DAMAGE TO WATERMELON SEEDLINGS CAUSED BY *FRANKLINIELLA FUSCA* (THYSANOPTERA: THRIPIDAE)

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The spring watermelon [*Citrullus lanatus* (Thunb.) Matsum & Nakai] crop in North Central Florida does not normally suffer much direct feeding damage from insects. For the past five years, however, many young plants have been found with scarred and distorted leaves. The most heavily damaged plants appeared to be stunted as well. Thrips were found on seedlings, and an experiment was performed to determine if the observed damage was caused by their feeding.

Watermelon seedlings showing typical damage, thinned from a 2-ha field at the Central Florida Research and Education Center, were chilled and then searched for thrips. Thrips were collected by aspirating into medicine droppers; 30 to 40 were sealed into individual droppers with Parafilm. Thrips were then released onto watermelon seedlings ('Charlee'), most having two true leaves, planted in groups of eight to 10 in five 12-liter pots. Plants were covered with cast acrylic cylinders that fit inside the pot rim, the open end covered with nylon organdy. Plants were placed in an insect rearing room kept at 23 ± 2°C with a photoperiod of 16: 8 (L:D). Some thrips were preserved in 70% ethanol for identification. Plants were observed as they grew, and photographs were taken at intervals to record damage.

Damage produced by thrips was identical to that found in the field (Fig. 1). Plants without thrips remained symptomless. Damage to infested plants (silvery, clear areas on leaves, crinkling, and chlorotic spots and streaks) became apparent as each new leaf expanded, suggesting that feeding was occurring mainly in the terminal buds. Some minor feeding damage also occurred on the upper surface of cotyledons and on already-expanded leaves. Thrips used to infest plants were identified as *Frankliniella fusca* (Hinds), the tobacco thrips. Recently, this same thrips was identified from badly damaged watermelon seedlings growing in a greenhouse at the Central Florida Research and Education Center.

F. fusca is a polyphagous species that has been reported to cause direct damage to peanuts and cotton (Newsom et al. 1953, Watson 1965, Morgan et al. 1970), in addition to vectoring tomato spotted wilt virus (Sakimura 1963). In peanuts, damage results from feeding on the epidermis of unopened leaflets, giving rise to scarred and deformed leaves (Morgan et al. 1970). No increase in yield could be attributed to controlling thrips populations, however. Variable results have been obtained in cotton, ranging from no noticeable differences in yield (Watson 1965), to some yield loss in cotton grown on dry, sandy hills (Newsom et al. 1953). Newsom et al. (1953) concluded that, in general, the only advantage gained from control of thrips was more uniform and vigorous growth in the first 4 to 6 wk.

In commercial fields and in our research plots, leaf damage became less apparent and eventually ceased after plants entered a period of rapid growth. Thrips injury in cotton is outgrown in 4 to 6 wk (Watson 1965). It is not known if thrips populations decline naturally, or if the rapid growth of susceptible tissue limits the amount of feeding that can occur during the time that terminal buds of watermelon are a suitable habitat for thrips. Studies to assess the effects of controlling early thrips infestations may be worthwhile.

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Fig. 1. Watermelon seedling showing damage due to feeding of *F. fusca*. Thrips were added to caged plants when seedlings had two true leaves.

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SUMMARY

Damage to spring-planted watermelon seedlings was reproduced under controlled conditions by infesting plants with field-collected tobacco thrips, *Frankliniella fusca* (Hinds). Under field conditions, plants appeared to recover as growth rate increased.

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