

Waterhemp Survives Postemergence Herbicide Applications



Waterhemp that survived glyphosate applied at 0.75 lb ae/acre. This photograph was taken 21 days after glyphosate was applied to 4-inch tall waterhemp.

Photo provided by Aaron Hager, U of I Extension weed specialist

URBANA, ILL.

A discouraging number of waterhemp plants have survived applications of postemergence herbicides throughout the state, said University of Illinois Extension weed specialist Aaron Hager.

“During the past 10 days, we have experienced an increasing number of calls and inquiries describing a ‘noticeable’ percentage of plants surviving applications of glyphosate (at rates ranging from 0.75 to 1.5 lb ae/acre) in soybean,” Hager said. “Many have indicated that within approximately 7 to 10 days after glyphosate was applied, it became obvious the plants would survive.”

Hager said in some cases the cause of plant survival could be attributable to an application rate too low for the size of plants present, precipitation that occurred soon after the application, or poor coverage of the target vegetation. In other instances, the best explanation appears to be the evolution of a glyphosate-resistant population.

Remediation of these situations will likely be challenging, and it is altogether possible that in many instances herbicidal control of surviving plants will not be achievable, he added.

“Options to control surviving plants regardless of their herbicide sensitivity/resistance profile include inter-row cultivation or hand roguing,” Hager said. “Some may scoff at these suggestions, but in many areas of the mid-south and southeastern United States, these represent the few remaining viable options to manage emerged populations of herbicide-resistant weeds.”

Viable herbicide options for control of surviving waterhemp depend on the resistance profile of the plants. Hager reminds growers that it’s possible that more than one type of herbicide resistance is present in any given field.

For example, surveys from 2010 indicated approximately 33 percent of glyphosate-resistant waterhemp populations also demonstrated resistance to PPO inhibitors, and virtually all populations were also resistant to ALS inhibitors.

“If the waterhemp plants survived due to one of the aforementioned reasons not related to

herbicide resistance, re-treating the plants with glyphosate could provide effective control,” he said. “Be sure to select an application rate appropriate for the size of the target plants (up to 1.5 lb glyphosate ae/acre/application), include NIS (if recommended on the glyphosate product label) and/or AMS and apply at a spray volume sufficient for good coverage of the target vegetation.”

If the surviving waterhemp plants are resistant to glyphosate, re-treating with glyphosate is not likely to provide much control, he said. Glyphosate-resistant waterhemp plants frequently survive treatment with glyphosate at rates far in excess of those allowed by label.

PPO-inhibiting herbicides comprise the remaining options for control of glyphosate-resistant waterhemp, Hager said. Previous research has demonstrated that products containing fomesafen, lactofen, or acifluorfen can provide good to excellent control of waterhemp, but control generally is greatest when these products are applied before waterhemp exceeds 5 inches tall.

“If one of these products will be applied in an attempt to control glyphosate-resistant waterhemp, be sure to apply at the full recommended rate with the appropriate spray additives and with recommended spray tips and application volume,” he said. “PPO inhibitors do not translocate extensively once absorbed into the target weeds, so thorough spray coverage is essential. Be aware that these active ingredients may not provide sufficient control of waterhemp that survived following the initial postemergence herbicide because the waterhemp plants might simply be too large, or they might be resistant to PPO inhibitors.”

Waterhemp plants resistant to both glyphosate and PPO inhibitors represent a scenario in which no viable postemergence herbicide option is available for use in conventional or glyphosate-resistant soybean varieties. Glufosinate, used in conjunction with a glufosinate-resistant soybean variety, can provide good to excellent control of waterhemp resistant to glyphosate and/or PPO inhibitors. Δ