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PURDUE EXTENSION WEED SCIENCE

Spring Weed Control In Winter Wheat

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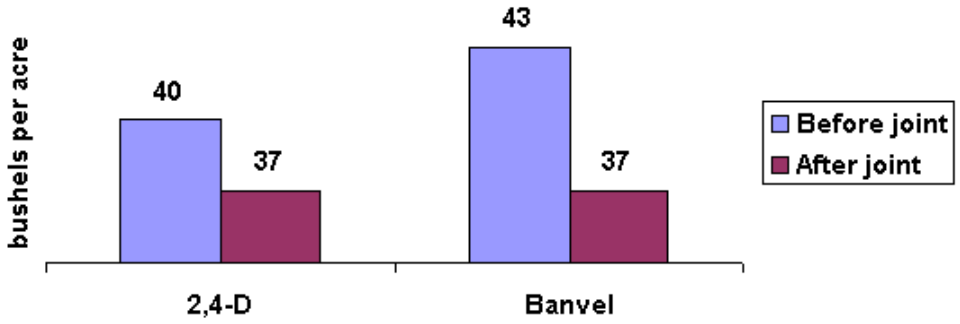
Wheat is starting to green up across much of Indiana and now is good time to evaluate weed populations and whether or not control measure needed. Most spring applied wheat herbicides should be applied before jointing to avoid crop injury and yield loss. To determine wheat growth stages refer to the previous issue of the Pest and Crop newsletter for an article written by Greg Shaner and Shawn Conley regarding proper wheat growth staging. In recent years, we have seen an increase in the number of products registered for use in wheat. The purpose of this article is to provide a brief review of some of the commonly used wheat herbicides and the importance of application timing, and best management practices for wild garlic.

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.

Wheat yield following 2,4-D and Banvel applications at Columbia, MO (pooled over 1998 and 1999)



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 conducted while I was at the University of Missouri showed a 3- to 6-bushel per acre yield loss from 2,4-D and Banvel® applications to wheat after the jointing stage.

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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.

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 Indiana, 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 Indiana. 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.

In the last 3 years, three new herbicides have been registered that provide grass control in wheat. These products include Maverick®, Olympus®, and Osprey®. Maverick (sulfosulfuron) is a product labeled for applications in the fall, but not the spring. Olympus® and Osprey® can be applied in the fall or in the spring. We have not tested these products in our field research program, so the information summarized here is from the manufacturers label. We will summarize the information for Olympus® and Osprey® since they would be the only grass herbicides labeled for use at this time.

Olympus® is labeled for control of downy brome, cheat, and mustard species. It is an ALS inhibitor and must be applied before jointing. In can be applied with nitrogen solutions and requires the use of a nonionic surfactant as well. Temporary crop injury may occur if applied in a nitrogen solution. Do not plant other crops for at least 18 months following application. So, this product would not allow planting of double crop soybean in Indiana.

Osprey® is labeled for control of annual bluegrass and annual ryegrass. It is also an ALS inhibitor and should be applied before jointing. Grass weeds should be in the 1-leaf to 2 tiller stage for best control. The label states that Osprey® should be applied with water as the carrier, but up to 15% of the spray solution can be nitrogen fertilizer solution. Osprey® requires the use of a methylated seed oil or nonionic surfactant plus ammonium sulfate or 28% UAN. Soybeans cannot be planted until 90 days after application.

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Table 1. Herbicides to control broadleaf weeds in 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
Thifensulfuron	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
Propoxy-carbazone	Olympus®	0.6 to 0.9 oz	Before jointing	Downey brome, cheat, mustards
Mesosulfuron	Osprey®	4.74 oz	Before jointing	Annual bluegrass, annual ryegrass

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 publication and does not imply endorsement of a particular brand nor does exclusion imply non-approval. Always consult herbicide labels for the most current and up-to-date 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.