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Recent weather and herbicide performance

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Abstract

Much of Iowa has experienced frost or high winds, or both, in the past week, which can significantly affect herbicide performance. The recent frosts are a primary concern for no-till fields where burndown herbicides have been or will be applied to control existing vegetation. It is difficult to predict the influence of freezing temperatures because the response of weeds to these events is highly variable.

Keywords

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INTEGRATED CROP MANAGEMENT

Recent weather and herbicide performance

Much of Iowa has experienced frost or high winds, or both, in the past week, which can significantly affect herbicide performance. The recent frosts are a primary concern for no-till fields where burndown herbicides have been or will be applied to control existing vegetation. It is difficult to predict the influence of freezing temperatures because the response of weeds to these events is highly variable. Research with quackgrass found improved control when glyphosate was applied following frosts in the fall. Most winter annuals, the primary target of many burndown treatments, are fairly tolerant of frost and it is unlikely that their foliage was significantly damaged. However, below average temperatures in the week prior to application of post-emergence herbicides have been shown to affect herbicide performance, thus performance of burndown herbicides could be reduced even if the weeds do not show visible frost injury. For this reason, it may be beneficial to delay burndown applications for a few days after the frosts to allow plants to recover.

The second concern is the impact of wind erosion or of the movement of crop residue by high winds on the distribution of previously applied preemergence herbicides. The likelihood of problems associated with wind is greatest in fields which did not receive significant rain between the time of application and high winds. Research by Jim Baker, Iowa State University, found that the majority of herbicide washoff from crop residue occurred with the first half inch of rain. Most preemergence herbicides applied to fields that received at least a half inch of rain prior to wind events should be protected from significant wind movement, except in fields with excessive wind erosion. However, the performance of preemergence herbicides could be impaired due to lateral movements in fields with no rain between herbicide application and wind events.

The best approach to dealing with these recent weather events is to monitor herbicide performance closely over the next few weeks. The effect of wind erosion and residue displacement on preemergence herbicides is likely to be highly variable across fields, so windshield surveys of field edges will probably miss many potential problems.

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