

Weed Management in Wheat

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Most weeds that occur in wheat are easily controlled, yet marestalk (also known as horseweed) and cool-season annual grasses are exceptions that challenge growers in our region.

Marestalk

Heavy infestations of marestalk can hamper wheat harvest as well as impact double-crop soybeans after wheat. It is an annual that can emerge in the fall and/or early spring and mature in late summer where it competes with soybeans. Marestalk infestations can develop where wheat is planted late in the fall, has poor stands, or large skips such as those associated with tramlines.

Having a competitive stand of wheat may be the best defense against marestalk in a wheat/double crop soybean system. Begin with a weed-free seedbed using preplant tillage if marestalk plants are present at the time of seeding. Plant wheat at the recommended seeding rate (usually plant 35 seeds/ft² with a goal of obtaining at least 25 plants/ft²). Planting at the recommended time frame increases the likelihood that wheat will develop multiple tillers in the fall and be competitive going into the following spring. Keeping fields free of other weeds is often beneficial, providing fields have a competitive stand of wheat; otherwise, removing other weeds in the fall may provide favorable conditions for marestalk emergence in the spring.

Herbicide options for managing marestalk in wheat/double-crop soybean systems are limited. The fact that much of the marestalk in this region is glyphosate tolerant/resistant makes it difficult to control with a burndown application of glyphosate prior to seeding no-till wheat or no-till double crop soybeans. The use 2,4-D ester or Clarity (dicamba) in late winter when wheat is fully tillered and prior to jointing (Feekes 5) may provide some suppression of emerged marestalk, yet they are limited in their effectiveness due to too low of rate, poor weather conditions, or they lack the ability to control plants that typically emerge after application.

By the time wheat is harvested, marestalk is usually several inches tall and difficult to control with preplant applications of 2,4-D, or any other herbicide, for double-crop soybeans. The seven- to 30- day waiting period is also a major drawback for using 2,4-D ester in a double crop system. While tillage is not highly desirable, it may be the only method that will manage marestalk prior to planting double crop soybeans. Even this may not completely kill well-established plants.

Weedy Grasses

The number of wheat acres infested with cool-season weedy grasses has risen substantially in recent years. These grasses grow as annuals that begin emerging in the fall and mature about the same time as wheat. Some of these grasses emerge sporadically throughout the fall and spring; consequently, achieving season-long control is a challenge.

Italian ryegrass, also known as annual ryegrass or Marshall (*Lolium multiflorum*), occurs mostly in southern tier counties of Kentucky, but is gradually spreading northward into the Ohio River Valley. Ryegrass is more competitive compared with other weedy grasses. One ryegrass plant per square foot can reduce wheat yield by approximately 4%.

Since ryegrass reaches maturity about the same time as wheat, its seeds are easily spread with combines during the harvesting process. Ryegrass infestations often begin in small patches along field borders or waterways because these areas are often sown with ryegrass mixed with tall fescue for soil conservation. Mowing infested field borders and waterways prior to wheat harvest helps limit the spread of ryegrass. Keeping mowing equipment, as well as combines, clean of ryegrass seed is essential to limiting the spread of this weed to new areas. Ideally, the infested areas should be harvested last. Contamination of ryegrass seed in wheat seed and growing ryegrass as cover crop are other sources of spreading this weed.

Brome grasses that commonly occur in wheat in our region include cheat (*Bromus secalinus*) and hairy chess (*Bromus commutatus*) followed by downy brome (*Bromus tectorum*). While they are not intentionally sown in field borders or waterways, brome grasses can occur as weeds in these areas. Their growth habit is similar to ryegrass, therefore, keeping equipment clean of seed after mowing or harvesting infested areas can limit the spread of brome grass seeds.

Annual bluegrass (*Poa annua*) and little barley (*Hordeum pusiolum*) are examples of other cool-season weedy grasses that occasionally occur in wheat. While they are competitive and limit wheat yield, they tend to be shorter and less conspicuous than ryegrass and brome grasses.

Industry has developed a number of new products during the last few years for controlling certain grassy weeds in wheat. Most of these herbicides are classified as either an ALS inhibitor or an ACCase inhibitor. The fact that herbicide resistance already exists in the United States for these two herbicide groups makes it important to use good resistance management strategies.

The herbicides used to control weedy grasses in wheat are specific in the species they control, therefore, proper identification of the weed is important. The following PDF has information on vegetative characteristics for several weedy grasses that occur in wheat in our region:

<http://www.ca.uky.edu/ukrec/newsletters/News02-5.pdf>.

