

# Morningglory Management in Soybeans



Morningglories are among the most problematic weeds in U.S. soybean fields. Not only are they hard to control, but one tall morningglory plant growing per foot of row can reduce soybean yield by 50 percent if left to compete all season.



## Morningglory Distribution and Biology

- Morningglories favor warmer climates and are typically found in the southern and central United States. They are capable of adapting to a wide range of environmental conditions and can establish in agronomic, horticulture and nursery crop settings.
- They germinate in early summer, favoring day temperatures near 85 degrees, and can produce from 5,000 to more than 15,000 seeds per plant, depending on the species.
- Morningglories' first leaves are notched at the tips, forming two lobes that join at the base. These lobes can be fairly broad or pointed at the tip, depending on the species. The leaves are either heart-shaped or lobed and range from 2 to 5 inches in length and 1.5 to 4 inches in width. These vining plants have tendrils for climbing, and the flowers are funnel-shaped and typically blue, purple or white.

## Herbicide Resistance in Morningglory

Although there are no confirmed cases of herbicide resistance in morningglories, they can be difficult to control because of the following factors:

Entireleaf (pictured), ivyleaf and tall morningglory seedlings have indented cotyledons with wider tips and are almost square in appearance. *Photo Credit: Kevin Bradley, University of Missouri*

- Large seed size and a hard, impenetrable seed coat that can make pre-emergence herbicides less effective.
- Their ability to germinate late in the season after the crop has been established.
- Tolerance of glyphosate.

## Management of Morningglory in Soybeans

1. **Consider cultural practices.** Cultural practices, such as the ones listed below, can help make soybeans more competitive with morningglory and improve the consistency of any herbicide program.
  - *Narrow row spacing.* Morningglories tend to germinate after soybeans have established, therefore narrow row spacing can decrease the time required for the soybean canopy to form and reduce the availability of quality sunlight at the soil surface. Narrow row spacing has been shown to reduce the impact of morningglory on soybean yields by 19 percent compared with 30-inch-or-wider row spacing.

- Other cultural control practices include using higher soybean seeding rates, implementing crop rotations and using tillage where appropriate.
- 2. Control existing weeds at planting.** If emergence occurs prior to soybean planting, a pre-plant burndown herbicide treatment or tillage should be used. Do not plant into existing stands of morningglory.
- The consistency of morningglory control is improved by adding 2,4-D ester at 16 fluid ounces/acre to either glyphosate, Gramoxone or Liberty in the burndown application.
- Note:** a minimum of seven days is required between 2,4-D ester application and soybean planting.
- 3. Apply an effective soil-applied, pre-emergence herbicide.** Apply the full rate of a residual herbicide known to be effective on annual morningglories.
- The group 2 and group 14 herbicides, such as Authority Maxx/XL, Canopy, Envive, FirstRate, Gangster and Valor, have been shown to provide the most consistent control of morningglories.
- 4. Make timely postemergence herbicide applications.** Historically, glyphosate has not provided consistent control of morningglory in Roundup Ready soybeans, and



the level of control provided by glyphosate is usually a function of the glyphosate rate and morningglory size at the time of application. For this reason, single applications of glyphosate should be made to plants no more than 2 inches in height.

- Tank-mixes of glyphosate with Classic (1/3 oz./A.), FirstRate (0.15-20 ozs./A.), Flexstar or other fomesafen-containing products; Cobra (12.5 ozs./A.); or Ultra Blazer (1.5 pt./A.) will improve the control of morningglory species compared with glyphosate alone.
  - Timely applications of Liberty in LibertyLink soybeans will also provide effective control of morningglories. Liberty should be applied in a minimum of 15 gallons of water per acre and in dense weed/crop canopies, this amount should be increased to ensure thorough spray coverage. Liberty should also be applied using nozzles and pressures that generate medium (250-350 micron) spray droplets. Do not use nozzles that produce coarse sprays.
- 5. Scout fields 10 to 14 days later for effectiveness.** If morningglory escapes the initial control or emerge after the postemergence herbicide application, glyphosate can be applied a second time in Roundup Ready soybeans or Liberty can be applied a second time in LibertyLink soybeans. However, these are “rescue” treatments and will increase the selection pressure for the evolution of herbicide resistance.
- Weeds not controlled with a second application of the same active ingredient should be tested for herbicide resistance.

◀ Entireleaf, pitted (pictured), and tall morningglories have heart-shaped leaves. Photo Credit: Kevin Bradley, University of Missouri

For more information and links to additional resources, visit [www.TakeActionOnWeeds.com](http://www.TakeActionOnWeeds.com).

Technical editing for this publication was led by Kevin Bradley, Ph.D., University of Missouri; and Mandy Bish, Ph.D., University of Missouri; in partnership with researchers from other universities in the soybean-growing regions of the United States. The United Soybean Board does not make any representations or warranties relating to the use of the advice contained herein, and is not liable for the use or misuse of the information provided. ©2016 United Soybean Board