STANDARDIZED EVAULATION OF MITICIDES IN THE MIDSOUTH

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Abstract

A standardized miticide efficacy trial was performed at five locations in the Midsouth. Yield data were also collected at three locations. All treatments reduced spider mite populations and provided statistically similar control. Yield was not significantly affected by treatment. However, the generally cool and wet conditions in 2009 were not conducive for spider mites, and these data probably do not represent their potential impact on yield.

Introduction

Spider mites have become an increasing problem in parts of the Midsouth. As part of a regional project, an effort is underway to better understand how miticides and mite infestation levels impact yield. This includes the standardized evaluation of various miticides and their impact on yield.

Materials and Methods

The miticides tested in a standardized miticide trial included Brigade 2E (6.4oz/a), Dicofol (48 oz/a), Comite II (36 oz/a), Portal 4E (16 oz/a), Zeal 72WSP (1 oz/a), Zephyr 0.15E (4 oz/a), Oberon 4F (4 oz/a), Zephyr 0.15E (12 oz/a), Oberon 4F (8 oz/a) and an untreated control. The tests were initiated when spider mite infestations exceeded 30-50% infested plants. Tests were initiated in Louisiana (June 30), Arkansas (site one on July 6, site two on July 15), Mississippi (July 13) and Tennessee (Aug 4). Plots were arranged in a randomized complete block design with four replicates. Each plot was four rows wide by 35-50 ft or was 2 rows wide with a buffer row on either side. Application was made at 30-50 PSI, 8-12 GPA, and using TX6-10 or suitable flat flan nozzle (avoiding the use of low drift nozzles). A second application was to be made as needed but was not required at any location.

All tests were initiated between first flower and NAWF5 + 350 DD60s. Spider mite numbers were counted on 10 leaves per plot using the Bayer 1-IN^2 hand lenses (1-IN^2 per leaf). At two locations, mites were counted on each entire leaf because infestations were relatively moderate. Counts were to be taken at 4, 8 and 12 days after treatment (DAT). However, this varied somewhat so data for spider mite counts were lumped as follows: 3-5 DAT, 7-9 DAT and 10+ DAT. Seed-cotton yields were collected from the center two rows from three tests (LA, TN and MS). Data were analyzed across locations with Proc Mixed using pdiff (0.05) for mean separation of lsmeans (α = 0.05). Selected, representative data are presented.

Results and Discussion

Because 2009 was characterized by being unseasonably cool and wet throughout much of the Midsouth, fewer tests were initiated than planned, and yield data could not be collected at all locations. Also, spider mite populations in most tests were of moderate intensity and duration, with populations at three locations crashing to negligible levels before final counts could be made. Nevertheless, when analyzed across all locations, all miticide treatments significantly reduced populations at 3-5 DAT, 7-9 DAT and 10+ DAT (Figs. 1-3), and control across treatments was statistically similar. Mite populations were at their lowest level 7-9 DAT, but overall populations in untreated plots had also decreased during this time frame. Yield was not significantly affected by yield (Fig. 4). However, environmental conditions were not favorable for spider mites or potential impacts on yield. Also, hard lock caused by excessive rains in September brought into question the value of yield data collected at two of three locations.

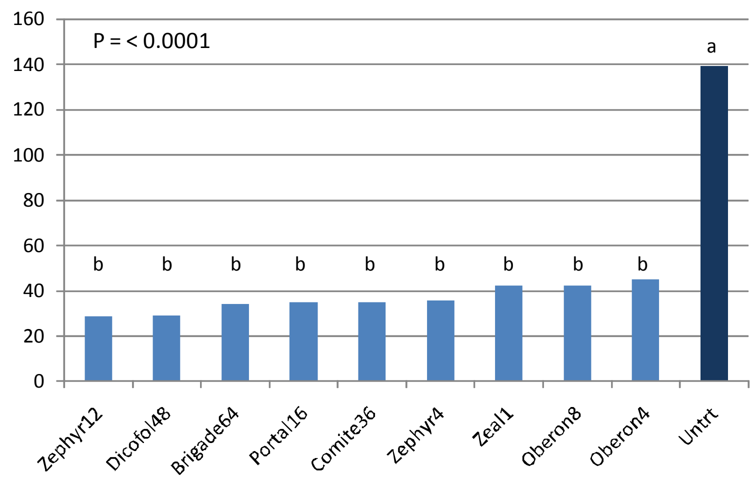

Figure 1. Treatment effects on spider mite numbers (per 10 IN^2) at 3-5 DAT when averaged across four locations (LA, TN and AR sites 1 and 2). Bars without common letter are significantly different (P < 0.05, Proc Mixed, pdiff). Rates (oz/a) are shown behind the product names.

