INCORPORATION OF TRANSFORM™ WG INSECTICIDE IN TARNISHED PLANT BUG (*LYGUS LINEOLARIS)* PROGRAMS: EFFICACY, YIELD AND ECONOMICS IN LARGE PLOT DEMONSTRATION TRIALS

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Abstract

Sulfoxaflor is the first insecticide from the new sulfoximine chemical class. It was discovered by Dow AgroSciences (DAS) and is proprietary DAS chemistry. This novel insecticide is active against a wide range of sap-feeding insect pests affecting cotton including cotton aphid *(Aphis gossypii*), (plant bugs (*Lygus spp*.) and whiteflies (*Bemisia spp*.). Sulfoxaflor marketed under the trade name Transform™ WG received federal U.S. cotton registration May 6th, 2013. Efficacy experiments with Transform™ WG against tarnished plant bug (*Lygus lineolaris)* have been ongoing since 2006 in the Mid-South.

Transform™ WG insecticide is effective at low use rates for key pests in the Mid-South ranging from 0.75 to 1.5 oz/A (0.022 to 0.045 lbs ai/A) with the flexibility to use higher rates up to 2.75 oz/A (0.08 lb ai/A). Key target pest on the Transform™ WG cotton label include cotton aphids and tarnished plant bug. Transform™ WG insecticide is also effective on insect populations resistant to a variety of other insecticide and has minimal effects on beneficial insects (lack of mite flaring). It is also an important resistance management and IPM tool that is being incorporated as part of a rotational program for tarnished plant bugs.

In 2013 and 2014, eighteen large plot non-replicated experiments were conducted by licensed professional cotton consultants in cooperation with Dow AgroSciences in Arkansas, Mississippi, Louisiana, Missouri and Tennessee to demonstrate the performance attributes of Transform™ WG for plant bug management in cotton compared to currently recommended standards. Fields were ~80 acres or more of which 40 acres were treated for plant bugs with Transform™ WG and the other half with consultants' commercial standards. The application of treatments was based upon plant bug economic threshold of ~3 bugs/5 ft. row. Consultants were instructed to make 2 sequential application of Transform™ WG at 1.5 oz/A at or near bloom stage of cotton development before rotating to another insecticide(s). Applications were made by ground and air (~50/50); however both the Transform™ WG and commercial standard blocks were treated with same method of application. Each program block was taken to yield.

Results from these large scale experiments confirmed that Transform™ WG insecticide was highly effective for tarnished plant bug management in a full season program and comparable to the commercial program. The consultants confirmed the optimal fit of Transform™ WG applied at 1.5 oz/A was around first bloom using sequential applications. In addition to control of tarnished plant bugs, the consultants also confirmed Transform™ WG to provide market leading aphid control and lack of two spotted spider mite *(Tetranychus urticae)* flaring.

Based upon this data, coupled with a new class of chemistry and a unique mode of action, Transform™ WG empowers growers to protect cotton yield and increase their profit potential. Results confirmed that sequential applications of 1.5 oz/A of Transform™ WG near bloom provided tarnished plant bug control resulting in an average yield advantage of 37.4 lb/lint/A compared to the commercial standard PB program in fifteen of the eighteen locations.