
Coexistence in the Oregon Seed Industry

GREG LOBERG

West Coast Beet Seed Company

greg.loberg@wcbeet.com

West Coast Beet Seed Company was incorporated in Oregon in 1940 by numerous shareholders who had determined that the Willamette Valley of western Oregon was the best location on the US West Coast in which to overwinter sugar beet plants for seed harvest the following summer. Although other areas grew some seed, by the 1980s essentially all sugar beet seed for the US was produced in the Willamette Valley. Today a large percentage of sugar beet seed continues to be grown here.

As for all seed crops, and there are many in Oregon, genetic purity is an essential quality attribute. Production of sugar beet varieties has always included standards for distance between sugar beet fields, usually known as isolation distance. Seed production of other subspecies of *Beta vulgaris*, primarily Swiss chard and garden (red) beet, also began in the 1940s. This required additional consideration of isolation distance. So, for about 75 years all beet production in the Willamette Valley has successfully coexisted.

Over the years, growers and seedsmen talked to each other about maintaining adequate isolation distance between crops that could cross-pollinate. In 1980 this informal communication system was formalized through the incorporation of the Willamette Valley Specialty Seed Association (WVSSA). Initially, the primary function of the association was to map competing seed crops, using pins placed on a physical map to identify and regulate isolation distances, for the mutual benefit of members. In recent years a physical map has been replaced by an electronic web-based map, but the process of adding place markers to represent fields continues to be referred to as pinning. This model has been highly successful and has drawn worldwide attention, as evidenced by the accelerating expansion of the industry since incorporation. Currently, there are 41 active members.

Because of thoughtful production guidelines that have been written and revised as needed over the years, disputes are uncommon. When growers or seedsmen find them-

selves in conflict over any seed production, rules of arbitration are applied. In 35 years, arbitrations have averaged fewer than one per year and have been 100% successful at resolving conflicts. One party won and one party lost, but in all cases all parties have agreed to voluntarily abide by the arbitration decision. In recent years the association has mapped up to 1,200 field locations, many of which involve competing crops. In the case of our company alone, up to 75 growers have received arbitration.

When our company began production of the first deregulated genetically engineered sugar beet seed with small plantings in 2005, our production area already was utilizing world-class guidelines that allowed a seamless transition to high standards for genetic purity for yet one more trait. By 2009 the US sugar-processing market was using sugar beet seed that was resistant to the herbicide Roundup almost exclusively. During that same period, the production of Swiss chard and garden beet continued locally and, if anything, increased relative to recent prior years. All of these beet types continue to successfully coexist. The genetic purity of each is similarly important, and stray pollen or seed moving among beet production areas is a shared risk.

While no system is flawless, that of the WVSSA has existed and continued to develop for the mutual benefit of association members for over 35 years. The WVSSA has one or two members who produce exclusively organic seed. The association has at least one other member who produces some organic seed, along with conventional seed. We have a membership category for small seed savers that would like to participate in our mapping system but do not qualify for association membership. West Coast Beet Seed Company has at least two growers who produce GE sugar beets in the same farm operation that produces non-GE conventional crops and organic crops.

Pinning regulations of the WVSSA continue to develop over time, with occasional changes reflecting new science, implementing additional experience, or addressing new issues, crops, or previously unforeseen problems. Regulations are built upon the Statement of Purpose in the bylaws of the WVSSA. Included in the purposes of the association are these programs: Seed Quality Management, Education, Pest Mitigation, Production Area Sanitation, Seed Quality Risk Mitigation, and Specialty Seed Research.

Pinning regulations must be adhered to as a condition of membership, including but not limited to:

1. Rules for establishing a crop isolation with either a spring or fall deadline.
2. Maintaining a pinning priority related to member contracts year to year with the same grower.
3. Arbitration of disputes.

Isolation distances are detailed for species of *Allium*, *Beta*, *Brassica*, *Cichorium*, *Cucumis*, *Cucurbita*, *Rhaphanus*, *Spinacia*, and *Umbelliferae*. Flower seed production needs to be pinned, along with that of “other seed crops.” These latter types of production are likely to require discussions among members. Distances of separation range from one to four miles. The regulations are strict but do include exceptions for two members who mutually choose to decrease an isolation distance or who agree to yield a pinning priority for one year to the other member and contracted grower.

In addition to association pinning regulations for genetic isolation purposes, the WVSSA has adopted its Stewardship Policy to further establish a platform for coexistence, as well as a definition of stewardship terms. All are available at the WVSSA website (www.thewvssa.org), along with bylaws, forms, industry links, and descriptions of the growing area.

The Stewardship Policy features the following objective and five core goals:

Objective: Anticipate the release of traits from biotechnology with a proactive set of policies designed to support coexistence, defined by the USDA Advisory Committee on 21st Century Agriculture (USDA AC 21) to be the concurrent cultivation of conventional, organic, identity-preserved (IP), and genetically engineered (GE) crops in keeping with underlying consumer preferences and farmer choices.

