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Key to holding off volunteer crops is early treatment

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By Loretta Sorensen, Midwest Producer | 0 comments



Volunteer corn is now considered one of Nebraska's top 10 weeds. University of Nebraska-Lincoln Extension Weed Management Specialist Amit Jhala said 2012 drought conditions have probably made volunteer corn issues an even greater problem in the 2013 growing season.

"Due to the drought, last year corn plants weren't very well established in dry land areas," Jhala said. "In September we saw two days of 30- to 40-mile-per-hour winds. That created a lodging condition of corn in many fields in Nebraska. Some growers harvested only a partial crop or none of the corn in those fields. I expect that will increase the density of volunteer corn in 2013."

Volunteer corn plants cause problems in both soybean and corn fields. Corn in soybean fields will be most visible by late June or early July because of late planting conditions this year. If corn volunteers are treated when plants are 6- to 8-inches tall, the impact on soybean yield can be greatly reduced.

"Grass herbicides such as Assure-II, Poast Plus, Select Max and Fusilade can be used in soybeans," Jhala said. "Some herbicides such as Select Max can be applied at a 6-ounce per acre rate if volunteer corn is 12-inches tall. Twenty-four inch plants can be treated at 9-ounces per acre and plants that reach a height of 36 inches should be treated with 12-ounces per acre of Select Max."

Studies have shown that when volunteer corn density in a soybean field reaches 0.5 to 16 plants per square meter, yield reductions range from 10 percent to 41 percent. When volunteer corn is allowed to compete with a soybean crop for an entire season at a density of 5,000 volunteers per acre, soybean yield can be reduced by at least 20 percent.

"A study in Nebraska reported that volunteer corn density of 3,500 and 7,000 plants per acre reduced soybean yield by 10 percent and 27 percent

Volunteer crops

Volunteer crops are never good. Unlike most soybeans that don't end up in the combine bin, this soybean survived winter and is growing in a field planted in corn this year. (Midwest Producer)

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yield by 1 percent for every 75-115 clumps per acre."

Corn seeds lost during harvest and during transportation of harvested grain easily survives winter conditions. Volunteer soybeans are much less of a problem because the seed isn't likely to survive over winter. Moreover, if some soybeans survive overwinter and emerge in early spring, there are several herbicide options for control of volunteer soybeans in corn.

One of the biggest management challenges growers face in dealing with volunteer corn is the fact that, currently, no pre-emergence herbicide can effectively control corn volunteers in soybeans. Corn volunteers in soy could also increase likelihood of an intense Western and Northern corn rootworm infestation for the following year's corn crop.

"These rootworms are very destructive to corn plants," Jhala said. "The rootworm can survive over winter in the root system of volunteer corn plants. Their presence would add to rootworm infestation if corn is planted after soybeans."

According to a 2011 University of Minnesota Extension study, low levels of volunteer corn plants in a corn field don't significantly impact yield. Volunteer plants generally emerge after the corn hybrid and are often one to six leaf collar stages behind the hybrid. Volunteer plants don't usually produce an ear. If they do, the size and quality of the ear is very poor.

Corn volunteers in soybeans can be controlled with herbicide applications. The key to successful control is treating them at the earliest possible growth stage. Corn volunteers in corn fields pose an additional challenge. Because most corn hybrids contain at least one herbicide resistant trait, glyphosate won't control volunteer corn. Glufosinate (Liberty) may partially control glyphosate-resistant volunteer corn in a stacked (glyphosate and glufosinate) resistant corn.

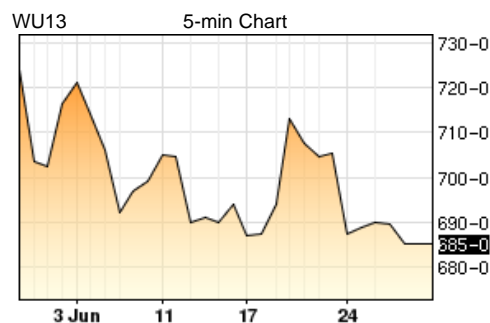
"Grass herbicides can't be used in-crop in a hybrid corn field for control of volunteer corn," Jhala said. "So, if the volunteer corn pressure is extremely high, consider planting soybean versus corn because soybean has better in-crop herbicide options. There isn't a lot of current research to find a solution to managing corn volunteers in corn. I'm working on a research project funded by the USDA to study the impact of volunteer corn density on soybean yield, the presence of corn rootworm and plant disease. Having a more complete understanding of the interaction between volunteer corn density, removal timing, and corn rootworm behavior will be important in documenting all the risks of volunteer corn.

"One of the objectives of that study is to determine the effectiveness of pre and post soybean herbicides for control of glyphosate, glufosinate and imidazolinone-resistant corn volunteers," Jhala added. "We're also examining the dose response of selected grass herbicides to glyphosate resistant corn volunteers."

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respectively," Jhala said. "A clump of volunteer corn plants can reduce yield to an even greater degree because corn plants are so competitive. Studies in Minnesota and Illinois found that small clumps of corn with 7 to 10 plants per clump could reduce soybean



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