



Weed Shifts and Herbicide Resistance

By Robert Moloney, CCA-ON

So, you have a weed in your field that has always been controlled by the traditional herbicide but not this year? Weather conditions were perfect. This seems to be the only weed that isn't controlled. So you must have a resistant weed in your field right? Maybe. Another possibility is that it's not the weed you think it is and this new weed may not be well controlled by the herbicide you have been using. Many of the newer herbicides we use today are much more specific in their range of target weeds compared to older products like atrazine.

One of the most obvious examples of a weed shift is the increased levels of crabgrass and yellow foxtail in corn fields since the introduction of the post-emergent sulfonyleurea urea herbicides (i.e. Accent, Ultim). These products are not strong on these weeds and it has allowed them to build up. It may not be obvious that these are the weeds that have escaped if you don't look at them closely or you don't know the differences between the various annual grasses. If you aren't sure, contact a Certified Crop Adviser in your area and they can help you determine what you have.

The increased levels of crabgrass and yellow foxtail aren't due to development of resistance, but are due to the limitation of this particular chemistry on these weeds. However, the increase in populations of these weeds occurs in a similar way to the development of new resistance. The naturally tolerant weeds are selected for since they are not well controlled in the same way a weed that has just developed resistance is selected for.

Some other examples of weeds that have become increasingly problematic are lady's-thumb and wild buckwheat in areas where cereals are grown extensively and where 2,4-D and MCPA are the primary herbicides used. Levels of field violet are increasing in some areas where reduced tillage is being used since glyphosates (Roundup, Touchdown) are less effective on it. Mustards can increase if Banvel or Distinct are used regularly with no atrazine tankmixed with them.

Herbicides are not the only thing that can cause a shift in your weed spectrum.

Reduced tillage and long term no-till can also facilitate weed shifts. Dandelion and

fleabane show up in no-till fields since they like habitats with less disturbance (i.e. no tillage to break up the root systems).

So how do you avoid these shifts in weeds?

The easy way is keep your weeds guessing. Change to herbicides with a different mode of action each year if possible and where you can use two or more herbicides with overlapping activity. In corn fields, one option is to use a broad spectrum herbicide like atrazine tank-mixed with your normal herbicide (check Publication 75 for registered tank-mixes and rates) to control some of the "oddball" weeds that may build up in your field over time. Use tillage occasionally to reduce the population of weeds that don't like disturbed environments. And finally, practice a good crop rotation. This will not only give you more options for changing herbicides but you also tend to spray at different times with each varying crop which will help control weeds emerging at different times of the year.



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