

Understanding Sulfonylurea (SR) Soybean Technology

- Sulfonylurea herbicides kill a wide array of broadleaf weeds and grasses. Sulfonylurea Ready (SR) soybean products have enhanced tolerance to the sulfonylurea family of ALS inhibitor herbicides through a proprietary trait.
- Soybean products stacked with SR offer flexible planting options in fields previously sprayed with sulfonylurea herbicides.
- Genuity® Roundup Ready 2 Yield® soybean products stacked with SR can provide broader weed control by applying herbicides with multiple modes of action.

Tolerance to Sulfonylurea Herbicides

Soybeans have some natural tolerance to sulfonylurea herbicides; however, significant crop stunting and injury can occur. Sulfonylurea herbicides function by inhibiting the Acetolactate Synthase (ALS) enzyme in susceptible plants. This enzyme is important in producing necessary proteins for a plant's development and growth; weeds sprayed with this family of herbicides essentially starve to death as they can no longer produce proteins required for new growth.

Soybean products with the SR (sulfonylurea tolerant) designation contain a proprietary trait enhancing the soybean plant's natural tolerance to the sulfonylurea family of ALS inhibitor herbicides. Soybean products with the SR trait can withstand application of higher rates of sulfonylureas without slowing down crop development and growth.

Broader Weed Control Option

SR soybean products have an increased tolerance to sulfonylurea herbicides sprayed at various times - both when applied post-emergence as well as to residual herbicide carryover that may remain from a previous crop. When SR is paired with another herbicide tolerance trait, such as Genuity® Roundup Ready 2 Yield®, weed control can be further enhanced by providing an additional herbicide option and multiple modes of actions.

Flexibility for Double Crop Soybeans

Double crop situations where soybeans follow wheat can particularly benefit from use of soybean products with SR technology as residual sulfonylurea herbicides are often used to control weeds in wheat. Due to the shortened growing season for double crop soybeans, it is essential to avoid herbicide injury as plants have less time to recover. ALS herbicides remain active in the soil, where they are gradually degraded by microbial activity and

uptake by plants. Unfavorable weather conditions may lengthen degradation time and lead to potential injury to the following crop. Planting a soybean crop capable of tolerating the residual effects of wheat herbicides allows for a much shorter plant back time after wheat harvest.

Product Selection

Soybean products with the SR trait are available in a range of maturity groups. The SR designation may be found in the product name or in product description. For more information on SR products and specific sulfonylurea herbicides, please contact your local seed representative and refer to product labels. **Always read and follow pesticide label directions.**

Sources:

Armstrong, J. 2011. Making sense of herbicide-resistance traits in crops. Oklahoma State Department of Plant & Soil Sciences Extension News. <http://extensionnews.okstate.edu>
Double-cropping makes weeds less worrisome. 2000. AgAnswers. www.agriculture.purdue.edu/AgAnswers.
Gianessi, L. and Carpenter, J.. 2000. Agricultural biotechnology: Benefits of transgenic soybeans. National Center for Food and Agricultural Policy.
Lee, C., Knott, C., and Ritchey, E. 2014. Soybean variety selection AGR-129. University of Kentucky Extension. <http://www.iatp-web.us>. Web sources verified 10/01/2015.

For additional agronomic information, please contact your local seed representative. Developed in partnership with Technology, Development, & Agronomy by Monsanto.

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Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready® crops contain genes that confer tolerance to glyphosate, the active ingredient in Roundup® brand agricultural herbicides. Roundup® brand agricultural herbicides will kill crops that are not tolerant to glyphosate. Asgrow and the A Design®, Asgrow®, DEKALB®, Genuity®, Roundup Ready 2 Yield®, Roundup Ready® and Roundup® are registered trademarks of Monsanto Technology LLC. All other trademarks are the property of their respective owners. ©2015 Monsanto Company. 140522060630 10162015JEH.