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G77-382 Right Crop Stage for Herbicide Use *Corn, Sorghum, Small Grains* (Revised May 1992)

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Right Crop Stage for Herbicide Use *Corn, Sorghum, Small Grains*

Herbicides recommended for postemergence application in corn, sorghum, and small grains are discussed in this NebGuide.

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Proper timing of postemergence herbicides is essential to achieve maximum weed control and minimum crop injury. As field crops grow and mature, their tolerance to herbicides changes.

As a general rule, annual and biennial weeds are more susceptible to postemergence herbicides when they are in the seedling stage. As they mature they become increasingly difficult to control, facing the grower with the problem of when to apply the herbicide to achieve the least crop injury and the most satisfactory weed control. Field crops differ in their growth stages and, consequently, in the periods when postemergence herbicides safely can be applied. Each crop must be considered separately to identify the correct crop growth stage for the application of a specific herbicide.

Corn

There are many different corn hybrids grown in Nebraska, and some may be more susceptible to herbicides than others. Most corn hybrids are tolerant to postemergence herbicides during early stages of plant growth.

This is convenient, as both crop and weed are in early stages of growth and satisfactory weed control is possible with little injury to the corn plant. To reduce the possibility of injury to the corn plant, contact

the seed corn dealer to determine if the hybrid you are using has shown a tendency to be susceptible to the herbicide you are planning to use.

Postemergence herbicides recommended for corn are Atrazine, Accent, Beacon, Banvel, Bladex, Buctril, 2,4-D, and Laddok (Basagran + Atrazine). Atrazine and Bladex should be applied when grassy weeds are less than 1 inch tall, which usually corresponds to when the corn plant is in the two- to four-leaf stage of growth (*Figure 1*). Atrazine and Bladex are effective in controlling grassy and broadleaf weeds.

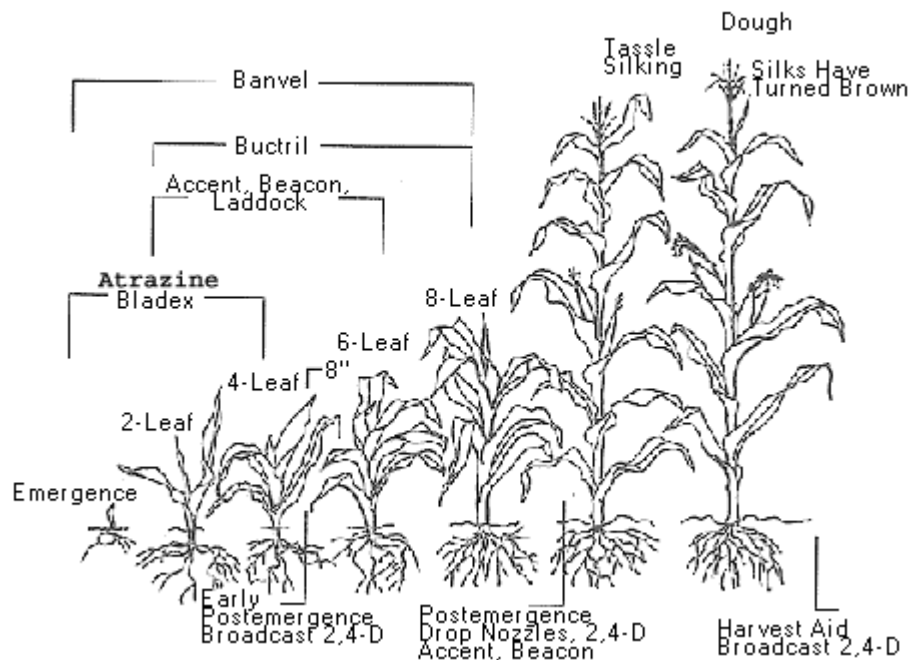


Figure 1. Stages of corn growth.

Buctril should be applied when broadleaf weeds are 2 to 4 inches tall. Corn can be treated with Buctril after it reaches the two-leaf stage and until it is 12 inches tall. The amine or ester form of 2,4-D should be applied after the corn emerges and before it is 8 inches tall, or past the four-leaf stage of growth.

To avoid injury once corn is taller than 8 inches, use drop nozzles to keep the herbicide out of the corn whorl. Banvel can be applied after corn emergence and until the corn is 36 inches tall. Laddok should be applied when broadleaf weeds are 2 to 4 inches tall and corn is less than 12 inches in height.

Accent and Beacon should be applied before corn reaches 20 inches in height and when most grassy weeds are less than 4 to 6 inches tall. When corn is taller than 20 inches, apply Accent or Beacon with drop nozzles to direct the herbicide on the lower portion of the corn plant. Accent and Beacon are effective in controlling grassy (Beacon controls only a few grasses) and selected broadleaf weeds.

