
Giant Ragweed

This annual weed emerges as early as March and will continue to germinate through the spring and early summer. Giant ragweed is extremely competitive and is most difficult to control in soybeans and other broadleaf crops. Its ability to germinate and emerge from deep in the soil allows it to escape many soil-applied herbicides. The most dense populations occur in tilled soil. Populations can decrease in long-term no-till with proper management. Many populations of giant ragweed in Ohio and Indiana are resistant to group 2 herbicides (Classic, FirstRate, etc.), especially in fields with a history of non-GMO soybeans. Populations with resistance to glyphosate (group 9) have also been identified, and some of these have multiple resistance, to both groups 2 and 9.

Corn. Early-emerging giant ragweed plants should be removed prior to planting with tillage or a preplant herbicide treatment. A preplant application of 2,4-D ester (0.5 lb ai/A) plus atrazine provides effective control of giant ragweed plants that emerge early in the spring before planting. For preplant control of large plants, the addition of glyphosate or Gramoxone SL 3.0 may be necessary.

A combination of preemergence followed by postemergence herbicides provides the most effective giant ragweed control. This approach should be used in any field where control of giant ragweed has been inadequate in previous years. Most effective preemergence treatments are those that contain atrazine and another broadleaf herbicide with activity on giant ragweed. These include premixes of atrazine + mesotrione + metolcahlor (Acuron, Lumax, Lexar, etc.) or a combination of atrazine and one of the following: SureStart/TripleFlex, Balance Flexx, Corvus, or Verdict/Sharpen.

A follow-up postemergence treatment is usually necessary in fields infested with giant ragweed, and some preemergence products are intended for use only in preemergence plus postemergence programs. Many postemergence corn herbicides will control giant ragweed, especially if they contain atrazine or dicamba (see Table 6—corn herbicide effectiveness ratings). In glyphosate-resistant corn fields with a history of poor performance of glyphosate on giant ragweed, postemergence herbicide treatments should include other herbicides along with glyphosate. Most effective partners for glyphosate in these mixtures include Status, Impact/Armezon, mesotrione products, Laudis, and dicamba. The rate of the partner herbicide should be high enough to control giant ragweed that appears to be resistant to glyphosate. In LibertyLink corn, postemergence application of glufosinate or glufosinate plus atrazine effectively controls ragweed plants that escape residual herbicides.

Soybeans. A combination of preemergence followed by postemergence herbicides provides the most effective giant ragweed control, and this approach should be used in any field where control of giant

ragweed has been inadequate in prior years. Early-emerging giant ragweed plants should be removed prior to planting with tillage or a preplant herbicide treatment. While 2,4-D ester alone can control small plants, it should be combined with glyphosate or Gramoxone when plants are more than a few inches tall. Where the use of 2,4-D is not possible, application of saflufenacil (Sharpen, Optill PRO, or Verdict) plus either glyphosate or glufosinate, or a combination of glufosinate and metribuzin should be effective. Glyphosate is somewhat variable for burndown of early-emerging giant ragweed plants, and use of the appropriate rate based on plant size is important. The addition of 2,4-D ester or saflufenacil is also recommended for consistently effective control, especially in fields with a prior history of poor glyphosate performance on giant ragweed.

Include herbicide(s) with residual activity in the preplant burndown treatment (or apply these after planting where tillage is used), which involves the use of a product containing chlorimuron or cloransulam, Scepter or Alite 27 (GT27 soybeans only). These herbicides will reduce the giant ragweed population and slow the growth of remaining plants to build more flexibility in the postemergence application window. None of these herbicides will control group 2-resistant giant ragweed, however, except Alite 27. Prefix and Intimidator can provide some residual group 2-resistant giant ragweed control, but their activity is variable, and the field cannot be treated POST with any fomesafen products where these PRE herbicides are used.

Where residual herbicides have been applied and are effective, or the giant ragweed population is very low, it may be possible to obtain adequate control with a single postemergence application. However, where ragweed populations are moderate to dense, early postemergence herbicide applications need to be followed by a second application to control late-emerging plants. The most effective postemergence treatments for control of giant ragweed (4 to 8 inches tall), that are not herbicide-resistant, in non-GMO soybeans include: FirstRate (0.3 oz./A), fomesafen 1.88L (1.3 pts./A), or FirstRate + fomesafen 1.88L (0.3 oz. + 1 pt./A). Results with Classic and Synchrony XP have been more variable than with FirstRate. In STS soybeans, combinations of Synchrony XP plus Cobra will provide more consistent control than Synchrony alone. FirstRate, Classic, Synchrony, and Pursuit do not control group 2-resistant ragweed.

In Roundup Ready soybeans, make an initial postemergence application of glyphosate when ragweed are about 6 to 10 inches tall. Glyphosate rate for this application should be 1.1 to 1.5 lbs. ae/A (use the higher rate in fields where giant ragweed has not been adequately controlled in the past). Make a second application of glyphosate (0.75 lb. ae/A) three to four weeks later as needed to control later-emerging plants or to improve control of plants that survive the first

application. In continuous Roundup Ready soybean fields and fields with a history of giant ragweed control problems (but where glyphosate still has substantial activity), it is essential to make two postemergence glyphosate applications at the rates and timings indicated here (in addition to the use of a burndown with 2,4-D and residual herbicides as described above). Failure to do so is likely to result in giant ragweed escapes later in the season, and these plants will be extremely difficult to control.

