Progress report of INSECT TRANSMISSION TESTING with the PEACH MOSAIC VIRUS for 1943 in cooperation with the Mesa County Research Committee

by LESLIE B. DANIELS, Entomology Section

Investigation of the insect transmission of the peach mosaic virus has consisted in taking records of the 1941 and 1942 experiments and further testing of transmission under greenhouse conditions at Fort Collins. To date 505 tests have been carried out or are under way. The 108 tests attempted in June of 1941 with two species each of tarnish plant bug, plum aphis, peach aphis, and one species of cherry aphis, have failed to produce cases of peach mosaic.

The 140 tests undertaken in April and May 1942 with the green peach aphis (Myzus persicae Sulzer) have produced a number of typical cases of peach mosaic. At the end of the 1943 season 95 cases were recorded; 53 of these were regarded as severe mosaic and 42 as mild mosaic. Fourteen cases were recorded as suspicious. Thirty-one were considered negative. In the 140 check trees 2 cases of mosaic have appeared.

The 1942 experiments were designed to give as complete and severe a test to the green peach aphis (M. persicae) as possible under the conditions provided at the Whitewater substation.

The objectives were briefly:

1. To determine the ability of the green peach aphis to transmit the peach mosaic virus.

2. To determine whether transmission was most likely to take place in the months of April, May, or June.

3. To compare natural colonies on infected trees with those fed under experimental conditions as to possible differences in transmissability.

4. To compare two orchard sources of severe peach mosaic virus with that of "feeding trees" at the Whitewater substation. Natural early spring colonies were used in the tests.

5. To compare the transmissability of the severe strain from young and old trees.

6. To investigate the relation of feeding position to transmissibility. Tests were made with sucker, mid-tree, top, and whole tree feeding to determine whether transmission was more likely in one than another.

7. To compare the transmissability of different peach mosaic virus strains. Severe, severe with chlorosis, mild, and "hairy break" strains were used in replicated tests.

In the course of these experiments the case history of each case of mosaic has been followed and recorded. The development of symptoms has been recognized.