

Canola Bits

Bringing Canola Rotation to Winter Wheat Producers

Mark Boyles & Heath Sanders

Oklahoma State University

In cooperation with the Great Plains Canola Association

Herbicide Resistant Ryegrass in Oklahoma Wheat

At the recent Weed Science Society of America meeting we heard about herbicide resistant ryegrass problems in wheat fields in North Carolina, Virginia, Kentucky, Arkansas, Tennessee, and Mississippi. Then, it was our turn to report that we too had found widespread herbicide resistance in the ryegrass growing all across OK.

The question we often get is how did this come about? The answer is simply genetic variation and selection pressure. Genetic variation in livestock is why cattlemen pay good money for the right bull or a nice heifer. We don't often think about plants that way, but genetic variation is the source of new crop varieties and in a general sense it is the key to allowing any living species to overcome difficulties and continue to reproduce and survive.

So, when a herbicide is applied, it is expected to kill almost all of the weeds. If it didn't kill most of the weeds, it wouldn't be used. But sooner or later, one plant will be able to survive, and then it increases rapidly since it has all the resources to itself. As soon as it produces enough plants, the farmer recognizes that the herbicide that used to work doesn't work anymore. He then has a herbicide resistant weed problem. The next question is what do we do to avoid this problem here? The answers are simple, rotate crops and use herbicides with different modes of action. For over 25 years Oklahoma wheat growers have relied on herbicides such as Finesse, Glean, Osprey, Maverick, and Olympus Flex and others that inhibit one enzyme (called the ALS enzyme). It is not surprising that some weeds, including ryegrass are now showing resistance to these herbicides. So, it is not a time to panic, but it is a time to realize that we have to rotate herbicides so that we use herbicides with different modes of action, rotate crops if necessary to let us use different herbicides, and not adopt cultural practices that force us to rely completely on herbicides for weed control.

In response to questions from wheat growers who said that they could not control the ryegrass in their wheat fields with the herbicides they were using, Dr. Tom Peeper at the Department of Plant and Soil Science at Oklahoma State University decided to evaluate the ability of several herbicides to control ryegrass collected from 23 counties in NE, NW, and SW Oklahoma. During June 2008 they obtained ryegrass seed samples from 100 locations. The collected ryegrass plus seed of two ryegrass varieties purchased locally were planted on the Cimarron Valley Research Station in September 2008. Nine herbicides were applied at labeled rates with appropriate additives at the optimum time for each herbicide. The results explained why many wheat growers are having difficulty controlling ryegrass. The majority of the ryegrass samples demonstrated resistance to all three ALS inhibiting herbicides (Group 2 mode of action) that were evaluated. These included Finesse applied immediately after planting at 1/2 oz/A followed by an activating rainfall, and the recommended rate of Osprey and PowerFlex applied post emergence to young actively growing ryegrass. These results suggest that about 7 out of 10 fields have ryegrass that will not be effectively controlled by those herbicides and probably would not be controlled by other Group 2 herbicides such as Amber, Glean, Ally, OlympusFlex, Beyond, and Clearmax.

However, the ryegrass in the remaining samples, plus the locally purchased seed (one used for forage and one for turf) was still highly susceptible to the Finesse, Osprey, and PowerFlex.

One troublesome change in winter wheat has been the large increase in winter annual grassy weed species, including wild oats, jointed goatgrass, herbicide resistant ryegrass, cheat, rescuegrass, and rye. First, it is important to know which grassy weeds you have in your wheat field. If you have questions, carefully dig up the plants, and try to keep the remains of the seed with the roots, and take it to your OSU County Extension Office or your local Certified Crop Advisor for identification. Remember that ryegrass has shiny leaves compared to wheat or other grassy weeds.

If the herbicide that you have been using for ryegrass control is still working well for you, then you may have no reason to switch to another herbicide.

If the herbicide you have been using for ryegrass control has not been as effective as you wanted, then it is probably time to switch to a herbicide with a different mode of action.