Herbicide-resistant giant ragweed. Giant ragweed populations with group 9 resistance occur in Ohio and Indiana, and some populations have resistance to both group 2 and group 9. Postemergence control of these populations in soybeans can be extremely difficult, and the most effective management strategy may be to plant corn, in order to take advantage of the effectiveness of corn herbicides on resistant ragweed. It is essential that no-till soybean fields with resistant populations receive a preplant treatment of 2,4-D ester or dicamba (Xtend soybeans), to ensure that the field is weed-free at the time of planting. Preemergence soybean herbicides listed in the previous section can be included in the preplant herbicide treatment, although they will not control plants that are group 2-resistant (they may still have activity on the plants in the population that are not resistant).

Most effective postemergence options for control of glyphosate-resistant populations include glufosinate (LibertyLink soybeans), dicamba (Xtend soybeans) or 2,4-D (Enlist soybeans). Apply glufosinate (32 oz./A) postemergence initially when ragweed plants are about 4 to 6 inches tall. Make a second application (32 oz./A) about three weeks later as needed to control later-emerging plants or to improve control of plants that survive the first application. A similar strategy can be used with dicamba or 2,4-D, but the second application will often be later than these herbicides can legally be applied. Second application may therefore require use of a group 14 herbicide in Xtend soybeans. Enlist soybeans can be treated with glufosinate or a group 14 herbicide in the second application.

Ohio State and Purdue research has shown that resistant populations can also be managed with multiple applications of group 14 herbicides (fomesafen, Cobra), although this approach may lead to the development of resistance to these herbicides as well. The best approach is to make an initial application of fomesafen 1.88L (1.3 to 1.6 pts./A) or Flexstar GT 3.5 when plants are 4 to 8 inches tall. This should be followed with postemergence application of Cobra (10 oz./A) three to four weeks later. Where a PPO inhibitor is mixed with glyphosate to control glyphosate-resistant plants, apply with the adjuvants specified on the labels for the fomesafen or Cobra in order to optimize their activity. This is likely to result in the use of MSO (fomesafen) or COC (Cobra), and one of these adjuvants should be added to Flexstar GT 3.5 in this situation also.

Perennial Sowthistle

Perennial sowthistle is a perennial broadleaf weed that spreads by seed and creeping roots. Identifying characteristics are a smooth stem with milky juice and a whitish coating on the surface, long lobed leaves with spiny edges, and yellow flower that is about 1.5 inches across.

Non-crop/Fallow Areas. Apply glyphosate (2.25 lbs. ae/A or a 2% solution for spot treatment) when plants are in the full-rosette stage for fair to good control. Effective control can be obtained using dicamba (2 qts./A) or 2,4-D ester (2 lbs. ai/A) when plants are in the bud to flower stage. Avoid tillage for 7 days after application.

Corn. Atrazine applied preplant/preemergence (1.5 lbs./A) or postemergence (2 lbs./A) can provide good control of sowthistle. Dicamba (0.5 to 1 pt./A), Status (5 oz./A), or Marksman (3.5 pts./A) provide fair control when applied to sowthistle at least 6 inches tall. Apply dicamba with drop nozzles if corn is more than 8 inches tall to avoid crop injury. Stinger (0.33 to 0.66 pt./A) provides fair control when applied at the rosette to bud stage. Postemergence application of glyphosate (1.1 lbs. ae/A—glyphosate-resistant corn) will control or suppress sowthistle.

Soybeans. Preplant or preemergence applications of a chlorimuron-containing product provides fair to good control. Most effective postemergence options include glyphosate (Roundup Ready soybeans), and mixtures of glyphosate with dicamba (Xtend soybeans) or 2,4-D (Enlist soybeans). Postemergence application of Classic (0.75 oz./A) or Synchrony XP (0.75 oz./A) when sowthistle are in the early- to mid-rosette stage provides suppression to fair control.

Wheat. Application of high rates of tribenuron or a thifensulfuron/tribenuron premix product when sowthistle are 4 to 8 inches tall provides fair control. Stinger (0.33 pt./A) or Curtail (2 to 2.66 pts./A) provides fair control when applied at the rosette to bud stage.

Star-of-Bethlehem

Star-of-Bethlehem is a bulbous perennial emerging in early spring and maturing in late spring or early summer. The leaves of this weed appear grass-like, and are green and fleshy with a prominent whitish midrib. The leaves originate from a central bulb. Flowers have 6 white petals with a green stripe on the underside of each petal. Star-of-Bethlehem has been most problematic in no-till soybean fields, but is also found in no-till corn. The thick vegetation and bulb density of this plant can interfere with crop establishment and reduce crop vigor.

All Crops. The most effective preplant treatment is Gramoxone SL 3.0 applied at 2 to 3 pints per acre. This treatment will provide control during the season of application and also reduce the severity of future infestations.