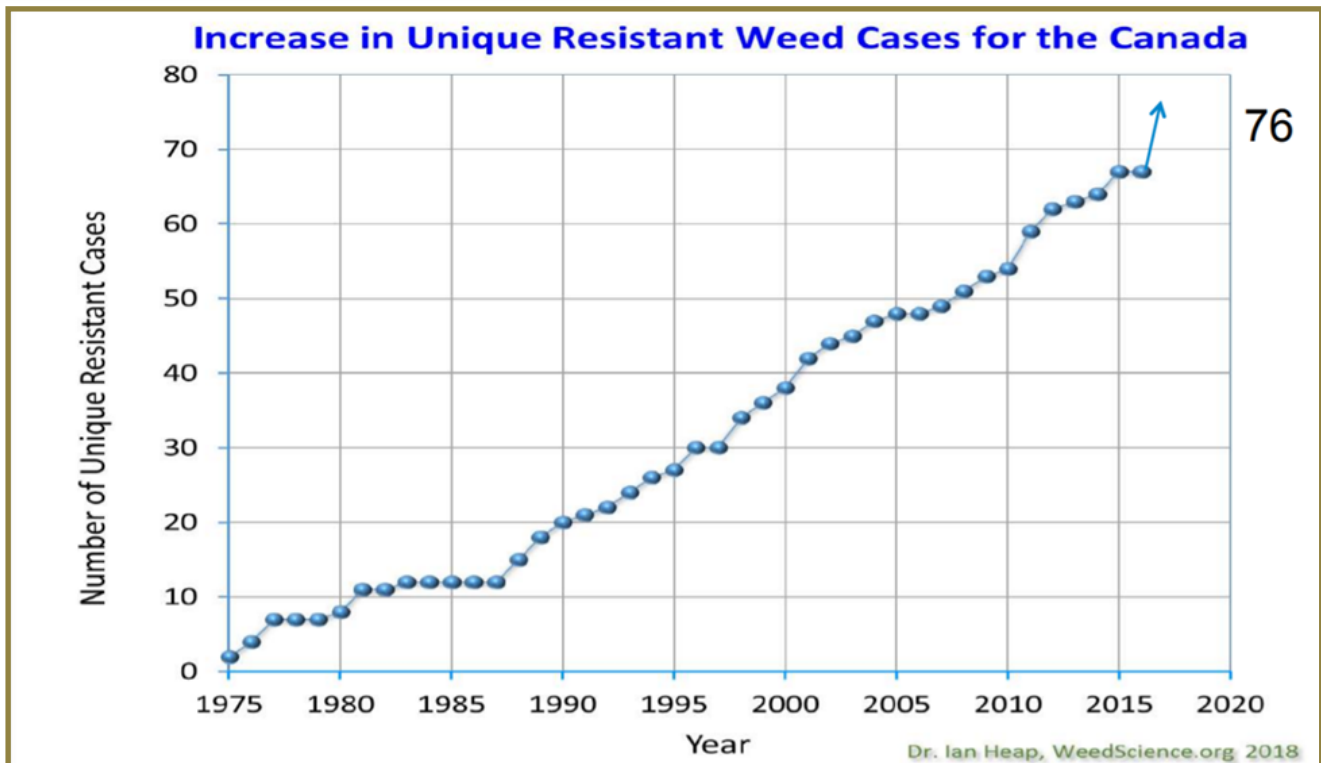




HERBICIDE RESISTANCE AND YOUR SPRAYER

If you farm in east central Alberta, you most likely already have some experience in dealing with herbicide resistant weeds. Resistance is a real and rapidly growing problem on most of our farms. The list of weeds showing herbicide resistance has skyrocketed since 1985 when kochia resistance to a sulfonylurea herbicide (Glean) was widely seen for the first time.



Coincidentally (or not), 1982 represents the last year any herbicide with novel chemistry was registered for use in Western Canada. Since then we have had a repackaging and remixing of combinations of previously existing chemistries, but nothing new. And there is nothing new in the pipeline either that I am aware of. I can't remember where I first heard it, but whoever said "we are not going to spray our way out of resistance" certainly knew what they were talking about.



When we think of resistance, we generally think about the genetic type. This is where a herbicide has either a single site of activity in the weed's metabolic pathway or at least a limited number of sites where it affects the plant; once you have a population of target weeds that can block that pathway, you have resistance. However, there is another way to develop resistance. And where **how** you spray, and not just **what** you spray has a major impact on how quickly it develops.

We may not be able to stop the development of resistance, but we can slow it down. And one of the ways to do that is to ensure that we have consistent applications of effective rates of herbicides. Applying "sub-lethal" doses of herbicide

repeatedly to the same places in the field can easily lead to a weed population that can tolerate higher and higher doses of the herbicide. For example, studies on Palmer Amaranth where lower than recommended rates of herbicide were applied show that in as little as 3 generations, the amount of product needed to control the weeds can triple. So those places in the field where we turn in the same spot year after year; putting more than 2X the amount recommended at the end of the inside boom and about 60% of the recommended amount at the end of the outside boom, can lead to a population of weeds that are no longer controlled by the recommended rates. This is the exact scenario that a system like John Deere's ExactApply™ is designed to address. However, remember that there are limits. Even with ExactApply™, if you go into those corners or turns at more than 9 mph the nozzles can't compensate totally and you can still end up with more variation in spray volumes along the length of the boom than you think you are getting.

The example above is just one instance of poor coverage causing issues with herbicide dosage. Proper coverage can also be an issue when you are spraying into a heavy, advanced canopy, when boom instability interferes with the spray pattern, or when the turbulence caused by the machines' design disrupts the spray pattern. More bad news for the speed demons out there; the turbulence gets worse the faster you go! As a user of herbicides, what you can do to slow down resistance on your farm is to recognize that there are practices that can lead to uneven applications which increase the speed with which those resistant weeds can get a foothold on your fields. Once you understand what those practices are, you can take steps to cut them out of your operation. For a much better and more thorough discussion of the subject, follow the link below to Tom Wolf's excellent website called Sprayers 101. If you don't already have this site bookmarked, you should. It is an excellent source of high quality information available at absolutely no charge!

<https://sprayers101.com/reducing-selection-pressure-for-herbicide-resistance/>

WAYNE SPURRILL, P. AG AGRONOMIST

WSPURRILL@BRILTD.COM

CELL 780 781-1616

OFFICE 780 672-4463



1 877 913-3373