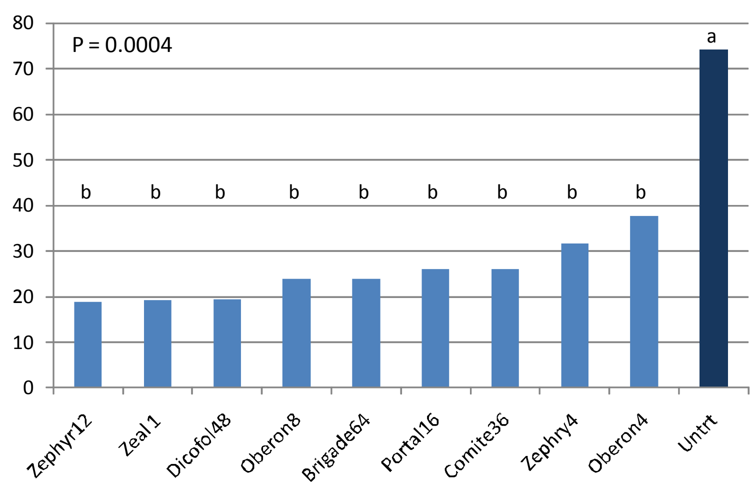

Figure 2. Treatment effects on spider mite numbers (per 10 IN^2) at 7-9 DAT when averaged across all five locations. Bars without common letter are significantly different (P < 0.05, Proc Mixed, pdiff). Rates (oz/a) are shown behind the product names.

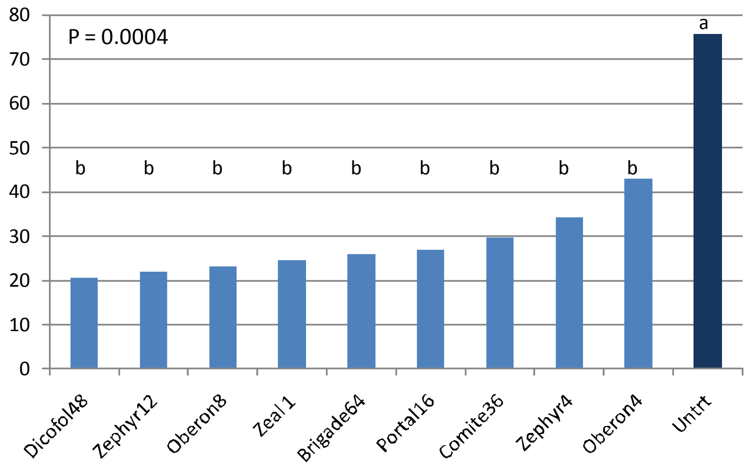

Figure 3. Treatment effects on spider mite numbers (per 10 IN^2) at 10+ DAT when averaged across two locations (MS and TN). Bars without common letter are significantly different ($P < 0.05$, Proc Mixed, pdiff). Rates (oz/a) are shown behind the product names.

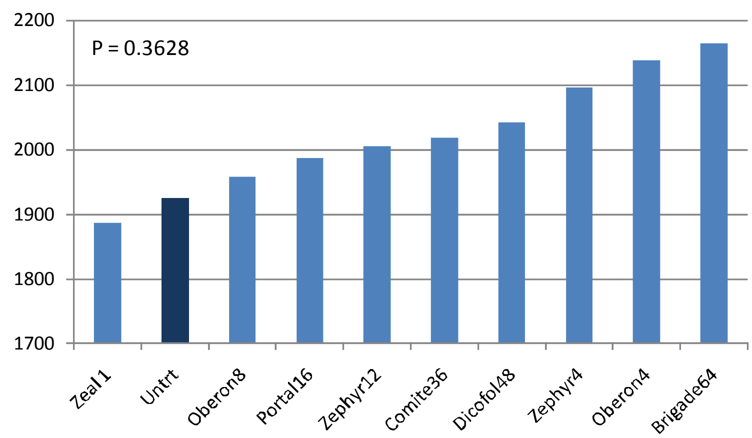

Figure 4. Treatment effects on seed-cotton yields (lb/a) when averaged across three locations (LA, MS and TN). Rates (oz/a) are shown behind the product names.

Acknowledgements

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