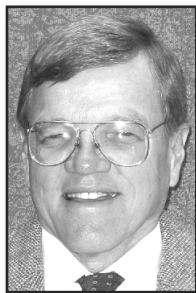


Strategies For Controlling Volunteer Corn And Wheat



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Current co-mbines are efficient, but not perfect. It is not unusual to leave some crop seed in the field resulting in volunteer plants. Volunteer corn and wheat are examples that often occur in Kentucky. We tend to overlook these as being a serious threat to wheat, yet there are cases where growers may need to control them.

VOLUNTEER CORN: Last season there were many fields that appeared almost solid green with volunteer plants after corn harvest. Part of this may be attributed to the stress of last summer's dry weather which limited kernel size and allowed more seed to pass through the combine. Improper adjustment of combines may be another reason for greater than normal seed loss. Even though 2 percent is considered acceptable loss, this could leave a substantial amount of corn seed for fields averaging 200 or more bu/A.

There is some debate whether volunteer corn is a threat to wheat. One viewpoint is that volunteer plants will eventually be killed from fall's freezing temperatures before they can impact wheat. Another opinion is that early-season competition from volunteer corn will impact growth and yield of wheat.

Limited research this past season showed 11 percent lower heat yield if volunteer corn was not controlled. It is not clear if this trend in yield loss will hold true for every case, but it does show significant economic losses can occur from volunteer corn competition.

The germination pattern of volunteer corn may be uniform or sporadic, depending on a number of factors, including duration and pattern of rainfall following harvest. Volunteer corn at UKREC germinated uniformly last season due to the rainfall over a six-day period soon after corn harvest and a three-day period approximately two weeks later. The development of volunteer corn was fairly uniform and ranged from 6 to 8½ inches tall at the time of planting wheat in mid October. Sporadic germination patterns that are associated with irregular rainfall may make it difficult to determine the optimum time for controlling volunteer corn. It is possible that implementing control options well ahead of wheat planting will allow for escapes if seed germination is extended over a long period.

The options for managing volunteer corn include tillage or a foliar applied herbicide. Tillage provides immediate results, but may increase the risk of soil erosion and more time relative to using burndown herbicides. While tillage will destroy emerged volunteer corn plants, it may stimulate germination of any remaining seeds that were incorporated in the soil during the tillage process.

Glyphosate controls volunteer corn providing plants do not originate from corn with the 'glyphosate-tolerant' or Roundup Ready trait. The fact a significant number of Kentucky's corn acres are The fact a significant number of Kentucky's corn acres are planted to glyphosate-tolerant hybrids limits the opportunity to use glyphosate. Glyphosate usually requires 7 or more days to kill plants; consequently, it may not be the right choice if

immediate control is needed.

Paraquat provides rapid control of vegetation; therefore, it may be preferred over glyphosate if speed of control is desired. Paraquat helps manage volunteers with GMO traits, including glyphosate-tolerant corn. Paraquat alone tends to be inconsistent in controlling corn that originates from seed that were planted or incorporated in soil. We have seen this when we try to kill corn for replant situations in the spring. However, limited research last fall showed at least 95 percent control for corn plants from seeds that were not incorporated into soil. Our current theory is that the growing points of volunteer corn plants originated from seed on or near the soil surface and were exposed to paraquat and other related stresses.

Research on the use of Finesse showed up to 60 percent control of volunteer corn within 7 days after planting no-till wheat. Finesse is a premix of ALS inhibitor herbicides and is slow in its activity. Unfortunately, frost occurred before Finesse reached maximum activity; consequently we were unable to determine if the herbicide would have eventually killed the volunteer plants. Plans are to do additional research to determine if Finesse is an option for managing volunteer corn in no-till wheat. The advantage of Finesse is that it would likely provide residual activity for any later emerging vol-

Approximate Costs for Controlling Volunteer Corn or Wheat	
Method	Approximate Cost ¹
Tillage with farm implement	\$ 11.50/A
Gramoxone Inteon (paraquat)	
1 to 2.5 pt/A (1-4" weeds)	\$14.25-15.00/A
2.5 to 3 pt/A (4-6" weeds)	\$15.00-16.50/A
3 to 4 pt/A (6" weeds)	\$16.50-20.00/A
Roundup PowerMax (glyphosate)	
11 oz/A (6" weeds)	\$11.75/A
16 oz/A (12" weeds)	\$13.50/A
22 oz/A (18" wheat) (20" corn)	\$15.50/A

¹ Tillage cost from G. Halich (Ag Econ Bul No 1008-01). Costs for burndown herbicides include expenses for adjuvants and application.

unteer plants as well as help in managing Italian ryegrass. The rotational crop restrictions for Finesse require an interval of at least 6 months before planting STS soybeans. (Currently Finesse is not labeled for volunteer corn).

VOLUNTEER WHEAT: Most volunteer wheat seed germinate after wheat harvest, however, it is possible for seed to survive 16 months, and in some cases up to 2 years before germinating. While volunteer wheat plants usually succumb to heat, dry soil, and diseases, there are cases where they survive up through planting of this fall's wheat crop. The fact that most, if not all, of Kentucky wheat is grown in a rotation with other crops, limits the chances of direct competition of volunteer wheat to this fall's wheat crop, yet the surviving volunteers could serve as host to other pests that will cause a problem to neighboring fields planted to wheat.

Options for controlling volunteer wheat are similar to those mentioned for volunteer corn and include tillage or a burndown application of either glyphosate or paraquat. Keep in mind that control of volunteer wheat with paraquat may be inconsistent when wheat plants are tillering. Δ

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