

With the recent wet, rainy weather and warm air temperatures, corn is progressing rapidly through its early growth stages. In fact it is growing so rapidly that it may grow past the latest growth stage allowed by several postemergence herbicides quicker than we realize. Although several of the postemergence grass herbicides are effective on large weeds, an important point to keep in mind is that most of these herbicides should be applied before the grass weeds are 4 inches tall (except for shattercane and johnsongrass) to assure the most effective control and to minimize yield losses due to weed interference. If soil-applied herbicides are not adequately controlling grassy weeds or if you are utilizing postemergence strategies for grass control, several herbicides are available that are labeled for postemergence grass control in corn.

To avoid crop injury and yield loss, many of the herbicides that contain an ALS inhibitor (Accent, Basis, Basis Gold, Beacon, Celebrity Plus, Equip, Lightning, Northstar, Option, and Steadfast) should not be broadcast over the top of corn after it has 6 or 7 exposed leaf collars. This is the growth stage of corn when reproductive processes are



Figure 1. ALS damage on corn ear, showing 'pinched ear' syndrome.

initiated, and disruption of the physiology of corn at this stage can result in incomplete pollination, malformed ears (pinched ear syndrome, Figure 1.) and yield losses. A short discussion of each herbicides growth stage restriction and weed size restriction follows.

Accent can be applied as a broadcast spray on corn that is up to 20 inches tall or has up to 6 exposed leaf collars, or it can be applied

as a directed spray to corn that is 20 to 36 inches tall or exhibits 9 or fewer exposed leaf collars. Accent controls most annual grasses, except for crabgrass, and also controls johnsongrass and shattercane. The best results will be obtained when it is applied to foxtails, barnyardgrass, and fall panicum 2 to 4 inches tall; shattercane and seedling johnsongrass 4 to 12 inches tall; and rhizome johnsongrass 8 to 18 inches tall. Do not apply to popcorn or seed corn that has been treated with Counter insecticide.

Basis can be applied as a broadcast spray on corn in the spike through the 4-leaf or 2-exposed-collar growth stage. Do not apply to corn that has 3 fully exposed leaf collars or is more than 6 inches tall. Apply to foxtails and fall panicum up to 2 inches tall. Do not apply to seed corn, popcorn, or sweet corn.

Basis Gold can be applied as a broadcast spray on corn that is up to 12 inches tall or has 6 or fewer exposed leaf collars. These herbicides control most of the same grasses that are controlled by Accent alone, but the Accent rate is lower than typically used with Accent alone. Thus, it should be applied earlier to smaller grass weeds for effective control. Basis Gold has slightly more activity on smooth and large crabgrass than Accent because it contains atrazine. Apply to foxtails, barnyardgrass and fall panicum 3 inches tall or less; shattercane 6 inches tall or less; and seedling johnsongrass 8 inches tall or less. Additional Accent or Beacon can be added either as a tankmix or sequentially for additional activity on shattercane and johnsongrass.

Beacon can be applied as a broadcast spray to corn that is between 4 and 20 inches tall or has 2 to 6 exposed leaf collars, or up to tasseling if using drop nozzles. Applications to corn less than 4 inches tall can be injurious to the crop. Beacon provides control of johnsongrass and shattercane but is weaker than Accent, Option, and Steadfast on most annual grasses. Apply to shattercane or seedling johnsongrass 4 to 12 inches tall, and rhizome johnsongrass 8 to 16 inches tall.

Celebrity Plus can be applied as a broadcast spray on corn that is between 4 and 24 inches tall. Applications to corn less than 4 inches tall can be injurious to the crop. Since Celebrity contains Accent, it should be applied to foxtails, barnyardgrass, and fall panicum 2 to 4 inches tall; shattercane and seedling johnsongrass 4 to 12 inches tall; and rhizome johnsongrass 8 to 18 inches tall.

Equip can be applied as a broadcast spray on corn that has 1 to 4 exposed collars and up 12 inches tall. It can be applied as a directed spray on corn up to 36 inches tall or 8 exposed collars. Apply to foxtails, fall panicum up to 3 inches tall, barnyardgrass up to 4 inches tall, johnsongrass and shattercane up to 8 inches tall.

