Preserving Our Weed Management Tools Through Good Stewardship
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Large farms and erratic weather makes it difficult for producers to cover all their acres for nutrient and pest management. So, everyone is looking for ways to cut trips across the fields to save money and time. However, if we are not careful, we could be doing more harm than good and costing ourselves money in the short-term and/or long-term. The information below is targeted toward weed management, but some of the information will be true for insecticides and fungicides. *The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M AgriLife Extension Service is implied.*

It all starts with the herbicide label. When tank mixing herbicides or herbicides with other products (fertilizer, insecticides, and fungicides) always read and follow the label for allowed tank mixtures and mixing order. Tank mixtures can enhance activity (synergism), have no impact (neutral), or can decrease activity (antagonism). Antagonism can be due to chemical interactions in the spray tank, incompatibility in the tank due to poor mixing capabilities, or inhibition of herbicide once it is sprayed on the weeds. Approved tank mix partners are clearly stated on the label and often included specific rates, if different than either of the individual herbicide labels. As an example, Liberty® 280 (glufosinate) herbicide does not list Roundup® (glyphosate) as a tank mix partner in cotton, because of some slight antagonism observed with this tank mixture. Another example of antagonism includes tank mixtures of Staple® (pyrithiobac) with grass only herbicides (clethodim, fluazifop, quizalofop, or sethoxydim), which are not recommended because reduced grass control is often observed.

Also as crop budgets get tighter, the application of reduced rates (below label rates requirements) of herbicides becomes more appealing and more common. However, repeated applications of below label rates of herbicides substantially increases the likelihood for developing herbicide resistant weeds. This point has not been commonly emphasized for herbicides, but reduced rates have proven to promote insecticide and fungicide resistance multiple times over the past decades. Use of the full label rate also applies to herbicide tank mixtures, unless the label states otherwise.

As producers continue to struggle with glyphosate resistant weeds, some creative herbicide combinations have been used. Some with success and others not so much. However, I recently heard of some people that were applying reduced rates of Liberty (glufosinate) at 8-10 fl oz/ac tank mixed with Roundup® (glyphosate) and claiming to obtain better control of weeds. I have not found any research data that suggests any better weed kill from spiking glyphosate with Liberty®; however, if additional efficacy is being observed it is likely due to Liberty's® high surfactant load increasing glyphosate uptake. If the benefit of spiking glyphosate with Liberty® is the surfactant, then most surfactants are available at a lower price. More importantly, spiking glyphosate with Liberty® equates to application(s) of sublethal doses of Liberty®. This creates the perfect scenario for developing glufosinate (Liberty®) tolerant weeds. Liberty® herbicide is a critically important herbicide for controlling weeds in most of our current cotton varieties (LibertyLink® and XtendFlex®), and is one of the few postemergence options for effectively controlling glyphosate resistant weeds. It would be a huge loss of an effective herbicide and herbicide tolerant trait, if Liberty® (glufosinate) resistant weeds were to develop.

Take home message: use the full label rates of the herbicides to help prevent further development of herbicide resistant weeds. See the publication titled Weed Management in Texas Cotton as a reference for identifying label herbicides and rates for cotton. This article was provided by: Gaylon Morgan, Texas A&M AgriLife Extension Service, College Station, TX; gdmorgan@tamu.edu; Paul Baumann, Texas A&N AgriLife Extension Service, College Station, TX; p-baumann@tamu.edu; Josh McGinty, Texas A&M AgriLife Extension Service, Corpus Christi, TX, joshua.mcginty@ag.tamu.edu

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