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Protect Your Corn Yields from Weeds

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Protect Your Corn Yields from Weeds

Abstract

Low glyphosate prices, a record pace of corn planting and high winds or rain have resulted in a high percentage of corn fields not being treated with preemergence herbicide programs. While weeds can be successfully controlled with a total postemergence program, early removal of weeds is essential in order to protect yield potential of the crop.

Keywords

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Protect Your Corn Yields from Weeds

by Bob Hartzler, Department of Agronomy

Low glyphosate prices, a record pace of corn planting and high winds or rain have resulted in a high percentage of corn fields not being treated with preemergence herbicide programs. While weeds can be successfully controlled with a total postemergence program, early removal of weeds is essential in order to protect yield potential of the crop.

Weeds impact crop growth and yield primarily by competing with the crop for limited resources (e.g. light, nutrients, water). Early in the season a plant's demand for these resources is small, therefore minimizing competition between the crop and weed. However, recent research has documented that non-competitive interactions between weeds and corn very early in the season can significantly affect corn growth, development and yield potential, prior to the onset of significant competition for resources.

The cause of the non-competitive impact of weeds on corn growth is known as a shade avoidance response. Plants are able to detect the presence of neighboring plants due to changes in light quality (wavelength) when sunlight is reflected off nearby plant leaves. When a corn plant detects weeds in its vicinity, it reallocates resources to grow taller to reduce the chance of the weed intercepting sunlight the corn would use. While this response may reduce shading of the corn, it ultimately has a negative effect on future growth and development of the crop. Research in Canada found that corn growing in the presence of weeds was affected by the shade avoidance response as early as three days after emergence. Corn was most sensitive to shade avoidance in the first week after emergence.

The risk of reduced corn yields by the presence of weeds in the first week or two after emergence is affected by many factors that we do not fully understand. The best way to manage this risk is the use of preemergence herbicides to minimize weeds that emerge with the crop. When preemergence herbicides are not applied to a field, early post applications should be made as soon after corn emergence as possible if significant weed populations are present. Several preemergence herbicides can be applied with the post product to protect the crop from weeds that germinate after the application.

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