5-14-2010

Postemergence Herbicides on Frost-Damaged Corn

Robert G. Hartzler
Iowa State University, hartzler@iastate.edu

Follow this and additional works at: http://lib.dr.iastate.edu/cropnews

Part of the Agricultural Science Commons, Agriculture Commons, and the Agronomy and Crop Sciences Commons

Recommended Citation
http://lib.dr.iastate.edu/cropnews/440

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit https://crops.extension.iastate.edu/.
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
Agronomy

Disciplines
Agricultural Science | Agriculture | Agronomy and Crop Sciences
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.

This article was published originally on 5/14/2010. The information contained within the article may or may not be up to date depending on when you are accessing the information.

Links to this material are strongly encouraged. This article may be republished without further permission if it is published as written and includes credit to the author, Integrated Crop Management News and Iowa State University Extension. Prior permission from the author is required if this article is republished in any other manner.