Liberty can be applied as a broadcast spray on Liberty Link corn that is up to 24 inches tall or has up to 7 exposed leaf collars, or it can be used as a directed spray on corn that is 24 to 36 inches tall. Liberty is very effective on large foxtails up to 10 inches tall, but it can be weak on barnyardgrass and yellow foxtail if they are more than 4 inches tall

at application. Apply to shattercane and seedling johnsongrass that is 6 inches or less in height.

Liberty ATZ is a premix of Liberty and Atrazine. It can be applied to corn up to 12 inches tall.

Lightning can be applied as a broadcast spray on Clearfield corn that is up to 20 inches tall or has 2 to 6 exposed leaf collars or as a directed spray until 45 days before harvest. Lightning controls many of the same grasses as Accent. Apply Lightning to giant foxtail up to 6 inches tall; green and yellow foxtail and fall panicum up to 3 inches tall; and shattercane, seedling and rhizome johnsongrass up to 8 inches tall.

Northstar can be applied as a broadcast spray to corn that is between 4 and 20 inches tall or has 2 to 6 exposed leaf collars, or with drop nozzles to corn up to the tasseling stage. Applications to corn less than 4 inches tall can be injurious to the crop. Northstar contains Beacon which provides control of johnsongrass and shattercane but is weaker than Accent, Option, or Steadfast based herbicides on most annual grasses. Apply to shattercane or seedling johnsongrass 4 to 12 inches tall, and rhizome johnsongrass 8 to 16 inches tall.

Option can be applied as a broadcast spray to corn that is up to 16 inches tall or has 5 exposed leaf collars. It can be used as a directed spray with drop nozzles on corn that is 16 to 36 inches tall. Option is much like Accent and controls many of our common annual grasses plus johnsongrass and shattercane. The best results will be obtained when it is applied to foxtails, barnyardgrass, and fall panicum 2 to 4 inches tall, and shattercane and johnsongrass 12 to 16 inches tall.

Glyphosate (and other glyphosate formulations labeled for Roundup Ready corn) can be applied as a broadcast spray to Roundup Ready corn that is up to 30 inches tall or has 8 exposed leaf collars. Apply to foxtails up to 20 inches tall, and fall panicum, shattercane, and johnsongrass up to 18 inches tall.

Steadfast can be applied as a broadcast spray on corn that is up to 20 inches tall or has 6 exposed leaf collars. Steadfast controls many of the same grasses as Accent, but it also has some activity on crabgrass. Apply to foxtails, fall panicum, and barnyardgrass, up to 4 inches tall; johnsongrass, up to 8 inches tall; shattercane, up to 6 inches tall; and crabgrass, up to 1 inch tall. Do not apply to popcorn, seed corn, or sweet corn.

Steadfast ATZ is a premix of Steadfast and Atrazine and can be applied on corn up to 12 inches tall or 6 exposed leaf collars, whichever occurs first.

Other Considerations: 1) Check the label to determine if these products can be used on popcorn, seed corn, sweet corn. The information presented in this article is specific to use on field corn. 2) Be sure to use the appropriate adjuvant with these products, particularly when tank mixing with other products for broadleaf weed control. Certain adjuvant systems will increase the activity of these herbicides and the potential for crop injury. Occasionally, different adjuvant systems are required for grass:broadleaf tank mixes versus specific products used alone. 3) Check the label to determine if restrictions exist regarding the use of soil or postemergence insecticides with postemergence grass herbicides. Some insecticides slow the corn plant's ability to metabolize (or detoxify) these herbicides and crop injury can result. You may not have planned to use a postemergence grass herbicide and use of certain herbicides may not be allowed after certain soil insecticides. 4) This is the time of the year when we will begin to see spray tank contamination problems. If glyphosate was used in the previous load, be sure to properly clean out the tank and empty the sumps. Corn that doesn't contain the Roundup Ready gene is very sensitive to low rates of glyphosate and the resulting crop injury is sometimes confused with injury from ALS herbicides such as Accent, Option, Steadfast, etc. 5) There are a number of websites available to quickly obtain information from herbicide labels.

See www.cdms.net and www.greenbook.net for free label information.

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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.