Fortunately, none of the field collected ryegrass samples demonstrated resistance to Axial XL or Hoelon, which are both ACCase and Group 1 mode of action herbicides. These two products have not been extensively used in the past because they provide excellent control of ryegrass but no control of cheat or broadleaf weeds. This means that the commonly used grass and broadleaf products used (Finesse, Osprey, Olympus Flex and PowerFlex that ryegrass has become resistant to will have to be tanked mixed with Hoelon or Axial. This will in general double the cost of herbicides in continuous winter wheat. We were also pleased to see that none of the ryegrass samples demonstrated resistance to Assure II, Select, or Roundup. Therefore, a rotation to winter canola will enable growers to control resistant ryegrass before going back to winter wheat.

Consider crop rotation, either to a summer crop or to winter canola. Rotating to a summer crop will allow you to use tillage in the winter to kill the ryegrass. Rotating to winter crops usually gives a better chance of success in Oklahoma. Therefore, winter canola is an excellent option for cleaning up fields infested with resistant ryegrass and other grassy difficult weeds.

As herbicide resistant weeds have increased many suggestions have been made on how to manage them. No suggestion has been completely successful and some are not practical. Your best resistance management strategy is developing a crop rotation with winter wheat. One of the best rotations with wheat is with winter canola one out of three or four years. All of the currently used herbicides in winter canola still control ALS resistant ryegrass.

Canola Tailgate Talk from Oklahoma State University Extension:

Winter canola fields in Oklahoma and southern Kansas have greened up and plants have begun to grow. Newer improved varieties have shown much more winter hardiness and canola plant survival. This is especially noticeable with the later planted canola with small plants.

As rising temperatures and lengthening daylight initiate bud formation, a cluster of flower buds becomes visible at the center of the rosette and rises as the stem rapidly bolts or lengthens. Leaves attached to the main stem unfold, and the cluster of flower buds enlarges as the main stem elongates. Winter canola should be near or approaching bolting at this time, depending on variety and location

The main stem reaches 30 to 60 percent of its maximum length prior to flowering. Maximum leaf area is achieved at the start of flowering and begins to decline with the loss of bottom leaves. Upper leaves are the major sites of photosynthesis necessary to provide nutrients for the growth of stems and buds. Rapid development and growth of a large leaf area strongly influences pod set, early seed development, and potential yield.

All herbicide applications should be made prior to bolting to avoid yield loss. If making late herbicide applications try to avoid using big floater sprayers if possible and use a narrow track or row crop sprayer. Canola in the tracks will have delayed maturity which causes a lack of uniformity across the field.

As flowering begins, continue to monitor fields for cabbage aphids, they tend to colonize the terminal buds. Cabbage aphids will have a gray and fuzzy appearance and will be in the canola plants inflorescence.

It is never too early to be thinking about how you are going to successfully harvest your canola crop. If you need to, start making contacts with custom operators or canola producers that might be willing to do some custom work along with their own farming operation.

Canola Equipment Digest:

OSU is providing a free contact point for people that have equipment useful to canola growers that is for sale or lease. This includes seeding equipment, draper type swathers, pushers, combine pickup heads, and direct harvesting equipment. We will also list growers and companies offering custom planting, swathing, and harvesting, consulting or new farm equipment. The information will be listed on the Oklahoma State University web site www.canola.okstate.edu. If you have something to list or that you are looking for, something you want to sell or a custom service you can provide in your area send an e-mail to mark.boyles@okstate.edu. Please include description, general location, phone and e-mail address. We will not be listing prices or any advertizing. The objective of this project is to assist growers in locating the custom services they would like to have or the equipment they are looking for.

For more information on winter Canola visit these web sites:

<http://greatplainscanola.com/> Subscribe to online GPCA newsletter.

<http://www.canola.okstate.edu>

<http://uscanola.com/>

Or Contact your local OSU or KSU County Extension Office