Evaluation of Pyrenone and a Detergent For Jojoba Scirtothrips ewarti bailey Control

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Introduction

A Scirtothrips ewarti bailey species often builds to high numbers of commercial jojoba causing serious damage by stunting foliage growth. Prior to special local need registrations of insecticides, growers were faced with few available control measures for this pest. This study investigated the effects of a detergent as well as various rates of the insecticide containing product Pyrenone. Pyrenone contains natural pyrethrum and piperonyl butoxide. The latter acts as an insect exciter and also helps to increase insecticide toxicity in those populatons having resistance enhanced by mixed function oxidases.

Procedure

Four rates of pyrenone (2, 4, 6, and 8 oz/acre) and one rate (1.32 lbs/acre) of Winters laundry detergent were applied on March 16, 1988, to commercial jojoba of January Farms located southwest of Tacna, AZ. Applications were made by a tractor pulled ground sprayer calibrated to apply 30 GPA. The sprayer was equipped with TeeJet 730308 nozzles, with nozzles located at the sides and above each row. Application was done by January Farms personnel. Two contiguous 1/4 mile rows of jojoba were sprayed for each treatment. The untreated check was not treated with water. Evaluation was made on March 18, 1988. Thrips counts were taken by sampling 20 female plants on the inside of the two treated rows (10/row). Each sample consisted of terminal foliage beated by hand over a 6 inch by 6 inch black board and counting the thrips. Distance between each sample was approximately 50 ft. Data were analyzed by the use of Student-Newman-Keuls test.

Results and Discussion

All treatments had statistically less thrips than the untreated check, which had 38.85 thrips per sample (see table). Means of all pyrenone treatments had fewer thrips than Winters laundry detergent, which provided almost 60 percent control. More control was noted with progressively larger amounts of pyrenone. Only the highest rate of pyrenone (8 oz.) was statistically different than the Winters laundry detergent. No immature thrips were noted in samples from the two highest rates of pyrenone (6 and 8 oz.). This indicates that the lower rates of pyrenone did not control immatures as well as the the higher rates. At nine days post treatment, however, the high rate plots (6 and 8 oz.) had high numbers of immature thrips. This is not surprising considering that ultra-violet light contained in sunlight breaks down natural pyrethrin extremely quickly (less than 24 hours).

Although this study suggests that a second treatment of pyrenone 7-10 days after the first treatment may effectively disrupt the thrips pressure, the economics and short residual of using the higher rates of pyrenone should also be taken into consideration.

CONTROL OF THRIPS IN JOJOBA BY PYRENONE AND DETERGENT

Treatment	Rate/Acre	Mean number of[1] Thrips/Sample	Percent Control
Pyrenone	8 oz	5.3 [a]	86.4
Pyrenone	6 oz	6.6 [ab]	83.0
Pyrenone	4 oz	9.55[ab]	75.4
Pyrenone	2 oz	11.0 [ab]	71.7
Winters Laundry Detergent	1.32 lb	10.3 [b]	59.7
Untreated Check	----	38.85 [c]	--

[1]Means followed by the same letter are not significantly different at the $p \leq 0.05$ level.

Acknowledgements: This study was made possible by the assistance and cooperation of January Farms, Tacna, AZ.

THRIPS CONTROL ON JOJOBA BY PYRENONE AND DETERGENT 2 DAYS POST TREATMENT