

Rotate herbicides to help control triazine resistant weeds

CHICAGO — A farmer applies atrazine preemergence, comes back with an early atrazine and crop oil treatment, and still has pigweed come through in his corn. Chances are very good that he's dealing with a weed which has developed a resistance to triazine herbicides.

More than 15 weeds have been identified by weed scientists across the country as having developed resistance to triazines, according to Ron Ritter, University of Maryland Extension weed control specialist. The triazine family includes atrazine, Princep (simazine), Bladex (cyanazine), and the asymmetrical triazines Sencor and Lexone (metribusin). When a weed develops resistance to one of these compounds, it's apparently resistant to all of the triazines, Ritter says.

Ritter points out that problems so far are not considered widespread. Pigweed and lambsquarters are the two weeds most often involved so far in the Northeast, he says, and work in 1983 suggests that velvetleaf may also be developing resistance.

Washington state nurserymen were the first to suspect that weeds were gaining resistance to triazines, Ritter says. Nurserymen were continually using Princep for controlling weeds in their conifer plantations, and eventually, the broadleaf weed groundsel was not being controlled by the herbicide.

It was in the mid to latter 1970's that pockets of triazine resistant weeds became recognized in the Northeast, Ritter says. Several factors are involved in their development and spread.

"We've found that resistance develops primarily in no-till areas where growers are not using crop rotations and are continually using triazine herbicides," Ritter says. "The growers often are not controlling their escapes with cultivation or postemergence herbicides."

In end rows

Ritter says the farms are usually dairy operations where corn is continually grown and manure is spread on the land. Resistant weeds often first appear in end rows and along the edges of a field, the specialist says, and from there are spread to other areas of the field and the farm by harvest equipment and through spreading manure.

"It's difficult to verify the existence of triazine resistant weeds on your farm," Ritter says. "However, if the triazine herbicides are giving poor weed control you should be aware that the potential exists."

Ritter feels that the triazine resistance situation demonstrates the need for rotating both crops and herbicides. Herbicides from the same chemical family should not be used year after year, and escape weeds should be controlled with cultivation and/or

postemergence herbicides.

How to handle

Once there is a problem with a resistant weed, however, it can be handled. Ritter says both Banvel herbicide and 2,4-D will control pigweed or lambsquarters and are usually the most costeffective.

"Our success in handling these problems has been to come back with Banvel," Ritter says. "Farmers are looking for an economical herbicide program, particularly this year, and one option is to use an inexpensive

triazine preemergence and then follow with Banvel."

Banvel is labeled at a full pint per acre rate as an overlay to a grass herbicide when corn is from spike to five inches tall. Or it can be used at 1/2 pint per acre after corn exceeds five inches in height.

Triazine resistance is genetically passed on from resistant plants through seed, Ritter says. While the resistance concept has been proven in the triazines, Ritter finds it interesting that genetic resistance is not

showing up with some other herbicide groups.

"The oldest herbicide on the market which has been so widely used is 2,4-D," he says, "but we see little evidence of resistance problems with it." However, scientists are also now working on problems with some herbicide groups being broken down rapidly in the soil by microbial action.

Herbicide rotation — not using compounds from the same chemical family year after year — may be the best prevention at the present time.

Soybean oil is crop adjuvant

ST. LOUIS, Mo. — Soybean oil continues to be a good and legal choice for use as a pesticide adjuvant, according to Larry Beauregard, Associate Director of Soy Oil Programs for the American Soybean Association.

"A recent ruling by the Environment Protection Agency (EPA) which restricts the use of non-labeled materials as pesticide diluents has caused some confusion," says Beauregard. "But this ruling doesn't apply to vegetable oils used as crop adjuvants."

He explains that adjuvants and diluents are not used the same way in pesticides.

"An adjuvant, often referred to as a crop oil concentrate, is a

material added to a pesticide mixture to improve the pesticide's performance. It modifies characteristics such as spreadability or droplet size.

"A diluent, often referred to as a carrier, is a material used to dilute a concentrated pesticide to field use strength."

The EPA policy ruled that diluents must be labeled for a specific pesticide to be used legally. If a pesticide does not specify a diluent, water must be used. The policy clearly states that

the ruling does not apply to additives, adjuvants or surfactants.

Beauregard says that if farmers understand the policy's restrictions, there should be only limited effect on soybean oil's use as a crop spray, since most farmers use soybean oil as a crop oil or adjuvant.

Beauregard predicts that in response to the EPA ruling, manufacturers of pesticides for ULV applications will apply for labeling to legally clear soybeans oil's use as a diluent.



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