Herbicide combinations have become increasingly popular as a means to broaden the spectrum of weed control and reduce the development of herbicide resistant weeds. Combinations of Banvel + 2,4-D, Banvel + Buctril, Banvel + Atrazine, and Buctril + Atrazine are effective in controlling broadleaf weeds. Accent or Beacon can be combined with either Banvel or Buctril to improve the broadleaf weed spectrum.

When herbicides are combined in mixtures, consult the label of both herbicides to determine the proper

stage of corn growth.

Dual, Prowl and Treflan are labeled for application after furrowing or final cultivation. All three herbicides are designed to control late germinating weeds in corn and will not control weeds that have already emerged. 2,4-D is labeled as a harvest aid and can be applied in the early dough stage (seeds have turned brown) for suppression of broadleaf weeds.

Sorghum

Sorghum hybrids differ in their tolerance to postemergence herbicides. Care must be taken to ensure compatibility of hybrids and herbicides to avoid injury. Consult your seed dealer for more information.

Atrazine, Banvel, Basagran, Buctril, Buctril + Atrazine, Laddok, and 2,4-D are labeled for postemergence application in sorghum. Atrazine is effective in controlling only broadleaf weeds at the rates labeled for use in sorghum. Atrazine can be applied to sorghum after emergence up until the time the plant reaches 12 inches in height. Atrazine plus oil should not be applied to sorghum until plants are at least three inches tall.

Banvel can be applied as a postemergence treatment on sorghum from the 2-leaf stage until the plants reach 15 inches. After the plant reaches 12 inches, use drop nozzles to keep Banvel out of the whorl to prevent crop injury.

Basagran can be applied to sorghum from emergence up to the boot stage. Laddok can be applied up to a sorghum height of 12 inches. With either herbicide applications should be made when broadleaf weeds are less than 4 inches tall.

Buctril can be applied to grain sorghum from the two-leaf stage until the plant is 14 inches tall. Buctril + Atrazine can be applied to grain sorghum from the two-leaf stage until the plant is 12 inches tall. Treatments must be applied when broadleaf weeds are small.

Do not treat sorghum with 2,4-D until it is 4 inches tall. After the plant is over 12 inches, use drop nozzles to keep 2,4-D out of the whorl to prevent crop injury. Do not treat sorghum with 2,4-D in the boot stage or later.

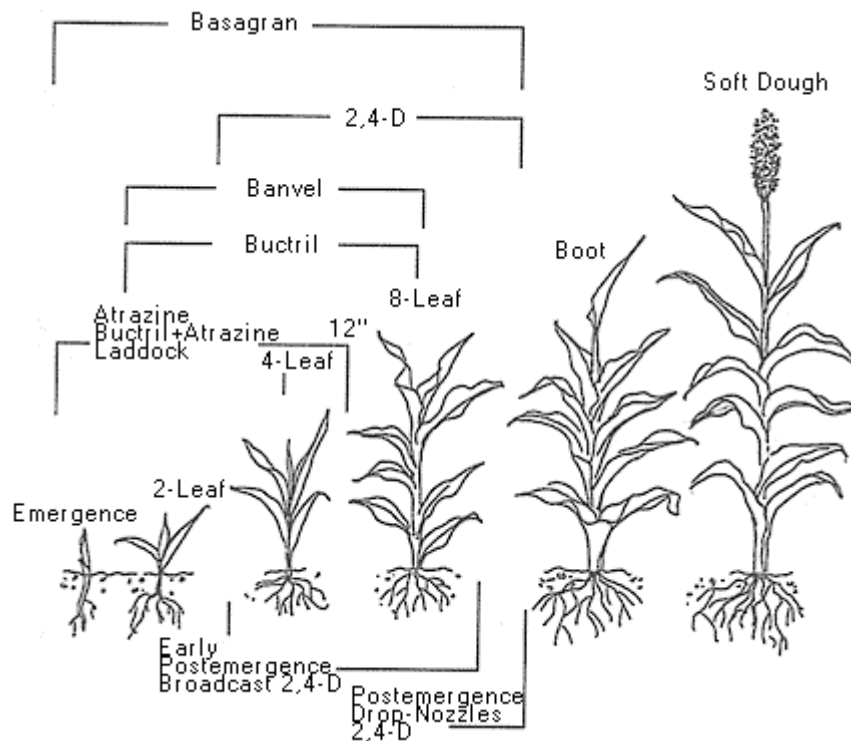


Figure 2. Stages of sorghum growth

In the boot stage the rapidly developing head, still enclosed in the leaf sheath, causes the stem at the top of the plant to swell. Heading follows the boot stage. Sorghum is most tolerant to 2,4-D during the four-through eight-leaf stage of growth, which usually corresponds to sorghum plant heights of 4 to 12 inches, respectively (*Figure 2*).

