TOLERANCE OF WIDESTRIKE COTTON TO IGNITE TANK-MIX APPLICATIONS

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Abstract

Glyphosate-resistant (GR) weeds are a major issue for Tennessee, Mississippi and Louisiana cotton growers and can be problematic to control and prevent yield loss. As a result, many growers have moved to an Ignite based system to manage GR weeds which includes a pre applied herbicide followed by at least one over-the-top Ignite application. Liberty Link cotton varieties are planted on just a few acres in Tennessee due to inconsistent performance of those varieties in the state. Over 60% of the cotton acres in Tennessee are planted to a Widestrike cotton variety which have tolerance to both glyphosate and glufosinate.

The Widestrike cotton varieties have moderate tolerance to Ignite. The leaf burn and stunting from an Ignite application on Widestrike cotton ranges from 15 to 25% and rarely to date has this visual injury resulted in yield loss (Whitaker et al. 2011; Culpepper et al. 2008). However cotton growers often want to tankmix other pesticides in with Ignite and spray over the top of WideStrike cotton (personal observation). Will these tankmixes cause more injury to Widestrike cotton?

The 29 oz rate of Ignite applied to 2 lf WideStrike cotton caused 15% injury that resulted in no yield loss compared to the glyphosate only check. However, tankmixtures that contained Dual Magnum at a rate of 16 oz/acre plus 29 oz of Ignite resulted in 35% cotton injury which resulted in 15% yield loss compared to the Ignite or glyphosate alone applications. Adding dimethoate in with Ignite did increase visual injury but did not reduce yield. The three and four way combinations of these pesticides resulted in yield loss.

Introduction

Glyphosate-resistant (GR) weeds are a major issue for Tennessee, Mississippi and Louisiana cotton growers and can be problematic to control and prevent yield loss. GR horseweed, GR giant ragweed, and GR Palmer amaranth are the three GR weeds that can currently be found in Tennessee. GR Palmer amaranth has become the most difficult to control of these. As a result, many growers have moved to a Ignite based system to manage GR weeds which includes a pre applied herbicide followed by at least one over-the-top Ignite application. Liberty Link cotton varieties are planted on just a few acres in Tennessee due to inconsistent performance of those varieties in the state. Over 60% of the cotton acres in Tennessee are planted to a Widestrike cotton variety which have tolerance to both glyphosate and glufosinate.

The Widestrike cotton varieties have moderate tolerance to Ignite. The leaf burn and stunting from an Ignite application on Widestrike cotton ranges from 15 to 25% and rarely to date has this visual injury resulted in yield loss (Whitaker et al. 2011; Culpepper et al. 2008). However cotton growers often want to tankmix other pesticides in with Ignite and spray over the top of WideStrike cotton (personal observation). Will these tankmixes cause more injury to Widestrike cotton?

Materials and Methods

The studies were conducted at research stations near Jackson, TN, Stoneville, MS and Alexandria, LA. The cotton varieties utilized in TN and MS was PHY 375 and in LA PHY 485 WideStrike cotton varieties. The study was a 2 by 3 factorial designed randomized complete block study. The first two factors were either Ignite or glyphosate and

the 3 factors were the tankmixtures. The pesticides mixed in with either glyphosate or Ignite were Dual Magnum and dimethoate and included all possible two, three and four way combinations of the pesticides. This study was kept weed free with hand weeding to just observe the variety tolerance to the herbicide.

Results and Discussion

The 29 oz rate of Ignite applied to 2 lf WideStrike cotton caused 15% injury that resulted in no yield loss compared to the glyphosate only check. However, tankmixtures that contained Dual Magnum at a rate of 16 oz/acre plus 29 oz of Ignite resulted in 35% cotton injury which resulted in 15% yield loss compared to the Ignite or glyphosate alone applications. Adding dimethoate in with Ignite did increase visual injury but did not reduce yield. The three and four way combinations of these pesticides resulted in yield loss.

Summary

These data would confirm what others have found that a 29 oz/A Ignite applications over WideStrike cotton varieties though it causes significant leaf burn will in most cases not result in yield loss. However tankmixing other pesticides in with Ignite and apply over the top of WideStrike cotton can result in some yield loss.

References

Culpepper, A. S., A. C. York, P. Roberts and J. R. Whitaker. 2009. Weed control and crop response to glufosinate applied to PHY 485 WRF cotton. Weed Technol. 23:356-362.

Whitaker, J R., A. C. York, D. Jordan and A. S. Culpepper. 2011. Weed management with glyphosate-based systems in PHY 485 WRF cotton. Weed Technol. 25: In Press.