

To Representative Brad Witt
Chair-House Committee on Agriculture and Natural Resources
House of Representatives H-374
Oregon Legislature,
900 Court Street NE
Salem, OR 97301

Chair of Committee Hearing Testimony for House Bill 2427

Testimony

My name is Bob McReynolds. My address is; 1195 Clayton Way, Gladstone, OR, 97027. For the past 30 years I have served as an OSU Extension Agent with responsibility for extension programs for vegetable crop and specialty seed growers in the Willamette Valley, working out of the North Willamette Research and Extension Center in Aurora. Since retiring in 2010, I have been working half-time in the same position with the same responsibilities. My title is Associate Professor Emeritus, Horticulture/Extension.

Recently in a legislative committee hearing, Oregon Department of Agriculture Director Coba explained to the representatives that her justification for establishing the new rule permitting canola production in the Willamette Valley was based upon “co-existence”. I have tremendous respect for Director Coba. But, as an agricultural scientist, I was troubled by this justification. Coexistence is a social-political word. I believe it has little application as regards agricultural production systems. When I heard that justification, I realized that the sciences of biology, botany, plant pathology, weed management, entomology and in general, agro-ecology that were the basis for the previous rule prohibiting canola production had become subordinate to politics and no longer mattered.

As other academics from OSU have said, the political world is not my place. My comfort zone is dirt and mud, prickly plants, diseases, insects, weeds, solving production problems, field trials, and most importantly farmers, who complain about the weather, lack of labor and how much money they didn't make last year. Like many other folks in this room today, I have an extremely serious case of canola fatigue. Yet, here I am again, at another canola hearing. If the basis for HB2747 being approved or denied is just political, then nothing I have to say today will matter, because my testimony has little political substance.

Like many other agricultural scientists and agricultural professionals, I participated in numerous meetings with the ODA Agriculture director, division directors and staff that led to the 3 year prohibition rule. Although, the Dean of the College of Agriculture, Sonny Ramaswamy, did appoint official representatives from the Department of Crop and Soil Sciences to work with Director Coba on the new rule, unless I am mistaken, there was no official Department of Horticulture faculty asked to participate in those discussions. This concerned me because most of the commodities that will be impacted by this new rule are Horticultural.

When one has the opportunity to drive around the Willamette Valley, he cannot help but notice that it is surrounded on all sides by mountains. All the rivers that flow into the valley originate

in these mountains where winter temperatures prevent the survival of many species of weedy plants, plant pathogens, insects or other organisms that infest agricultural lands in the rest of the country. Wind blown seeds, pollen and fungal spore distribution is limited by these mountains. This isolation and the moderate, semi-Mediterranean weather, granted to it by its proximity to the Pacific Ocean make it uniquely suited for producing many crops.

Valley farmers have taken advantage of these characteristics to grow high value specialty crops. They have spent time and money developing their markets and have built successful profitable industries around their crops. The majority of crops grown in the valley are specialty crops. Processed and fresh market vegetables, clover seed, small fruits, hazelnuts, meadowfoam, grass seed, vineyards, nurseries, sugar beet seed and of course vegetable and flower seed are all high value specialty crops. With the exception of clover seed, grass seed, meadowfoam seed, flower and sugar beet seeds, all these are defined as horticultural crops.

All specialty crops share one thing in common. They must meet “quality standards” to be sold. There are USDA standards, industry standards or others required by the buyers of these products. The buyers of edible fruits, nuts and vegetables insist upon produce that has good cosmetic appeal (free from blemishes caused by insects or fungi). The buyers of nursery products insist upon disease and insect free plants, true-to-variety with good vigor. All seed crops, including grass, sugar beet, flowers and clover seed have quality standards. Some of those are; uniform seed size, high germination percentage, good seed vigor, true to variety type (for color, shape, size, days to maturity and others measures) all of which are determined by genetic purity, the critical factor. Additionally, seed must be free of foreign seed and foreign material.

There are costs to farmers to meet quality standards. These costs are for the fungicides, insecticides and herbicides, whether they be organic or inorganic, needed to protect the crops and ensure the harvested product meets the required standards. The ‘quantity’ factor, the yield per acre of these products is important as well, but if they cannot meet quality standards it does not matter how much they grow. High yields and poor quality just means they lose more money per acre. Consequently, the tolerance for damage from pathogens and insect pests is very low.

