

This year's crop season is off to a great start. Recent reports indicate that we are well ahead of long-term averages in terms of planting progress and crop development. However, a real concern we have at this point in time relates to weather conditions we had during the corn planting season in April and recent rainy weather. During the period in April when most of the corn was planted, windy conditions prevented timely applications of soil applied herbicides. More recently, wind speeds have been lower, although still occasionally high enough to prevent spraying and we have had periods of rain showers which have also prevented spray applications. Finally, some areas of Indiana have not had enough precipitation to activate soil herbicides if they were applied. As you are well aware, these conditions have not been uniform across Indiana, so in isolated pockets in the state, we either have corn which has not received soil applied herbicides for various reasons or fields which have not had enough rain to activate soil applied herbicides. As a result we will likely have corn fields with weed escapes. Below is a summary of various things to consider in these situations.

First, if soil applied herbicides have been applied to a field and dry conditions have followed, you have three options.

- 1) Do nothing and hope it rains soon. A good strategy if weeds have not emerged yet.
- 2) If weeds have emerged and corn is still in the spike to 1 leaf stage, a rotary hoe will dislodge small weeds and can help to mix and activate soil applied herbicides, or
- 3) If weeds have emerged and corn is V2 stage or larger, apply postemergence herbicides to control weed escapes.

Subsequent precipitation will likely activate the soil applied herbicides and provide residual activity. If you have not been able to apply soil applied herbicides, the good news is that many of the soil applied herbicides for corn can be applied on emerged corn. Soil applied herbicides which ***cannot*** be applied to emerged corn are Axiom,

Balance Pro, Epic, and Sencor. Maximum corn size for post application for all specific corn herbicides can be found on page 75 of the Weed Control Guide for Indiana and Ohio or at this website : <http://www.btny.purdue.edu/Pubs/WS/WS-16/CornRainfast04.pdf> or summarized briefly below.

Herbicide Ingredient	Maximum Corn Size for Post Application
atrazine	12 inches
Acetochlor containing products	11 inches
Metolachlor or s-metolachlor containing products	5 inches Note: Bicep and Cinch ATZ can be applied on corn up to 12 inches tall but if applications go on that late, weeds will likely be larger than can be controlled with atrazine, so other herbicides should be added to control large weeds.
Alachlor containing products	5 inches
Define	Up to the 5 th collar stage
Guardman Max, Outlook	12 inches
Lumax	5 inches

In addition, soil applied corn herbicide premixes that contain at least 1 lb ai/A of atrazine will also provide some foliar activity on weeds that have emerged. They won't control large weeds, particularly grasses, but generally speaking can burn back grasses less than 1 inch tall and broadleaf weeds less than 4 inches tall. Most of the atrazine premixes are formulated to provide 1 to 2 lb ai/A of atrazine at the full labeled rate for a given soil type. If you have small emerged weeds when these treatments are applied, add crop oil concentrate to the premix.

Specific precautions to consider:

- 1) Many soil applied atrazine premixes are labeled for application in 28% UAN solutions ***before*** corn emerges. Most labels recommend against this if corn has emerged because of crop injury concerns. We have noted that the most severe injury occurs when an atrazine premix is applied in 28% UAN and cool, cloudy conditions follow for several days or with very warm conditions (air temperatures greater than 85 degrees) on the day spray applications are made.
- 2) If grass weeds are more than 1 inch tall, or you have fall panicum, quackgrass, shattercane or johnsongrass, Accent, Option, Equip, or Steadfast should be added to the premix to control these grasses. Adjuvant considerations will vary when

with these types of treatments, so consult the label for specific directions.

- 3) If broadleaf weeds are in excess of 4 inches tall, there are several herbicides that can be added to an atrazine premix. Be cautious about adding 2,4-D + crop oil + nitrogen solutions to an atrazine premix and applying it to spike stage corn. I have observed rather severe injury in these situations. If 2,4-D is added, wait to apply this mixture until the corn is in the V1 to V2 growth stage.
- 4) Consider switching to a total post program with Accent Gold, Basis Gold, Celebrity Plus, Exceed, Northstar, Spirit, or Steadfast/Steadfast ATZ herbicides. These products are designed for this use and allow one to tankmix additional herbicides such as the soil applied atrazine premixes for added residual activity on specific weeds. Be cautious of the corn growth stage when using these products. Products containing Beacon (Exceed, Spirit, Northstar) and Distinct (Celebrity Plus) **cannot** be applied until corn is 4 inches tall, and cannot be applied broadcast after corn is 20 inches tall (Northstar) or 24 inches tall (Celebrity Plus). Products containing atrazine (Basis Gold, Steadfast ATZ) cannot be applied to corn more than 12 inches tall. If the product you chose doesn't contain atrazine and corn is less than 12 inches tall, we recommend that you add atrazine at 0.75 lb ai/A to provide residual control.
- 5) If you switch to a total post program and have used a soil insecticide, consult the herbicide label to determine if use of a specific product is allowed after the soil insecticide. Certain insecticides will increase the possibility of crop injury with specific ALS inhibiting herbicides (Accent, Basis, Beacon, Equip, Option, and Steadfast containing herbicides).
- 6) Corn growing in wet soils will be stressed and not able to metabolize herbicides as rapidly as it would if it were growing in drier soils. After applying postemergence herbicides, don't be surprised to see herbicide related injury symptoms. Most seed companies have databases on herbicide injury potential with commonly used herbicides. Be cautious about applying specific herbicides to hybrids which have been shown to be sensitive to growth regulators (2,4-D, Clarity/Distinct), ALS inhibitors (Accent, Exceed, Option, Spirit, Steadfast), or HPPD inhibitors

(Callisto). Contact your seed company representative if this information is not readily available.

- 7) Adjuvant selection is critical with postemergence herbicides. Certain tankmixes require specific adjuvants to maximize the activity of both products. Consult the label carefully to determine the appropriate adjuvant. Corn is more sensitive to weed competition and the window to control weeds is much narrower than in soybean. You don't have time to correct mistakes.

- 8) Some soil applied and postemergence insecticides slow down the corn plant's ability to metabolize herbicides and crop injury will occur. If you are making dramatic changes to your weed control program, it pays to re-read the herbicide and insecticide labels and look for warning statements. As mentioned above, corn will be stressed and more likely to show injury anyway, and the addition of an insecticide to a herbicide mixture could cause additional injury.

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Information listed here is based on research and outreach/extension programming at Purdue University and elsewhere. The use of trade names is for clarity to readers of this site, does not imply endorsement of a particular brand nor does exclusion imply non-approval. Always consult the herbicide label for the most current and update precautions and restrictions. Copies, reproductions, or transcriptions of this document or its information must bear the statement 'Produced and prepared by Purdue University Extension Weed Science' unless approval is given by the author.