

## MANAGING HERBICIDE-RESISTANT WEEDS FACT SHEET

This is one in a series of fact sheets from the Mississippi Soybean Promotion Board and the soybean checkoff. Each sheet presents a brief overview of a topic important to Mississippi soybean production. More information on each topic can be accessed through the links at the end of the article. To see other fact sheets, click [here](#).

Soybean growers are constantly dealing with herbicide-resistant (HR) weeds. In the recent past, growers had only to be concerned with glyphosate-resistant (GR) weeds. Now, however, they must contend with weeds that are resistant to herbicides from other groups as well. This is a major production problem and threatens the production of a profitable crop.

- The most important practice in preventing and/or managing HR weeds is to [use herbicides with different mechanisms or modes of action \(MOA\)](#) prior to planting and throughout the growing season. Growers should check the group number on the herbicide label to ensure selection of the correct MOA to match targeted weeds. Frequent use of herbicides with the same MOA is the most important contributor to the development of HR weeds.
- Weed species present in individual fields should be documented each year so that MOA knowledge and level of weed control by individual herbicides can be coupled when making herbicide decisions.
- If resistant weed populations have emerged prior to soybean planting and/or emergence, tank-mix a burndown herbicide with another herbicide such as 2,4-D (Group 4), Clarity (Group 4), or Sharpen (Group 14).
- Plant soybeans in a seedbed that is free of problem HR weeds.
- Use tillage as a weed control measure only on sites that are not highly erodible. Using BMP's other than tillage for management of HR weeds should have a high priority to encourage land stewardship.
- Use the full labeled rate of all herbicides that are applied.
- If and when GR weeds escape control with preemergence residual herbicides, use timely applications of postemergence herbicides that have an MOA different from that of glyphosate.
- Add a herbicide with in-crop residual activity in combination with postemergence contact herbicide applications in cases where multiple flushes of weeds

are expected.

- Overlap residual herbicides from burndown to canopy-closure applications to ensure minimum escapes during the growing season.
- Use fall weed control measures such as residual herbicides to provide an edge going into the following growing season.
- Use tank-mixes or [premixes](#) to facilitate applying herbicides with multiple MOA's in post-emergence applications. When tank-mixing compatible herbicides with glyphosate to control GR weeds, it is important that the non-glyphosate herbicide is added at a rate that will control the targeted weed alone or in the absence of glyphosate. Otherwise, the GR weed will not be killed and will continue to live and reproduce.
- Each acre should get a minimum of two MOA's that are effective for control of targeted weeds. If GR weeds are present, growers should use two MOA's in addition to that of glyphosate.
- Rotate herbicides with different MOA's yearly. Simply rotating herbicides that have the same MOA will only delay the inevitable occurrence of HR weeds.
- If there are no HR weeds in a field, it is still very important to rotate herbicides with different MOA's to prevent or delay the establishment of HR weeds. If GR weed species are not present in a particular field or fields, then using glyphosate is a viable option when used in rotation with other herbicide(s) with a different MOA. In fact, glyphosate used in rotation is an excellent resistance management option if there is no documented GR.
- Crop rotation offers opportunity for herbicide MOA rotation to prevent or delay development of HR weeds. Crop rotation will determine the frequency and type of herbicide that is applied, and is a major factor in the selection of non-chemical weed control options. The principle of crop rotation as a resistance management tool is that different crops will allow rotation of herbicides that have different MOA's.

Click [here](#) for a detailed discussion of this topic, and [here](#) for details about herbicide MOA. Click [here](#) for USB's TakeAction resource for managing HR weeds.

*Composed by Larry G. Heatherly, Updated June 2022,  
[larryheatherly@bellsouth.net](mailto:larryheatherly@bellsouth.net)*