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**Time for Development of Bretmocerus mundus,  
a Parasite of the Sweet Potato Whitefly from Jordan**

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Abstract

Development of this sweet potato whitefly parasite from egg to adult varied from 47.5 days at 17.5°C to 14.0 days at 30.0°C. Development of the parasite was faster than that of its whitefly host.

The sweet potato whitefly, Bemisia tabaci (Gennadius), is a serious pest of cotton which transmits cotton leaf crumple virus and deposits honeydew droplets on the lint which makes the lint sticky and discolored. Eretmocerus mundus Merc. is a parasite of the sweet potato whitefly in Egypt, India, Israel, Italy, Jordan, Pakistan, Sidon, Syria, Turkey, and the USSR. During 1984, parasites were made available for rearing and release in Arizona. This report summarizes studies made to determine the development time of the parasite at different constant temperatures.

Methods and Materials

Parasitized whitefly nymphs, from a culture recently obtained from Jordan, were received during July and August, 1984 from D. E. Meyerdirk, Boyden Entomological Research Laboratory, USDA, Riverside, California. As the parasite adults appeared, they were placed in 120 cc plastic cages on cotton plants with single leaves infested with 2nd and 3rd stage sweet potato whitefly nymphs. Adult parasites were removed after 24 h and the cotton plants placed at different constant temperatures. Parasitized whitefly pupae were examined daily to determine when the adult parasites emerged.

Results

Development from egg to adult varied from 47.5 days at 17.5°C to 14.0 days at 30.0°C (Table 1). The regression equation for the development time is  $y = 4.763 + 0.00404X$ , ( $n = 6$ ,  $r^2 = 0.99$ ), where  $y$  is the reciprocal of the number of days and  $X$  is the temperature °C. Development of the parasite is significantly faster than that of the sweet potato whitefly host ( $F = 19.57$  with 2 and 9 df).

**Table 1. Mean Egg to Adult Developmental Time for Eretmocerus mundus<sup>a/</sup> in Bemisia tabaci at Constant Temperatures, Phoenix, AZ 1984**

Temperature (°C)	Number Observed	Duration (days)
17.5	163	47.5 ± 6.7
20.0	118	30.5 ± 4.4
22.5	81	21.8 ± 1.3
25.0	187	17.8 ± 1.2
27.5	268	15.8 ± 1.8
30.0	112	14.0 ± 1.7
32.5	41	15.1 ± 1.6

<sup>a/</sup> Parasites obtained from Jordan via Riverside, CA.

Discussion

This information on development rates will be useful in the event rearing of this parasite is needed to increase its numbers for release. During July and August 1984, 1725 parasite adults reared at Riverside, CA were released at the ASU Farm at Tempe. Unfortunately, the farm has since been abandoned so no recovery collections are possible to determine if the species has become established. It is also doubtful that this species can be separated from our native Eretmocerus.

According to some authorities, one of the reasons the sweet potato whitefly has recently become a serious pest is due to the harmful effect of insecticides on their parasites and the lack of the effect of materials on the whitefly. With extensive insecticide programs normally being applied for pink bollworm and boll weevil control, there appears to be little chance that a new whitefly parasite can become established in cotton.

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**Early Insect Control in Cotton  
Greenlee County**

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Summary

Cotton was treated at the pinhead square stage with Orthene to prevent boll shed caused by thrips and Lygus. Yield results showed no statistically significant differences, even though yield trends indicated a decrease in the treated plots compared to the check. Severe pressure from Heliothus later in the season and the yield trends would indicate that the insecticide treatment effect on the beneficial insects was more important than its effect on thrips and Lygus.

Introduction

A great deal of interest has been generated in the farm press about the effectiveness of early insect control on hastening harvest and increasing yield. Therefore, a test was conducted in Greenlee county to see if these effects can be shown at an