

**STAPLE (PYRITHIOBAC) INTERACTIONS
WITH BOLL WEEVIL ERADICATION ULV
APPLICATIONS OF MALATHION**

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The difference in these data to previous research may be the results of the ULV applications of malathion and/or the lack of true tank mixtures. Also, lower injury may be the result of applications being made under warmer field conditions. Further research is needed to validate these findings as additional cotton producing areas are entering into Boll Weevil Eradication Programs.

Abstract

Cotton may benefit from insecticide - herbicide interactions, such as the case where disulfoton safens cotton against clomazone injury. In other cases, research has shown cotton phytotoxicity due to detrimental interactions between applications of insecticides and herbicides. Previous research has shown significant visual injury from tank mixtures of malathion and pyriethiobac applied at a delivery volume of 20 gallons per acre (GPA); however, yield and fruiting patterns were generally unaffected. Laboratory research has shown increased injury when pyriethiobac and malathion were applied under cool conditions. In these experiments malathion and pyriethiobac were applied at 1.16 and 0.0625 lbs ai/A, respectively. The increased use of pyriethiobac along with the use of malathion in the boll weevil eradication program has heightened concern over potential interactions. Additionally, questions have arisen regarding the potential for interaction when malathion is applied as an ultra low volume (ULV) application undiluted at 0.125 GPA.

These experiments were conducted to evaluate the interaction of pyriethiobac with malathion, when applied at various time intervals before and after boll weevil eradication ULV malathion applications. This research was conducted at the Plant Science Research Center near Starkville, MS and the BlackBelt Branch Experiment Station near Brooksville, MS. Ultra low volume applications of malathion were made by the Southeastern Boll Weevil Eradication Foundation at a rate of 0.76 lbs ai/A while 1 oz ai/A pyriethiobac was applied with a CO₂ backpack sprayer at 15 GPA. Pyriethiobac was applied 24, 8, 4, 2, 1, 0.5, and 0 hours before and after malathion application. Data taken were visual injury (0-100 scale), nodes above white flower (NAWF), nodes above cracked boll (NACB), and seed cotton yield.

No visual injury was observed 7, 14, or 28 days after treatment (DAT) with malathion where pyriethiobac was applied prior to or following malathion application. No significant difference was observed among treatments for NAWF, NACB, and yield. These preliminary data indicate that there is no detrimental effect of ULV malathion applications made prior to or following pyriethiobac.