

Weed Management Considerations in Corn in a Wet Spring

Bill Johnson, Tom Bauman, Glenn Nice

The recent wet weather has created some challenging weed management situations for corn. Most of the corn acres in Indiana utilize soil-applied, preemergence herbicides and some utilize both soil-applied and postemergence herbicide combinations. In certain parts of Indiana and other areas in the Midwest, corn was planted at a rate which exceeded the ability of custom and private applicators to spray preemergence herbicides. Then the rains came. The result is a lot of acres with emerged corn and no preemergence herbicides applied and fields that were sprayed but have received 5 or more inches of rain within the last three weeks. Below, I have listed various scenarios and some things to consider for each scenario.

Scenario # 1

Corn and weeds have emerged, but the field has *not* been sprayed with soil applied, preemergence herbicides.

- a. Do not spray Axiom, Balance Pro, Princep to emerged corn. Axiom and Balance Pro will cause injury to emerged corn. Princep is not labeled to be applied to emerged corn.
- b. You can apply many of the soil-applied atrazine premixes (Bicep II Magnum, Degree Xtra/Harness Xtra/Keystone/Fultime, Guardsman Max, Lumax, others) to emerged corn. If weeds have emerged, but grass weeds are 1 inch or less and broadleaf weeds less than 4 inches in height, simply add crop oil concentrate to the atrazine premix to burn down the emerged weeds. Consider using lower rates of the atrazine premixes, such as two thirds to three fourths of the label rate since the length of residual control needed is less now than if the product was applied in mid to late April
- c. If grass weeds are larger than 1 inch tall, Option, Steadfast and Accent can be added to most of the soil applied grass:atrazine premix products. Option, Steadfast, and Accent will control grass weeds up to 4 inches tall. Be sure to consult the label for appropriate adjuvants with these mixtures.
- d. If broadleaf weeds are in excess of 4 inches, 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.
- e. 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 for added 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.
- f. 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, Option, and Steadfast containing herbicides).

Scenario # 2

Corn and weeds have emerged, the field has been sprayed with soil applied, preemergence herbicides. If an atrazine, Balance, or Callisto containing herbicide was used premergence, weeds may emerge, turn white or yellow, then brown and die a few days later. If weeds emerge and don't die within a few days:

- a. Use a rotary hoe to dislodge small weeds and reactivate herbicides. Weeds should be ½ inch or less in height. Operate the tool at a minimum of 6 mph. If the operation is dislodging more than 10% of the corn stand, slow down.
- b. Apply appropriate postemergence herbicides based on scouting and weed species present. As mentioned above, be careful with specific products because of the potential to injure corn if not applied at the proper corn growth stage.
- c. Do not exceed the application limits for atrazine. These limits include the following: on highly erodible soils, do not apply more than 1.6 lb ai/A in one application or more than 2 lb ai/A total. On soils that are not highly erodible, do not apply more than 2 lb ai/A in one application or more than 2.5 lb ai/A total.

Other general items to consider with both scenarios:

- a. **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 representative if this information is not readily available.
- b. **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. Since 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.
- c. **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 more likely to show injury anyway, and the addition of an insecticide to a herbicide mixture could cause additional injury.

Specific details related to most of the comments above can be found in the 2003 Weed Control Guidelines for Indiana (WS-16) which is on the web at <http://www.btny.purdue.edu/Pubs/WS/WS-16/>.