PURDUE
Weed Science

Broadleaf Weed Control in Winter Wheat

March 8, 2004

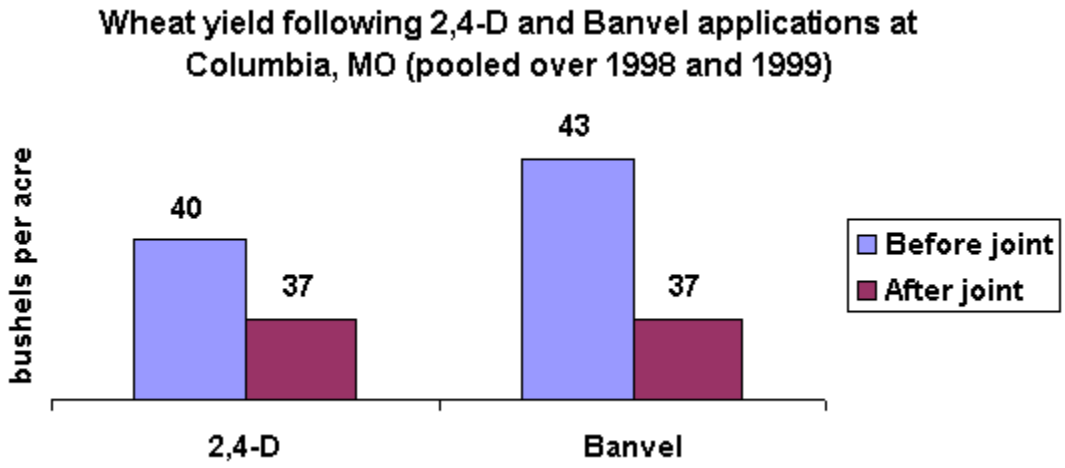
www.btny.purdue.edu/weedscience/

Unlike corn and soybean, only a handful of herbicides are registered for the control of broadleaf weeds in winter wheat grown in Indiana. Herbicides, rates and their application timings are listed in the table below.

Table 1. Herbicides to control broadleaf weeds in winter wheat.

Active Ingredient	Trade name(s)	Rate per Acre	Application Timing	Weeds Controlled
Bromoxynil	Buctril, Moxy	1.5 to 2 pts	Emergence to boot stage	Wild buckwheat, common ragweed, lambsquarter, field pennycress, henbit, shepherdspurse, wild mustard
2,4-D	Weedar, Weedone, Formula 40, others	1 to 2 pts	Tillering to before jointing	Field pennycress, shepherdspurse, wild mustard, ragweeds, lambsquarter, horseweed (marestail), prickly lettuce, wild onion
Dicamba	Banvel	0.125 to 0.25 pt	Emeregence to before jointing	Field pennycress, wild buckwheat, ragweeds, kochia, lambsquarter, horseweed (marestail), prickly lettuce, shepherdspurse,
Thfensulfuron	Harmony GT	0.3 to 0.6 oz	After 2-leaf stage but before flag leaf becomes visible	Wild garlic, field pennycress, wild mustard, chickweed, henbit, shepherdspurse, wild mustard, lambsquarter
Thifensulfuron + tribenuron	Harmony Extra	0.3 to 0.6 oz	After 2-leaf stage but before flag leaf becomes visible	Wild garlic, field pennycress, wild mustard, chickweed, henbit, prickly lettuce, shepherdspurse, wild mustard, lambsquarter
MCPA	Chiptox, Rhomene, Rhonox	1 to 4 pts	Tillering to before jointing	Field pennycress, shepherdspurse, wild mustard, ragweeds, lambsquarter, horseweed (marestail), prickly lettuce, wild buckwheat
Bromoxynil + MCPA	Bronate, Bison	1 to 2 pts	After 3-leaf stage but before wheat reaches boot stage	Same as bromoxynil and MCPA
Carfentrazone	Aim	0.33 to 0.66 oz	Before jointing	Catchweed bedstraw, lambsquarter, field pennycress, tansy mustard, flixweed

It is also important to be aware that restrictions exist concerning application timing of these herbicides to avoid crop injury. Phenoxy herbicides, such as 2,4-D and MCPA, control a number of annual broadleaf weeds and are the least expensive of these herbicides to use. However, proper application timing of the growth-regulating herbicides 2,4-D, MCPA and Banvel is critical to avoid crop injury and possible yield losses. These herbicides can cause substantial crop injury and yield loss in small grains if applied before tillering begins or after development of the grain heads has been initiated.



The exact time at which grain heads have been initiated is not easy to determine, but this event always just precedes stem elongation. The occurrence of stem elongation can be easily detected by the appearance of the first node or "joint" above the soil surface, commonly referred to as the "jointing stage." Pinch a wheat plant stem at the base between the thumb and forefinger and slide your fingers up the stem. The presence of a node or joint will be felt as a hard bump about an inch above the soil surface. Slicing the stem lengthwise with a sharp knife will reveal a cross section of the hollow stem and solid node. If jointing has occurred, applications of 2,4-D, MCPA and Banvel should be avoided because crop injury and yield loss are likely. Research from the University of Missouri Weed Science program has shown a 3- to 6-bushel per acre yield loss from 2,4-D and Banvel applications to wheat after the jointing stage.

MCPA alone at labeled rates should be applied before jointing. However, the amount of MCPA applied in Bronate, a combination of bromoxynil and MCPA, is low enough to permit later applications.

As a final note, many wheat fields in Indiana contain wild garlic and wild onion. Although not considered as strong competitors with a wheat crop, wild garlic (*Allium vineale*) and wild onion (*Allium canadense*) are both responsible for imparting a strong odor to beef and dairy products. Wheat producers and grain elevator operators are very familiar with dockages that occur with the presence of wild garlic or onion bulbs in their harvested grain. Found throughout Missouri, wild garlic is a native of Europe, while wild

onion is native. Despite the fact that these perennials both occur in similar habitats, wild garlic occupies the majority of small grain settings, including wheat.

Control measures for wild onion and wild garlic will differ. Producers, consultants and industry personnel will want to make certain that they are able to distinguish between these two weed species. The vegetative leaves of wild garlic are linear, smooth, round and hollow (flowering stems are solid). A major difference with wild onion is that its leaves are flat in cross section and not hollow. Another varying feature are the underground bulbs. Wild garlic's bulbs have a thin membranous outer coating while wild onion's bulbs have a fibrous, net-veined coating.

Harmony Extra (thifensulfuron + tribenuron) is the herbicide most commonly used for control of garlic in wheat, plus it controls a relatively wide spectrum of other broadleaf weeds and possesses a fairly wide application window. Harmony GT (thifensulfuron) also has activity on wild garlic, but is considered to be slightly weaker than Harmony Extra. Peak is also labeled and effective on wild garlic in wheat, but it is fairly persistent in soil. The Peak label does not allow one to plant double crop soybean following wheat harvest in Missouri. Wild onion is controlled with 2,4-D. Keep in mind that both of these weeds are perennials and the full labeled rate is needed for adequate control.

Produced and Prepared by Bill Johnson and Glenn Nice. Purdue University Extension Weed Science.
