flour to make tamales," he says. *"We tested it and it came back with the Enogen trait."*

As a result, Rovey believes Enogen corn also caused Amapola's masa problem though he says: *"I can't say that for a fact."*

Katzberg is also convinced Enogen ruined Amapola's masa flour. *"Yes, it is* the problem. The enzyme breaks down the starch and disallows the product to *cook through so the tamales never finished."*

Despite indications pointing to Enogen as the problem, tests have not yet confirmed the presence of Enogen corn in Amapola's flour.

Enogen reminds Clark of StarLink, a GMO corn, which was approved for feed use only, but was later found in 300 food products, leading to a multi-million dollar food recall, along with multiple lawsuits in the early 2000s.

"It has a flavor of Starlink," Clark says. *"We were told it wasn't going to get into food, but it did."*

http://www.huffingtonpost.com/entry/gmo-ethanol-corn-contamination-raises-concerns-about_us_58e52857e4b0ee31ab9533dd