

MISSISSIPPI SOYBEAN PROMOTION BOARD

MANAGING TRANSGENIC CROPS AS WEEDS IN SOYBEAN

Increased plantings of transgenic crops, especially those that are glyphosate-resistant and rotated with each other (soybean, corn, and cotton) in the Midsouth, present two unique problems for soybean producers.

- In a rotational system, volunteer plants of the previous crop will be weeds in the current crop. Since it is likely that all of these rotated crops will be glyphosate-resistant, controlling these volunteer crop “weeds” will require a different approach than when glyphosate effectively controlled them.
- When replanting a crop into a failed stand of the same crop prior to commercialization of glyphosate-resistant crop technology, producers could simply treat plants from the failed stand with glyphosate to control them and prevent interference with the new planting. Now, that is no longer an option because it is likely that each of the above three crops will be glyphosate-resistant.

The below resources were used to compile the following guidelines for controlling transgenic crops as weeds in soybean.

Resources

“[When crops become weeds: control strategies](#)” published by the LSU AgCenter gives succinct options for control of volunteer cotton and corn in soybean, as well as control of soybean plants remaining from a failed stand after replanting to soybean.

A [webinar](#) composed for the Plant Management Network by Dr. William

Johnson, Professor of Weed Science at Purdue University, gives details about the effects of volunteer corn on yield of soybean the following year. The [webinar](#) also provides a summary of herbicides and their rates that effectively control volunteer corn of varying heights in soybean.

“Managing Transgenic Crops as Weeds in Soybean Cropping Systems”, MSPB Project No. 13-2012.

Control Guidelines

Preplant applications that include either [paraquat](#) or glufosinate ([Liberty 280](#)) will control emerged **glyphosate-resistant** cotton, soybean, and corn. Paraquat and flumioxazin ([Valor SX](#)) will control [Liberty Link](#) (glufosinate-resistant) and [Glytol® Liberty Link®](#) cotton. However, multiple herbicide applications may be needed for complete control.

Preplant control of emerged volunteer glyphosate-resistant, [Liberty Link](#), and [Herculex](#) corn in a field rotated to soybean is accomplished with paraquat plus [metribuzin](#) (for residual control of weeds and as a synergist for paraquat), or with grass herbicides such as clethodim ([Select Max](#) or equivalent), fluzifop ([Fusilade DX](#)), and quizalofop ([Assure II](#)). In-season control can be accomplished with the same grass herbicides.

Control of unwanted soybean plants in a soybean monoculture (soybean followed by soybean) system will involve the following scenarios.

MISSISSIPPI SOYBEAN PROMOTION BOARD

- Volunteer plants from the previous year's soybean crop can be controlled preplant by either glyphosate applied to plants of a [Liberty Link](#) variety or Liberty 280 applied to plants of a glyphosate-resistant variety.
- In a failed stand of a glyphosate-resistant soybean variety that is replanted to a glyphosate-resistant variety, Liberty 280 applied before replanting will effectively control soybean plants that remain from the failed stand.
- In a failed stand of a Liberty Link soybean variety that is replanted to a Liberty Link variety, glyphosate applied before replanting will effectively control soybean plants that remain from the failed stand.
- In some unlikely cases, plants remaining from a failed soybean stand cannot be controlled before emergence of plants from the replanting. The best option in this case is to plant a glyphosate-resistant variety into a failed stand of a Liberty Link variety or vice versa, and then control plants remaining from the failed stand with either glyphosate or Liberty 280, respectively.
- Replanting into a failed stand according to points 2 and 3 is preferred because it results in less restriction of choice of the replanted variety, and neither case will jeopardize a weed resistance management program that is in place.

Success of all the above-mentioned herbicide treatments is greatest when they are applied to plants that are actively growing and less than 6 in. tall. For plants that are taller than 6 in., increase the rate according to the label for each herbicide.

Composed by Larry G. Heatherly (MSPB - larryheatherly@bellsouth.net) and Jason Bond (MSU-DREC - JBond@drec.msstate.edu), Mar. 2015