SOME OBSERVATIONS ON THE LIFE HISTORY OF
THE CITRUS APHID (Aphis Spiracola Patch)

By A. N. Tissot

During the fall of 1925 and the winter and spring of 1926 some life history work on the Citrus aphid was conducted by
the writer at the Experiment Station at Gainesville. The ex-
periments were conducted wholly out of doors and the results
obtained vary somewhat from those previously obtained under
insectary conditions. The reason for carrying on the experi-
ments in the open was in order that the aphids might be under
as nearly natural conditions as possible. It was also possible to
rear a much larger number of aphids here than could have been
reared in the insectary. The aphids of which records were
kept were caged in cloth bags to prevent them from wandering
away and getting lost and also to prevent other aphids from
mingling with them and thus destroying the records.

It was found that the time necessary for the nymphs to de-
velop to maturity varied greatly at different times of the year.
Likewise the average daily production of young and the total
number of young produced showed a wide variation. In Novem-
ber the average development period of 15 individuals was 8.8
days. In March for 22 individuals it was 13 days. During the
first half of April it required an average of 7.1 days for 129
individuals to become mature and during the first half of May
when development was most rapid the average of 42 aphids
was 6.7 days. In November the average number of young pro-
duced by 9 individuals was 34 and the average daily production
was 2.7. In March the average number of young produced by
9 females was 62.9 with a daily average of 3.9. During April 12
females showed an average production of 70.8 with 4.1 for the
average daily production and during the month of May the av-
verage number of young produced by 43 females was 40.9 with
the daily average 4.1.

The most important factors governing both the rate of de-
velopment and the rate of reproduction are the condition of growth
of the leaves upon which they are feeding and the weather con-
ditions, particularly temperature. When the leaves upon which
the aphids are feeding are tender and succulent the aphids grow
more rapidly, attain a larger size and give birth to more young
than when the leaves are more nearly mature. That tempera-
ture is an important factor is evident by comparing the first
half of March with the first half of May. The mean temperature for the period in March was 54.8 degrees and it required on an average 18 days for the nymphs to reach maturity. In the first half of May the mean temperature was 73.2 degrees and only 6.7 days was required on the average for the nymphs to mature. On the other hand if the temperature is too high it retards the development of the nymphs and has a very marked effect upon the number of young produced. Thus during the second half of May when the average maximum temperature was about 90 degrees the average number of young produced by one female dropped to 26.7 while the average for the first half of the month was 55.8 young. It is true that the growth on which the aphids were feeding was more mature during the last half of the month but there was a noticeable decrease in the number of young produced by those females which were located on the few tender shoots remaining. It is not probable that the hot weather kills the aphids outright but the fact that there is such a marked decrease in the production of young and a shortening of the life of the aphids means that there will be a decrease in the severity of the general aphid infestation.

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blossoms where it replaces F. tritici bispinosa, occupying the same habitats and with apparently identical habits. The factor may be temperature and especially the absolute winter minimum of a series of years, say a sun-spot cycle. This is apparently a more important factor than the sum total of effective temperatures, and is the one which determines the northward migration of orange and mangrove trees and the velvet bean caterpillar, Anticarsia gemmatilis.

With the exception of this neotropical fauna the thysanoptera of North America almost completely ignore Merriams' zones. Of the 80 odd species of thrips in Florida, only five are "native sons" of California or Arizona, which with all but the tip of Florida are placed in the austrial zone, while 17 reach Massachusetts; 31 Maryland, and 5 northern Europe. It is thus seen that the thysanopterous fauna of Florida is much more closely related to that of Massachusetts than to that of California, and as closely related to that of northern Europe.