

UH OH...44 OZ OF GLYPHOSATE DIDN'T TOUCH IT...WHAT DO I DO NOW?

Bryan G. Young^{1/}

A common progression for farmers in the Roundup Ready crop system has been to gradually increase the rate of glyphosate as inconsistent weed control is observed. Thus, previous failed applications of glyphosate are followed with higher rates of glyphosate in subsequent applications. There are multiple concerns with this approach. First, the use of a single herbicide until failure allows weeds to continue growing with the crop which can reduce crop yields. Even if a successful rescue treatment controls all the surviving weeds the span of time for the failed glyphosate application to the rescue treatment is significant enough to reduce crop yields. Second, the use of glyphosate in this manner has been implicated in the evolution of glyphosate-resistant weed biotypes throughout the U.S., which ultimately results in the loss of the most effective herbicide available for control of our primary weed species.

When faced with a failed glyphosate application a farmer can adopt both a short-term and a long-term strategy with best management practices in mind. The long-term strategy would involve plans for future years with the integration of other herbicides and practices into the overall weed management program. Glyphosate can still be a component for weed management, however, glyphosate should no longer be the primary foundation for managing the most problematic weed species.

The short-term strategy would involve a decision process on what action can be taken in regards to the existing weeds that survived the maximum rate of glyphosate. Any weeds that were historically controlled, but over time survive a postemergence herbicide application, should be viewed as potential seed producers that may carry an herbicide-resistance trait for future weed generations. Thus, all efforts should be made to prevent those weeds from producing viable seed which contribute to the soil seedbank. If the calendar date, crop growth stage, and weed size are favorable, a subsequent rescue treatment can be applied with another herbicide, if available. If a follow-up herbicide application is not deemed possible, then hand-weeding should be another consideration. Finally, a late-season harvest aid application can be considered to potentially reduce the amount of viable seed being produced on the surviving weeds. If the surviving weeds are in patches across the field a farmer may consider not harvesting those areas for fear of spreading the weed seed further with the combine. These areas should also be mapped for monitoring purposes in future years.

In summary, failing to control weeds with a high dose of glyphosate without a backup plan is poor risk management. Nothing positive can come from this situation and, thus, should be avoided by implementing a more diverse weed management strategy prior to glyphosate failure. In other words, a proactive management strategy would be favored instead of allowing the weeds to dictate your fate.

^{1/}Associate Professor, Dept. of Botany and Plant Pathology, 915 W. State Street, Purdue University, West Lafayette, IN 47907.