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Postemergence Herbicides on Frost-Damaged Corn

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Postemergence Herbicides on Frost-Damaged Corn

Abstract

Several articles have appeared in the ICM News describing the effects of recent weather on corn, including [temperature effects on corn](#) emergence, [hard freeze effects](#) on emerged corn, and [corn tolerance](#) to herbicides. Another issue involves determining the correct growth stage of corn that was damaged by the May 9 frost event. Herbicide labels typically restrict application either by corn height or leaf number. Leaf number is considered more accurate than height since it better represents the physiological stage of corn development (although this is muddied since people count leaves differently and it isn't always clear on herbicide labels which counting method is used). See pages 4 to 9 in the [Corn Field Guide](#) for information on the leaf-collar corn staging system.

Keywords

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Postemergence Herbicides on Frost-Damaged Corn

by Bob Hartzler, Department of Agronomy

Several articles have appeared in the ICM News describing the effects of recent weather on corn, including [temperature effects on corn](#) emergence, [hard freeze effects](#) on emerged corn, and [corn tolerance](#) to herbicides.

Another issue involves determining the correct growth stage of corn that was damaged by the May 9 frost event. Herbicide labels typically restrict application either by corn height or leaf number. Leaf number is considered more accurate than height since it better represents the physiological stage of corn development (although this is muddled since people count leaves differently and it isn't always clear on herbicide labels which counting method is used). See pages 4 to 9 in the [Corn Field Guide](#) for information on the leaf-collar corn staging system.

The problem with staging frost-damaged corn is that leaf loss will make it easy to underestimate the actual growth stage of corn. For example, assume that a field is staged on May 29 and has four visible leaf collars. Normally, you'd call this a V4 plant. However, if this field was planted in mid-April and on May 9 had two emerged leaves that were killed by frost, the actual developmental stage would be V6 rather than V4. With careful examination it might be possible to find remnants of the frosted leaves, but in many cases they will not be present. If staging the corn by height, the same problem of underestimating the stage of development exists.

So can underestimating the crop stage cause an actual problem with herbicide application, or is it merely an academic issue? The significance will vary with the herbicide used since application restrictions are placed on labels for different reasons. The main concern will be with herbicides for which application restrictions are based on crop tolerance concerns. For example, many sulfonylurea herbicides (Accent Q, NIC-IT, Resolve, Steadfast, etc.) prohibit broadcast applications beyond the V6 (6 collar) stage. This restriction is present because applications made later than this may damage the ear since it is initiated at this time. The growth regulator herbicides (dicamba, 2,4-D) and Ignite also have application timing restrictions based on crop injury risk.

For many herbicides, application restrictions on the product label are based on factors other than corn developmental stages and injury potential (e.g. atrazine). Thus, misjudging the corn's stage of development should not increase the potential for injury in those cases.

To avoid problems, document which fields have been damaged by frost and determine the number of leaves lost to freezing. Consider this information when determining the appropriate time for application. Herbicide representatives should be able to provide specific information concerning their products.

Bob Hartzler is a professor of agronomy with extension, teaching and research responsibilities.

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