

**INCORPORATION OF TRANSFORM™ INTO A MANAGEMENT PROGRAM FOR TARNISHED  
PLANT BUG, *LYGUS LINEOLARIS*, IN MID-SOUTHERN U.S.**

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**Abstract**

Sulfoxaflor is a new proprietary insecticide within a novel chemical class developed by Dow AgroSciences. It is active against a broad range of sap-feeding insects including aphids (*Aphis gossypii*), tarnished plant bugs (*Lygus lineolaris*), whiteflies, planthoppers, and scales. Sulfoxaflor was characterized for activity against tarnished plant bug, *Lygus lineolaris*, in mid-south U.S. cotton during 2008-2011. A robust testing program included 68 trials in 13 locations, conducted by both public and private researchers. Sulfoxaflor insecticide was evaluated over a wide range of environmental conditions and tarnished plant bug infestation levels. Transform™ will be the brand name used for sulfoxaflor in U. S. cotton and it will be formulated as a 50WDG.

Results from four years of testing demonstrated sulfoxaflor insecticide, applied at 1.5 oz product/A (0.045 lb ai/acre), was the minimum rate providing the most robust control of tarnished plant bug. Initial control of tarnished plant bug infestations was demonstrated at  $\leq 5$  d and residual control was equal to or better than current standards. In addition, cotton treated with sulfoxaflor protected lint yield equal to or better than cotton treated with acephate (1.0 lb ai/acre). As with most insecticides, the performance of sulfoxaflor in cotton will be dependent upon tarnished plant bug population level and intensity of infestation. Based upon this research, multiple applications of sulfoxaflor may be required and the interval between applications may vary in cotton for tarnished plant bug management.

Studies were initiated in 2011 to compare sequential applications of sulfoxaflor to programs in which a single application of sulfoxaflor was applied before or after another chemistry active against tarnished plant bug. Preliminary results suggested two applications of sulfoxaflor provided control equal to or better than a single application of sulfoxaflor rotated to another chemistry. Furthermore, when sulfoxaflor was used once, it appeared to provide similar control when used either before or after another chemistry. Studies were also initiated in 2011 to compare 1.5 oz of sulfoxaflor to a reduced rate of sulfoxaflor (0.75 oz/A) co-applied with another insecticide active against tarnished plant bugs. Preliminary results suggested a reduced rate tank mixture will provide satisfactory initial control, but residual control of tarnished plant bug may be compromised.

Sulfoxaflor 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 resistant populations. Recommended scouting techniques for tarnished plant bugs and IPM practices should continue to be utilized. A registration decision on sulfoxaflor for U.S cotton is anticipated in 2012.

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