

GLYPHOSATE RESISTANT WEEDS: PREPARE FOR THE INNEVITABLE!

Here in Ontario we have embraced the use of glyphosate chemistry for over thirty years as a remedial solution to “clean up“ dirty perennial weed problems in crop production. Since the late 1990 ‘s round-up ready soybean seed has been commercially available and in 2000 seed corn followed suit .These technological advancements allowed farmers to use glyphosate products as a primary production system when it came to choosing their herbicide programs. It is good science, but along with it there are protocols which must be adhered to in order that we retain this technology. The old saying that “history repeats itself “ can be exemplified by the over- use of triazine products throughout the 1960 ‘s and 1970 ‘ s and ultimately led to the buildup of weed resistance to these chemicals .

In 2008 over 60 % of Ontario soybean acreage was planted to glyphosate tolerant varieties and the simplicity and ease of management will only lead to further increases in these acres. With corn about 55 % of all acreage in 2008 was planted with glyphosate tolerant corn hybrids.

One of the first cases of glyphosate resistance was documented in 1996 in Australia with a weed called “Rigid Ryegrass “. Since that time, eight resistant species have emerged in all of the agriculturally developed countries throughout the world.

Closer to us in Ontario, resistance has increased in the U.S. from nine to fifteen states in a matter of only two years. Currently in Saskatchewan, Canada Fleabane is being tested to confirm resistance. Researchers suspect that in Ontario and eastern Canada we will accelerate the process because both glyphosate resistant corn and soybeans grown in sequence will allow weeds to mutate quicker simply because of continual use of the same chemical compounds .

Recent research at the University of Guelph is showing a relationship between soil nitrogen levels and the effectiveness of glyphosate on certain species of weeds. Scientists have seen a correlation to better control of weeds where soil N levels were higher in plots and poorer control in those areas where nitrogen levels were low. One theory to this is that due to less carbon being assimilated in areas with low N causes a decrease in the phloem movement and therefore decreasing the movement of herbicide from the foliage down to the root system.

One of the considerations we must face is that we have little to no new chemistry coming to our rescue in the near future that allows us the flexibility as glyphosate. With this in mind, we need to plan and exercise some production practices in order to slow down the pace of weed resistance. The Ontario Weed Committee, comprised of industry researchers and scientists suggest that one of the best things to do is to scout your crops. This will allow farmers to identify the weed species, the changes in their populations and choose the

correct product to apply at the right time!

Other strategies to follow when using glyphosate should include tank- mixing other products (providing the tank mix is registered) which allows a wider spectrum of weed control.

When considering a pre-plant burndown , look at other products with different modes of action rather using glyphosate twice or even three times in a season.

Another potential reason for resistance is the use of lower than label rates , which reduces the concentration of herbicide and effectiveness and allowing a tiny portion of the weeds to produce resistant seeds .For this reason please stick to label rates and also water volume directions .Most glyphosate products should be sprayed using only 5 – 10 gallons of water per acre or 50 – 100 litres per hectare . Too much water dilutes the chemical and may cause antagonism of the salt component in the herbicide.

By following these few simple suggestions in our farming practices , we will likely not avoid the glyphosate resistance problem but rather slow the pace at which it is spreading and be better prepared to deal with it when it does happen.