DOW AGROSCIENCES TRANSFORM™ WG INSECTICIDE: PERFORMANCE IN SOUTHERN U.S. COTTON

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Abstract

Transform™ 50WG insecticide received federal U.S. registration on May 6, 2013. Transform™ contains the active ingredient, sulfoxaflor, which is a new proprietary insecticide within a novel chemical class developed by Dow AgroSciences (Sparks et al. 2013). Sulfoxaflor has been classified by the Insecticide Resistance Action Committee (IRAC) as a group 4C insecticide because it exhibits complex and unique interactions with the insect nicotinic acetylcholine receptors, distinct from neonicotinoids (4A) and nicotine (4B). It is active against a broad range of sap-feeding insects including cotton aphids (*Aphis gossypii)*, tarnished plant bugs (*Lygus lineolaris),* whiteflies, planthoppers, and scales while possessing minimal effects on beneficial arthropods (i.e. lack of mite flaring).

Transform™ has been characterized for activity against tarnished plant bug, *Lygus lineolaris*, in mid-south U.S. cotton from 2008-2013. Results consistently demonstrate that Transform™ insecticide, applied at 1.5 oz product/A (0.045 lb ai/A), is the minimum rate providing robust control of tarnished plant bug (Siebert et al. 2012). Initial control of tarnished plant bug infestations has been demonstrated at ≤ 5 d and residual control equal to or better than current standards. As with most insecticides, the performance of Transform™ in cotton will be dependent upon tarnished plant bug population level and intensity of infestation. Based upon this research, multiple applications of Transform™ may be required and the interval between applications may vary in cotton for tarnished plant bug management.

Small plot research trials have consistently demonstrated two consecutive applications of Transform™ applied at or near bloom protected cotton yields. Yield protection is the result of effective in-season control of tarnished plant bug, coupled with control of cotton aphid (or lack of flaring of cotton aphid) and lack of flaring of spider mites. Use of Transform™ early in tarnished plant bug management program provides the best opportunity to maximize yield. Large, 40-acre demonstration trials conducted with Mid-South consultants during 2013 provided support for previous small-plot trials. Tarnished plant bug programs utilizing two consecutive Transform™ applications early in a program and then rotated to other chemistries provided greater yield in seven of eight locations compared to tarnished plant bug management programs that did not use Transform™.

Field efficacy trials conducted in 2013 demonstrated that all cotton aphid populations tested, including those populations tolerant to neonicotinoid insecticides, were to be highly sensitive to Transform™ at 0.75 oz product/A (0.025 lb ai/A). In addition, field efficacy trials in Texas targeting cotton fleahopper, *Pseudatomoscelis seriatus*, demonstrated that Transform™ provided excellent efficacy at 0.75-1.0 oz product/A (0.025 – 0.035 lb ai/A).

Transform™ insecticide will have an excellent fit in cotton IPM programs based on the molecule's spectrum and properties, as a rotational partner with other chemistries, and as a tool for management of insect pests. Recommended scouting techniques for tarnished plant bugs and IPM practices should continue to be utilized.

References

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