In contrast, quality is not an issue that would prevent oilseed canola from being sold for biofuel or other oil use. High yield or low yield, high oil content or low oil content, the crop will be sold. Oilseed canola is basically a ‘quantity’ crop. Volume is the goal and the tolerances for diseases or insect damage are much higher. Plant pests will be problems in oilseed canola, but there is less incentive to control them, because quality will not stop a sale. It’s this difference, quality vs quantity that renders co-existence an improbable achievement between high value specialty crops and oilseed canola. Indeed, if the justification for allowing oilseed canola in the valley is based upon co-existence, then one could assume that the high value crops grown in eastern and central Oregon cannot co-exist with oilseed canola, because it is still prohibited there.

All the plant pathogens and insects of oilseed canola, a Cruciferous brassica species, infect and infest all the other brassicas species grown in the valley for food or seed including weed species. Their pathogens, mostly fungi are; White mold (*Sclerotinia sclerotiorum*), Downy Mildew (*Peronospora Parasitica*), Clubroot (*Plasmodiophora brassicae*), *Alternaria* (*Alternaria*

Brassicaceae), Gray Mold (*Botrytis cinerea*), Root Rot (*Phytophthora megasperma*, *Rhizoctonia solani* and others), White Rust (*Albugo candida*), Blackleg (*Phoma lingam*), Black Rot (*Xanthomonas campestris*) and Black Root (*Aphanomyces raphani*). Club Root and White Mold are particularly troublesome, because they are documented to survive in soil for more than 5 years. White Mold and Root Rots also infect legumes such as snap beans and clover as well as the cucurbit crops, pumpkins, cucumbers and squashes. White mold survives in the soil as hardened pebble like structures called 'sclerotia' that can germinate years later when a susceptible host crop is planted. Some species of ryegrass have been reported as 'unaffected' hosts of Club Root and can serve as "green bridges" until susceptible brassica are planted again. The insects that are the most serious pests of brassica crops are the Cabbage Root Fly or Cabbage Maggot (*Delia radicum*), Flea Beetles and the Pollen Beetle.

In order to mitigate the impact of these pests, the specialty crop growers have no choice but to apply pest control products, either organic or synthetic. One brassica seed grower I recently spoke with said his per acre expenses for pest control averaged around \$380. That was for herbicides, 4 fungicide applications, maggot control, 4 insecticide applications and application costs of \$80. Although he did not want to apply all these products, he has learned through his years of farming that they are essential to achieve good yields of quality seed. Consistent quality means that the buyers will return to him for future business.

Some prospective oilseed canola growers have said they did not care about profit, but they just want it for the rotation benefits. If they are only trying to break even, then they have no incentive to apply crop protection products. Consequently with this new rule, we will have situations where some specialty seed growers will be spending between \$300 to \$400 per acre to control the very same pests that oilseed growers a few miles away will be feeding and breeding. There is no protection in the new canola rule for farmers raising brassica root or cole crops. They could wind up being fence-line neighbors to 25 acre reservoirs of their major pathogens and insect pests. This scenario is especially troublesome for organic growers who have so few effective pest control tools. The effort by the specialty crop growers to co-exist will require the application of even more pesticides.

There is no question that the pests I referenced will become established in oilseed canola. They have been documented around the world. They are already present in all brassicas grown in the valley, as the oilseed proponents have pointed out in earlier discussions. Many were found in the oilseed research fields conducted in 2009. Proponents argue that a few more thousand acres of canola will make little difference in their populations. They have been encouraged that pest populations in the research fields were low and did not seem to affect yields. However, this is the very point we should be concerned about. These pests will be present in fields where they can flourish in protected havens, but below critical treatment threshold levels. These increased populations will add more pressure on specialty crops in the valley.

Are oilseed growers who want to profit going to apply protective fungicides and insecticides to achieve higher yields? What pest threshold levels will trigger control applications? We really don't know. A research project conducted in North Dakota examined the impact of Sclerotinia White Mold on yields. The researcher concluded that the threshold between money loss and the cost a fungicide application was 17%. In other words the growers could tolerate yield reductions

of 17%, before a fungicide application would be economically beneficial. 17% would be an unacceptable loss to specialty crop growers.

