

Italian Ryegrass Management in Soybeans



Italian Ryegrass Distribution and Biology

- Italian ryegrass was introduced from Europe. The United States grows approximately 3 million acres annually with 90 percent being used for winter pasture in the southeast United States.
- Ryegrass species such as Italian ryegrass readily hybridize and escape cultivation, resulting in naturalization along roadsides.
- Italian ryegrass has become a problematic weed along roadsides and in cereal, vegetable, row and grass seed crops.
- Italian ryegrass is described as a short, cool-season annual or biennial bunchgrass that grows from 12 to 36 inches tall, often with erect stems exhibiting purple coloration at the base.
- Germination occurs within six to 10 days when temperatures are between 50 and 86 degrees Fahrenheit during the daytime. Plants grow vigorously in winter and early spring and are highly competitive for nutrients, water and sunlight.
- Italian ryegrass establishes quickly and grows rapidly in a wide range of soils with pH levels ranging from 5 to 7.9 and various drainage regimes.
- When Italian ryegrass is not controlled, it is competitive with major row crops. Uncontrolled Italian ryegrass has been shown to reduce corn, cotton and soybean yields by 65, 85 and 37 percent, respectively, in field trials.

Herbicide Resistance in Italian Ryegrass

- Since the 1980s, Italian ryegrass has developed resistance to five different herbicide sites of action in the United States. (Table 1)
- Italian ryegrass resistance to two or three herbicide sites of action is not uncommon in the United States, Europe and South America.
- The first report of glyphosate-resistant Italian ryegrass in soybeans came from Brazil in 2003. Documented reports of glyphosate resistance within the United

States occurred in 2004 (Oregon), 2005 (Mississippi), 2008 (Arkansas and California), 2009 (North Carolina) and 2012 (Tennessee).

- Most Italian ryegrass populations in the southeastern United States exhibit resistance to many of the ALS-inhibiting herbicides. Repeated use of these herbicides should be avoided.
- Many Italian ryegrass populations in the mid-southern United States have developed resistance to certain ACCase-inhibiting herbicides, such as Hoelon and Axial.
- As with any herbicide-resistant weed, it is imperative to utilize multiple herbicide modes of action and other cultural practices to prevent further spread or resistance development.

Management of Italian Ryegrass in Soybeans

Annual ryegrass or blends should not be used as a cover crop due to the potential of glyphosate-resistant ryegrass in the seed stock. Furthermore, steps should be taken to remove ryegrass and prevent resistance in other species of winter cover crops.

Best-management practices to control Italian ryegrass in soybeans require efforts to control plants that emerge in the fall. Depending on the location, year and population, some Italian ryegrass may also emerge in the spring prior to planting soybeans.

1. Control fall-emerged plants with tillage or herbicide.

Residual herbicides should be applied from mid-October to mid-November to control fall-emerging Italian ryegrass.

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Table 1.

| Group # | Group 1 | Group 2 | Group 9 | Group 10 | Group 15 |
|------------------|---|--|------------|---------------------------------|----------------------------------|
| Site of Action | ACCase inhibitors | ALS inhibitors | Glycines | Glutamine synthetase inhibitors | Long chain fatty acid inhibitors |
| Product Examples | Assure® Axial™ Discover™ Fusilade® Hoelon® Poast® Select® | Amber® Autumn™ Beyond® Glean® Osprey™ Oust® PowerFlex® | glyphosate | Liberty® | Define™ |

Effective residual herbicides include Boundary at 1.3 lbs. active ingredient ai/A., S-metolachlor at 1.27 lbs. ai/A., trifluralin at 1.5 lbs. ai/A. and Zidua® at 0.133 lbs. ai/A. Paraquat at 0.75 lb. ai/A. plus surfactant should be included with residual herbicides to control emerged Italian ryegrass. Tillage may also be substituted for residual herbicide applications; however, research indicates that fall tillage must be followed by at least two postemergence herbicide applications to achieve complete control. For geographies with highly erodible land or adherence to no-till practices, an aggressive spring-applied postemergence program may be required.

- 2. Apply postemergence herbicide for Italian ryegrass with spring burndown.** Clethodim at 0.094 to 0.125 lb. ai/A. plus glyphosate, surfactant and ammonium sulfate should be applied when Italian ryegrass is no more than 4 to 6 inches tall. Higher rates of clethodim should be utilized if no residual herbicide was applied in the fall.

- 3. Scout fields 10 to 14 days later for effectiveness.**

Applications of paraquat at 1 lb./A. plus a metribuzin-containing product plus surfactant should be applied 21 to 28 days following clethodim based on careful scouting for surviving Italian ryegrass. Multiple applications of paraquat at 1 lb./A. plus a metribuzin-containing product plus surfactant spaced 10 to 14 days apart may be effective if clethodim was not applied previously.

- 4. Control existing plants at planting.** If no control measure was implemented earlier, Italian ryegrass plants may be quite large (greater than 16 inches tall) at planting and can be very difficult to control. Herbicides and spring tillage are generally ineffective for Italian ryegrass control due to its profuse vegetative growth and dense, fibrous root system.

For more information and links to additional resources, visit www.TakeActionOnWeeds.com.

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