Small Grains

Winter wheat. Herbicides recommended for postemergence weed control in winter wheat are 2,4-D, Ally, Amber, Banvel, Bronate (Buctril + MCPA), Buctril, Curtail (Stinger + 2,4-D-amine), Harmony Extra, and Tordon. The optimum time to apply 2,4-D to winter wheat is in the early spring (February through April), after winter wheat has begun to tiller, but before the joint stage of winter wheat development (*Figure 3*). During tillering the plant develops additional stems, but the stems do not elongate.

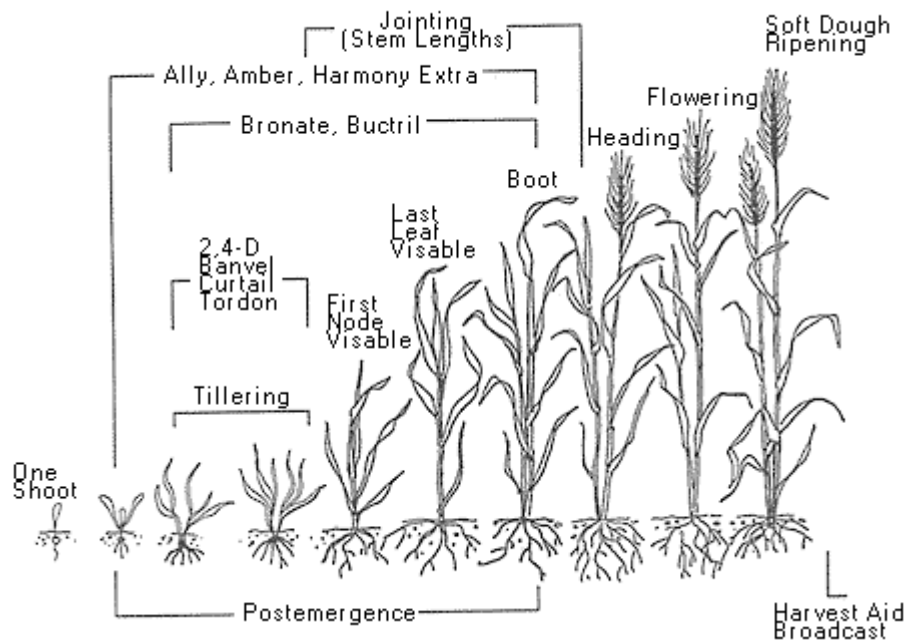


Figure 3. Stages of winter wheat growth

From the seedling through tillering stages all leaves appear to originate from the base of the plant. During jointing, stems lengthen as recognized by leaves being attached at different points (nodes) on the stem. Some herbicide labels allow for application up to the boot stage, but crop injury will increase and weed control decrease as application is delayed beyond the joint stage.

In the boot stage the soon-to-emerge head, still enclosed in the leaf sheath, causes the stem at the top of the plant to swell. After grain reaches the hard dough stage, 2,4-D can be applied as a harvest aid without risk of crop injury, although drift to non-target crops is increased at this time of year.

Ally and Amber can be applied to winter wheat from the two-leaf stage through jointing, but before the boot stage. Because these two herbicides are usually applied in a tank-mix with 2,4-D or Banvel, applications should be made before the joint stage to avoid crop injury.

Winter wheat can be treated with Banvel in the spring after winter dormancy has been broken and before wheat begins to joint. Banvel treatments made to wheat in the joint stage may result in significant crop injury.

Bronate and Buctril should be applied to winter wheat after the wheat is well tillered, but before the canopy covers the weeds. Buctril is not translocated in plants, and depends on good plant coverage for effective weed control. If Buctril is tank-mixed with 2,4-D, applications should be made prior to the joint stage.

Curtail is applied to winter wheat in the spring, prior to the joint stage.

Harmony Extra may be applied to winter wheat from the two-leaf stage, through tillering and up to jointing.

Low rates of Tordon can be added to 2,4-D to aid in the control of certain weeds. Tordon should be

applied to winter wheat in the spring, after the resumption of active growth, but prior to the joint stage of winter wheat.

Barley and spring wheat. Herbicides recommended for postemergence weed control in barley and spring wheat are 2,4-D, Ally, Amber, and Curtail. Barley and spring wheat should be treated with 2,4-D when five leaves are present. Ally and Amber are usually tank-mixed with 2,4-D, and so should be applied at the same stage as noted previously for 2,4-D.

Curtail is best applied to barley and spring wheat during tillering, prior to the joint stage.

Oats. Oats are more sensitive to herbicides than many of the other small grains. The following guidelines are a reflection of their herbicide sensitivity. Herbicides recommended for postemergence weed control in oats are 2,4-D-amine, Buctril, Curtail M, and MCPA. The best time to apply 2,4-D-amine, Buctril, or MCPA to oats is at the 3-4 leaf stage. Curtail M may be applied to oats from the three-leaf stage up to the joint stage.

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