1. Maintain a vibrant Stewardship Committee that is proactive on biotech changes in Oregon agriculture.
2. Develop a reasonable threshold of tolerance for each biotech trait so that zero tolerance is not forced upon the industry.
3. Engage trait owners in stewardship that complies with and supports WVSSA policy.
4. Engage Oregon growers in the rationale for a Stewardship Policy for the Oregon seed industry.
5. Network with other organizations, associations, and agencies that can provide strength, support, and sustainability to the WVSSA Stewardship Policy.

The Oregon seed industry has been challenged to define “biotechnology” with a meaning that captures the variations in definition among regulators and markets. In lay terms, our federal government regulates the crops and traits of biotechnology if the Department of Agriculture can identify a potential plant pest, if the Food and Drug Administration has a food or feed safety concern, and/or if the Environmental Protection Agency sees a pesticide safety issue. Market definitions, however, are not limited to regulatory stipulations. Markets or some customers within markets can choose to limit commerce in products derived from deregulated biotechnology and also can limit nonregulated products that may appear to have come from biotechnology. An example of a nonregulated trait is the herbicide tolerance in the Clearfield Production System for wheat using Beyond herbicide. This trait was developed with chemical mutagenesis and was never regulated by a federal agency. Interestingly, this type of herbicide tolerance has been widely accepted as non-GE. Yet a comparable herbicide tolerance yet to be released in turf grass appears to be unacceptable in some markets and certainly is unacceptable to opponents of biotechnology. The trait was developed with a gene gun and has a USDA determination of “nonregulated.”

Seed suppliers cannot control market or customer definitions of products. Consequently, the Oregon seed industry has attempted to encompass perceptions, as well as government definitions of regulated crops or traits, by applying the phrase “unconventional plant breeding” to products that could come under “biotechnology.” To date, unconventional plant breeding is defined to include the following:

- *Genetic modification.* The production of heritable improvements in plants for specific uses, whether through transgenics, cisgenics, or more traditional methods. Some countries other than the United States use this term to refer specifically to genetic engineering.
- *GMO.* An organism produced through genetic modification.
- *Genetic engineering.* Manipulation of genes by introducing, eliminating, or rearranging specific genes using the methods of modern molecular biology, particularly those techniques referred to as recombinant DNA techniques.
- *GEO.* An organism produced through genetic engineering.

The WVSSA is one of two major seed associations in Oregon. The other is the Oregon Seed Association (OSA), which was chartered in 1969, has 49 active members, and is organized primarily around grass seed crops.

Like the WVSSA, this association has adopted a stewardship policy with defined terms to establish a platform for maintaining voluntary coexistence. The most likely new application of coexistence at this time is the potential for herbicide-tolerant turf grasses to enter the market. Developments in Kentucky bluegrass and tall fescue are not in the market yet, but they will not be regulated as potential plant pests under USDA rules. Nonetheless, there is industry concern because many markets do not distinguish between regulated, nonregulated, and deregulated products of “unconventional plant breeding.” Consequently, these herbicide-tolerant grasses will be unacceptable in some markets.

In grass seed production, the current isolation standards focus on distance separations related to Oregon State University crop certification, and these are widely accepted. However, due to relatively high crop production acreage in the Willamette Valley, close proximity of fields, and windblown pollen, these standards would be inadequate for markets with low or no tolerance for traits assumed to come from biotechnology. The OSA will be working in the next year or two to develop further policy and practice to guide association members as product launches near.

Farmers have coexisted successfully for generations and nearly always resolve conflicts with a neighborly solution. After all, land cannot be relocated, and eventually neighbors must cooperate in order to coexist. With the introduction of modern biotechnology to agriculture, there seems to be an unprecedented challenge to successful coexistence. A combination of some consumer attraction to a more localized food supply with less or no reliance on the technology of “big corporations” and activism in opposition to modern farming practices and technology has fueled conflict. Not just in Oregon, but especially in Oregon, ideological opposition to biotechnology has resulted in a push for political solutions to ban or constrain biotechnology.

In 2013 the Oregon Legislature preempted local initiatives to ban or restrict biotechnology by establishing regulation, if needed, with state government. An exception was made to allow a county measure already in process to proceed to a vote. In May of 2014, Jackson County in southern Oregon did pass a ban on GE crops. The county

ordinance subsequently entered litigation when two farmers sued for current and future crop loss in alfalfa production. Since then, Benton County, home of Oregon State University (OSU), has placed a GE ban on the ballot. Supporters campaigned for it as a local food ordinance, but it was written very broadly to exclude all GE activity, including research at OSU. The language also gave Benton County constitutional and legal authority over state and federal governments. It was defeated by a large margin on May 19, 2015. Had the measure passed, it would have violated state preemption law and would not have been enforceable unless state law had been reversed by the legislature or by a court decision. Furthermore, the measure would have been unenforceable for many reasons related to state and federal law. Supporters agreed throughout the campaign that it would have gone straight to court.