(Citation- Impact of Sclerotinia Stem Rot on Yield of Canola. I.E. del Rio et al, Department of Plant Pathology, North Dakota State University, Fargo 58105. Plant Disease, February 2007. pp 191-194.

Prospective oilseed canola growers anticipate yields of around 1.5 tons/acre. Recent prices are around \$630/ton. So, gross returns will be around \$945/acre. Since the new rule stipulates that fields must be at least 25 acres in size, each crop could return \$23,635. Adding to the injury that oilseed canola will bring on neighboring growers with colonies of brassica pests they harbor, is the insult that these neighbors and the rest of us will be giving oilseed growers an additional \$3,750 for their crops in the form of a government offered tax credit (\$0.05/lb). So, while the neighbors spend \$9,500 (\$380/acre x 25acrest) to control pests in their 25 acre fields, the oilseed growers are receiving an extra \$3,750, further reducing the incentive for them to control pests on their farms.

Some might say I am just exaggerating the risk, because I work with specialty crop growers and therefore oppose oilseed canola. The following quote, lends support to my concern.

“Recently in Europe and parts of Asia, greater production of agricultural oilseed brassicas (mainly *B. napus*) [rapeseed] has increased the incidence of some brassica pests and pathogens on horticultural crops (Lamb, 1989). This situation is exacerbated as the economic threshold for damage caused by pests and pathogens on oilseed rape is higher than for horticultural brassicas, and therefore less control is used. Consequently, large pest or pathogen populations can develop in oilseed rape in the absence of control and then move en masse on to horticultural crops with devastating consequences. Overwintering oilseed rape (*B. napus*) provides a substantial ‘green bridge’ for Light Leaf Spot (*P. brassicae*) and in consequence it is the major foliar disease of that crop. In turn, rape provides a reservoir of infection that transfers on to vegetable brassicas and can cause appreciable losses of quality to leafy types”.

(2007 Crop Production Science in Horticulture publication #14, Vegetable Brassicas and Related Crucifers by GR Dixon from the School of Biological Sciences at Reading University in Reading, United Kingdom)

Another study conducted in Canada was designed to assess yield loss caused by Root Rot and Cabbage Maggot. I had to read this report more than once to be sure I was reading the results correctly. In reference to Cabbage Maggot damage per plant, the results showed oilseed canola can tolerate up to 32% damage per plant without any yield reduction. This is extremely alarming! Maggot populations would have to be very high to cause that much damage per plant. The tolerance for maggot damage in fresh market turnip, radish and rutabaga is zero! Those growers have suffered losses over the years of more than 50% of their crops! Now imagine if you can, if they were neighbors to a canola crop with cabbage maggot populations high enough to cause 30% damage per plant. What hope of co-existence do they have?

(Citation-Yield Loss Assessment in Canola: Effects of Brown Girdling Root Rot and Maggot Damage on Single Plant Yield. HW Klein-Gebbinck and DL Woods, Agriculture and Agri-food Canada, Beaverlodge Research Farm, Box 29, Beaverlodge, Alberta T0H 0C0).

Vegetable brassica and seed crop growers in the Willamette Valley know all too well the challenge of fighting Cabbage Maggot infestations. For most brassica crops there is only one product registered for maggot control. A new product was registered 4 years ago and there are already reports of resistance to it. Organic growers face an even more daunting task in controlling this pest. Researchers in the US and Canada, including me, have been trying for more than 20 years to identify products, synthetic and organic, that control CRF, but have had very little success.

After years of oilseed production in Canada, maggots have become one of the major pests of canola and controlling them is now a major research focus. A small cole crop production area in the Peace River region of Alberta was eliminated because of maggot infestations brought on by canola production. They were unable to co-exist with oilseed canola. Some will say that the thousands of acres grown there is not a fair comparison to the 2,500 acres allowed here. Adult maggot flies are attracted to all brassicas where they lay their eggs, feed, pupate and reproduce. There are 3 to 4 generations of maggots each season. Current controls are barely effective and now we will have 2500 acres of sanctuary for them; 2,500 acres of free food and a sheltered breeding ground. Sanctuaries, because there are no products registered for their control in oilseed canola. I repeat. There are no registered controls for cabbage maggot in oilseed canola. Am I exaggerating the risk?

