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An Evaluation of Low Mammalian Toxicity Insecticide Applied Through Drip Irrigation (Field 2)

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Objectives: To evaluate the efficacy of newer, safer insecticide chemistry delivered through drip irrigation for Lygus control compared to a conventional insecticide and a control.

Methods: New insecticide chemistry along with an increase in drip irrigation acreage in Texas will allow for the evaluation of new techniques for Hemipterous insect control. A New insecticide by the trade name imidacloprid, also know as Admire®, has an extremely low mammalian toxicity and is labeled and registered for cotton insect control. This product was evaluated through drip irrigation along with a standard treatment of Orthene®, and no control (check). The imidachloprid was injected in to the drip system at the recommenced rate two days prior to artificially infesting with Lygus. On the day of infestation (July 19), ten lygus were enclosed in nylon mesh bags on ninth node, first position squares and left for 24 hours. The treatments were replicated four times, with ten enclosures of Lygus per treatment. Following the infestation period, the Lygus were observed to be dead or alive and each boll was tagged so that it could be harvested at a later date. A laboratory evaluation was used as well as the field enclosure study that required ten ninth node, first position squares be removed from the field an taken to laboratory where it was infested under enclosure and the surface area damage by Lygus feeding was estimated using a subjective damage rating system developed by the author. Damage was assessed at 24 and 96 hr after treatment.

Fig. 1. Cotton anther with carola and carpal walls removed showing damage from Lygus feeding.

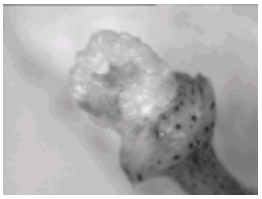

Table 1. Percent mortality, and surface area damage to ninth node, first position, cotton anthers.

Treatment	Mean % Mortal.	Estimated surface area damage to anther 24 hr post infestation	96 hr post infestation	Seed cotton (g)
Control	0 %	21.0 a	39.5 a	4.1 a
Admire 16 oz/A	20 %	12.8 a	17.5 b	5.1 a
Orthene 3 oz/A	100 %	0.0 b	0.30 b	4.1 a

Summary: The conventional insecticide orthene® provided 100% mortality followed by admire® with no mortality in the control. Damage estimates increased from 24 hr to 96 hr and only slightly for the orthene®. Seed cotton was highest for the admire treatment. The ninth position,

first-node may not be a realistic cotton fruit to evaluate. An earlier position would probably result in better assessment of feeding by Lygus.