In the current Oregon legislature, several bills have been presented that would authorize the state to regulate agricultural biotechnology for market reasons. Some proposals require or allow the state Department of Agriculture to create districts that limit or exclude GE traits and crops. Other proposals allow citizen petitions that lead to a similar outcome. Proposals have included requirements to report GE seed transactions by area of the state and to make public maps of transactions available.

A legislative work group with diverse membership has recommended a far less restrictive bill that is still under consideration. This bill offers rules for mediating a dispute between parties with a complaint around coexistence by requiring a conversation seeking friendly resolution.

Government intervention concerning ideological differences in modern agriculture entails numerous challenges. At the core, however, the challenge of coexistence among producers of food, feed, and seed finds the non-GE minority trying to exert their will over a majority that either favors biotechnology or favors modern agriculture in general. Since the population of our country is largely urban, with consumers mostly disconnected from the farm, they have a significant opportunity to establish a message opposing biotechnology and modern farming. This includes efforts to gain political advantage among legislators or local government officials, to litigate, and to persuade through social media. Few state legislatures are populated with more than about 10% of legislators with natural resource experience. Americans in general are not knowledgeable about agriculture or other natural resources and can be convinced to believe one-sided messages. Consequently, an activist minority views a strong government role as the surest way to achieve ideological goals, though most activists seemingly prefer less government otherwise.

Government regulation of agriculture for market reasons is likely to introduce many new conflicts and uncertainties in an effort to ease ideological conflict. Several illustrations follow.

1. Government restrictions mean new government authority to control crop choices. In a matter of a few years this would effectively eliminate the WVSSA, a very successful organization built around voluntary coexistence. The economic damage to businesses and the state from a disorderly transition from a private to a public system of coexistence could be high and lasting.

2. Implementation of restrictions will not assure perfect coexistence—that is, zero adventitious presence. Further exclusion will be suggested as a logical additional step, and conflict will persist or even increase. What will be the standard to reduce conflict if one party demands zero tolerance?
3. How will a second layer of conflict be accommodated in an existing coexistence agreement? For example, suppose a GE crop is allowed to coexist with non-GE counterparts because the trait in question has a nutritional benefit. Now, suppose that same crop is stacked with a herbicide-tolerance trait. Will the coexistence rules change?
4. Rules to determine how to best protect competing markets and crops are difficult for even experts to devise. Relying on a government solution will greatly reduce and probably eliminate the participation of most private sector experts.
5. Voluntary coexistence is nimble compared to legislated coexistence and more likely to respond quickly to changes in markets and products. Oregon could legislate regulations that create an economic disadvantage compared to other states.
6. If and when districts, control areas, or production zones are created, many new borders will be invented. Growers on either side of a border will find it more difficult to coexist. Many growers will farm in multiple areas with differing restrictions. Rules for reviewing the purpose and value of a district will need to be established, as well as rules for modifying the district if a change is warranted. What constitutes justification for a modification? Actual market? Potential market? How much justification can be objective, and how much subjective argument will be allowed?
7. Voluntary coexistence is self-regulated for compliance and works well when mutual benefit is maintained. This coexistence is designed to meet competing market objectives, but without guaranteeing perfection. Government solutions to coexistence will likely lead to an expectation of financial protection from harm if success is not achieved to perfection.
8. Government-regulated coexistence is likely to trend toward a general approach. For example, in a control area that bans GE crops, would it be possible to secure permission to produce a GE crop that is self-pollinated or a GE hybrid in which the pollen parent is not GE and the seed parent is GE but male sterile?
9. Government restrictions are likely to remove one or more crop choices from growers who may have had a long history of producing a crop that becomes restricted. Many states have right-to-farm legislation that appears to protect growers from this outcome.
10. If farmers or citizens feel that government has overreached, what is the appeal process? What “experts” are called upon, those with agricultural experience or those who have ideological objections, suggestions, or demands?

11. Who pays for regulation? “User” fees will be very unpopular with growers who lose crop choices. The general public is unlikely to comprehend regulations and is likely to object to funding them through new taxes.

Unless ideological differences can be overcome with education, acceptance, tolerance, and a will to coexist, there will be ongoing political and legal battles in Oregon for years to come.

Speaker Profile: Greg Loberg holds degrees in agronomy from the University of Minnesota (BS 1977) and Iowa State University (MS 1979). In 2007 he joined West Coast Beet Seed Company. Previously he worked in sales and marketing of seed treatments with Gustafson and Bayer Crop Science and from 1981 through 1988 in a diversified vegetable and grass-seed production company in Oregon.