From the agro-ecosystem point of view, although oilseed canola is a crop, it really is not an ideal rotation crop. It is a domesticated weed that retains the characteristics plants need to survive in competitive natural ecosystems. They are aggressive colonizers of open spaces. As I referenced, above it can survive and produce substantial amounts of seed with serious damage from many pathogens and pests. I have only reference a few. In fact, it can sustain infections from all the diseases I listed and still produce viable seed. Many of these pathogens can infect other species. Some can be seed borne or can survive in the soil for years.

Oilseed canola is ideally suited to become a weedy escape from production fields. The seed pods shatter easily resulting in a high percentage of seed being left in fields after harvest. The seed survives cold winters and can germinate years later when disking, plowing or cultivating brings them close to the soil surface. You can see from the sample I gave you that the seeds are like round hard little BBs. If dropped on the floor they will bounce, roll around and down slopes. They do not crush easily and travel well in boot-mud and mud caked tire treads. Their gray color makes them difficult to see, especially in natural environments (the green color is a fungicide treatment). They are good competitors in non-cultivated areas such as along roadsides and ditch-banks. In many areas they have become the dominant weed species along roads. Since the areas designated for canola are uphill and upstream from prohibited areas, given enough time we can expect canola weedy escapes will move downhill by soil erosion and water washing along roadsides. A good rotation crop is one that hosts few diseases and insects and is less likely to become a weedy escape.

Willamette Valley growers have been adept at developing profitable niche crops, establishing infrastructure, and developing markets since this valley was settled. It is world renown for many of its horticultural specialty products. It has the highest concentration and diversity of vegetable seed, sugar beet seed, grass seed, clover seed and flower seed crops per acre in the world. This little valley roughly 120 miles long and 40 miles wide is an agricultural power house when one considers the value added impact of its products. Our grass seed crops have become lawns, golf courses and soccer fields around the world. Specialty seed vegetable crops grown here are the source of sustenance for every country in the world. The valley is a magnet for the world's vegetable seed companies seeking safe places to grow their seed. Their confidence is inspired by the success of the Willamette Valley Specialty Seed Association. 20 to 30 member have companies have cooperated for over 30 years to ensure upwards of 15,000 acres of contracted seed are genetically pure.

Currently, we co-exist with English Ivy introduced to this country by homesick settlers. We co-exist with Himalayan (Armenian) black berry brambles that have all but taken over non-crop lands. We co-exist with Morninglory (Bindweed), another introduced species. When an 18 ton cement dock from the Japanese tsunami washed up on our coast, no time was wasted in cutting it up and cleaning off all the aquatic species attached to it. We did this to be sure that our coastal ecosystems and fisheries would not have to co-exist with potential invasive species. Yet with this domesticated weed we want to open up the door and invite it in.

What Canadian and North Dakotan farmers do best is grow more than a million of acres of oilseed canola. But, we do not look to them for specialty crops. They buy them from here. Those farmers have few crop options. Willamette Valley farmers have many very special ones. What Willamette Valley farmers do best is grow specialty crops, all kinds of them. Let's leave the canola crops in those other places and promote what we do best here, growing specialty crops. Let's not force our grower to co-exist with a crop whose downsides far outweigh any benefit it will bring to the valley.

Those who oppose HB 2427 will portray it as the beginning of restrictions on crop production. This argument is trite and sclerotic. Of course, everyone should be allowed to do as they wish on their farms, as long as there are no harmful consequences to their neighbors. Their neighbors are not just across the fence, they are everyone in the community. Their community is the farmers and families in the Willamette Valley. There are harmful consequences to growing oilseed canola this community. Co-existence will not work.

Leadership to pass HB2427 must have the vision to recognize that the agricultural economic foundation of the Willamette Valley is its specialty crops. This bill acknowledges that and strengthens it. It offers a marketing advantage for all crops grown here. That not only helps farmers, but builds strong communities by providing jobs for its citizens. I strongly urge you to pass HB 2427.

Sincerely,

Bob McReynolds