Most of the grass herbicides are applied for postemergence control, therefore their effectiveness is often dependent on most weeds being emerged and within the recommended growth stage at the time of application. Since many of these herbicides lack the ability to control broadleaf weeds or wild garlic, it may be necessary to tank mix them with other herbicides to control a broad spectrum of weed species. Caution is needed to avoid tank mix antagonism either in the form of reduced grass control or wheat injury. Carryover injury to subsequent crops, particularly double crop soybeans, is another issue for some of these herbicides.

The following information is a summary of some of the key issues associated with herbicides used to manage weedy grasses in wheat:

Achieve (*tralkoxydim*) is an ACCase inhibitor. It is labeled to control Italian ryegrass (1 to 4 leaves in the fall). It may be tank mixed with Buctril, 2,4-D ester, Starane, or Stinger. Allow a 7-day interval between applications of Achieve and herbicides not listed on the label (e.g., Harmony Extra or dicamba). Allow a rotation interval of 106 days for soybeans.

Axial (*pinoxaden*) is an ACCase inhibitor. It is labeled for postemergence control of Italian ryegrass (1-5 leaves on main stem but prior to 3 tillers). It may be tank mixed with Buctril, Harmony Extra, and Harmony GT. The rotation interval for soybeans is 4 months.

Beyond (*imazamox*) is an ALS inhibitor that is labeled only for Clearfield wheat varieties. It is applied postemergence for control of Italian ryegrass (1-4 leaves up to a maximum of 1 tiller), cheat, or downy brome (1-5 leaves up to a maximum of 2 tillers). It may be tank mixed with Banvel, Buctril, 2,4-D ester, or Starane; however, reduced grass control may occur. Do not tank mix with sulfonylurea herbicides (e.g., Harmony Extra) due to risk of wheat injury. Soybeans may be planted anytime after application.

Everest (*flucarbazone*) is an ALS inhibitor that is applied for postemergence control of Italian ryegrass (1-4 leaves on the main stem up to tillering). It is also applied for postemergence control of cheat in the fall. It may be tank mixed with dicamba, 2,4-D, Aim, bromoxynil, Harmony Extra, Harmony GT, etc. The rotation interval for soybeans is 9 months.

Finesse Grass & Broadleaf (*chlorsulfuron + flucarbazone*) is a premix of ALS inhibitors that is labeled for postemergence control of Italian ryegrass and cheat (1 leaf to 2 tillers). It may be tank mixed with Buctril, Starane, Aim, or Stinger. Grass control may be reduced when combined with 2,4-D or dicamba. The rotation interval is 9 months for STS soybeans.

Hoelon (*diclofop-methyl*) is an ACCase inhibitor and a Restricted-Use Pesticide. It is labeled to control Italian ryegrass (preemergence up to 2 tillers). It may be tank mixed with Buctril. Reduced grass control will occur if applied within 5 days of 2,4-D or Banvel. There are no restrictions for rotating to soybean.

Maverick (*sulfosulfuron*) is an ALS inhibitor. It is labeled to control cheat, hairy chess, or downy brome (preemergence or early postemergence up to 3 leaves in the fall). It may be tank mixed with 2,4-D ester, Buctril, or metribuzin. Products formulated as amines will reduce grass control. When soil pH is < 6.5 and cumulative precipitation is at least 30 inches, the rotation interval is 3 months for STS soybeans and 5 months for non-STs soybeans.

Olympus (*propoxycarbazone*) is an ALS inhibitor. It is labeled to control cheat (2 leaves to 6 tillers), soft chess, downy brome, and foxtail barley (2 leaves to 2 tillers). It may be tank mixed with Harmony Extra, Harmony GT, Sencor, etc. Applications with 2,4-D, Banvel, or Clarity may reduce downy brome control. A successful field bioassay should be conducted at least 4 months after application before planting STS Soybean.

Osprey (*mesosulfuron*) is an ALS inhibitor. It is labeled to control Italian ryegrass and annual bluegrass (1 leaf to 2 tillers). It may be tank mixed with Harmony Extra, Ally, Buctril, and certain other products. Products not mentioned on the label (e.g., dicamba or 2,4-D) should not be applied within 5 days of Osprey. Crop injury may occur when topdressing nitrogen fertilizer within 14 days of Osprey. The rotation interval for soybeans is 3 months.

Finesse, Prowl H₂O, and Sencor (for metribuzin tolerant wheat varieties) are example of herbicides that may be used for temporary control or suppression of certain weedy grasses in wheat. While they cost less than some of the other herbicides used for controlling weedy grasses, they will not provide adequate control of heavy infestations.