Written testimony about HB 4059 to Senate Committee on Natural Resources & Wildfire

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Chair Golden, Vice Chair Girod and Members of the Committee:

My name is Jim Myers and I hold the Baggett-Frazier Endowed Professorship of Vegetable Breeding and Genetics in the Department of Horticulture at Oregon State University. I have more than 25 years' experience in growing and breeding Brassica vegetable crops in the Willamette Valley. I became involved with the canola issue in 2006 when I published a white paper on growing canola in the Willamette Valley (Myers, 2006). I also have substantial expertise on genetic engineering of crop plants that began 40 years ago when I was a postdoctoral scholar in a laboratory that routinely transformed tobacco and was conducting some of the original research on soybean transformation. I have also been a member of ODA's working group on SB789 over the past year. My testimony represents my personal views and is not necessarily the opinion of Oregon State University.

In regard to this bill, I want to provide my perspective on the genetic engineering (GE) aspect of canola. In my mind, there are unsettled questions about GMO canola. Because of specialty Brassica crop seed's high value per acre and relatively small footprint, loss of a crop due to seed contamination can be financially devastating. Specialty crop Brassica seed is often tested for GMO adventitious presence. Seed lots may be tested by the contracting seed company as well as by buyers in organic and overseas markets, who reject seed lots that show contaminants. The question of whether to allow GE canola, and if so, setting isolation distances that are greater than for conventional canola reflects a combination of understanding the reproductive biology of various crops along with determining what is an acceptable level of risk by specialty seed growers. *The stakes are high for the specialty seed industry and the risk of contamination by GE canola is one variable in the risk equation that can be controlled.*

As an example of the potential for harm to specialty seeds from GE canola, Dr. Michael Quinn crossed GE canola (*Brassica napus*) and *B. rapa* vegetable varieties by hand as reported in his Ph.D. dissertation (2010) at OSU. These crosses produced some viable hybrid seed, but the majority of seeds were shriveled and inviable. Most concerning, he was able detect the glyphosate transgene even in the shriveled and non-viable seed. *If this happened in a commercial field, a Brassica vegetable seed lot could be rejected for GE adventitious presence even though no viable GE offspring would be found.* In an analogous situation, a wheat shipment to Thailand was rejected for GE adventitious presence (Anon. 1999) even though no commercial GE wheat varieties were available at that time. It is thought that residue from a previous lot of GE corn in the same shipping container was the source of contamination.

The Brassica genus is notorious for species that can escape cultivation. Dr. Mallory-Smith et al. (2017) found little evidence of weedy persistence of canola, but others have found a high degree of weediness (Munier et al., 2012; Travers et al., 2023). *Roundup resistant GE canola was documented growing along roadways in California where a university plot combine was transferred between research locations and where the highway department sprayed roadsides with Roundup herbicide* (Munier et al., 2012). When transported from the harvest site back to the research station, residual seed in the combine was deposited along the roadways. This seed from GE cultivars produced plants resistant to roundup that persisted and flourished when all other roadside vegetation died from the herbicide application.

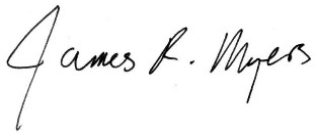
GE plants are biological organisms that "want" to live and consequently, will find unanticipated ways to reproduce. Many inadvertent releases around the globe have been documented (Price & Cotter, 2014) and Oregon has seen its share, from GE wheat found in fields in Eastern Oregon, to the escape of GE bent grass in the Warm Springs area, to the mixing of GE sugar beet stecklings in compost that was distributed in the Willamette Valley. GE canola is no different biologically from other GE crops and may present greater risk because of its ability to go feral and to outcross with other feral Brassica species populations. A recent review documented 23 cases of the unintentional release of *B. napus* into the environment around the world (Sohn et al., 2021). Two of these cases were documented in the U.S.

GMO issues also spill over into non-GE canola. Only 5% of canola grown in the US today is non-GE (FDA, 2022). In Canada in the early 2000s, 33% of conventional seed lots in one study (Friesen et al., 2003), and 18% in another study (Downey and Beckie, 2002) had the GE contaminants at levels above off-type threshold of 0.25%. *There are no recent studies to determine what levels of GE off-types are present in contemporary US seed lots of conventional canola.* Until we know this, *I would recommend testing conventional canola seed lots for GE presence (specifically herbicide resistance transgenes) prior to planting unless they come with a seed certification tag that attests to GE contaminants being below the threshold allowed for off-types and other varieties.* The current standard in Oregon in canola is 1.5 other varieties or off-types in 10,000 (Oregon Seed Certification Service, 2024). Tests should be performed by an accredited seed laboratory using an appropriate PCR test.

GMOs are revolutionizing the way that we breed plants. But they are controversial because of their potential to impact and alter societies. Controversies have included issues such as food safety, ecological risks, seed consolidation and ownership and philosophical values. For the most part, I would agree with those who say GMOs are safe for human consumption and may increase productivity for growers in certain production systems. Depending on the trait and how they are deployed, they can carry ecological risks. Who owns seed and the consolidation of seed companies has largely been driven by the use of intellectual property protection for the investments in GMOs made by seed companies, but this has led to a reduction in genetic diversity and increased genetic vulnerability of our agricultural systems.

An important piece that is often left out of the GMO debate but is relevant to canola, is that of values. There are groups who reject GMOs because they do not fit within their philosophical paradigm. As a case in point, organic agriculture is one of the few agricultural systems that has philosophical underpinnings, and it has a set of values that considers GE to be incompatible with organic agriculture. *The values that underpin organic production and demand are no less important than those expressed by other members of the agricultural community*.

Thank you,



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