ENTOMOLOGY CIRCULAR NO. 9
DECEMBER 1962

FLA. DEPT. OF AGR.
DIV. OF PLANT INDUSTRY

CITRUS BLACKFLY, ALEUROCANTHUS WOGLUMI ASHBY[1]
(HOMOPTERA: ALEYRODIDAE)

H. V. WEEMS, JR.

ECONOMIC IMPORTANCE: -- THE CITRUS BLACKFLY IS OF INTEREST TO THE CITRUS INDUSTRY OF THE UNITED STATES BECAUSE OF THE POSSIBILITY OF ITS ACCIDENTAL INTRODUCTION INTO THIS COUNTRY DESPITE THE PREVAILING QUARANTINES. WHERE ESTABLISHED IN THE NEW WORLD, THIS PEST HAS PROVED TO BE INJURIOUS TO CITRUS TREES. IT HAS BEEN A THREAT TO THE CITRUS INDUSTRY OF FLORIDA SINCE ITS ESTABLISHMENT IN JAMAICA IN 1913. THE CITRUS BLACKFLY, ONCE KNOWN AS THE SPINY CITRUS WHITEFLY, WAS FOUND AT KEY WEST, FLORIDA, ON AUGUST 10, 1934, WHERE IT WAS INFESTING SEVERAL VARIETIES OF TREES AND SHRUBS, CITRUS PARTICULARLY. PROMPT ACTION BY STATE AND FEDERAL FORCES LED TO ITS ERADICATION FROM KEY WEST, MARKING THE FIRST ERADICATION OF THIS PEST ANYWHERE IN THE WORLD. THE SUCCESSFUL INTRODUCTION OF NATURAL ENEMIES OF THE BLACKFLY INTO CUBA IN 1932 GREATLY REDUCED THE POPULATION DENSITY OF THE BLACKFLY ON THIS LARGE ISLAND LOCATED ONLY 90 MILES SOUTH OF FLORIDA, REDUCING THE DANGER OF INTRODUCTION OF THE BLACKFLY INTO FLORIDA. IN 1935 THE BLACKFLY WAS DISCOVERED AT EL DORADO, DINALOA, MEXICO; DURING THE NEXT TEN YEARS IT SPREAD ALARMINGLY SOUTHEASTWARD TO VERACRUZ AND UP THE EAST AND WEST COASTS, CAUSING RAPID DETERIORATION OF THE TREES AND CROP FAILURE TO ALL CITRUS VARIETIES. CONTROL BY PARASITES PROVED TO BE INEFFECTIVE DUE TO ARID CONDITIONS OVER MUCH OF MEXICO, AND IN 1947 A CONTROL AND ERADICATION CAMPAIGN WAS BEGUN AS A COOPERATIVE PROJECT BETWEEN THE MEXICAN DEPARTMENT OF AGRICULTURE, MEXICAN CITRUS GROWERS, AND CITRUS GROWERS OF CALIFORNIA AND ARIZONA. IN 1948 THE U. S. BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE TOOK OVER THE BLACKFLY ERADICATION WORK IN NORTHERN MEXICO. THE COMBINATION OF A SPRAY PROGRAM AND THE INTRODUCTION OF ADDITIONAL HYMENOPTEROUS PARASITES FROM INDIA CHECKED THE FURTHER SPREAD OF THE BLACKFLY IN MEXICO AND BROUGHT IT UNDER CONTROL. IN 1955 THE BLACKFLY WAS FOUND ON LIME TREES IN BROWNSVILLE, TEXAS, AND WAS ERADICATED.

DISTRIBUTION: -- THE CITRUS BLACKFLY, PROBABLY A NATIVE OF INDIA, OCCURS GENERALLY IN ALL REGIONS OF TROPICAL ASIA, HAVING BEEN FOUND IN THE PHILIPPINE ISLANDS, SOUTHERN CHINA, INDO-CHINA, SIAM (IN WHAT IS TODAY CALLED SOUTH VIET NAM), MALAYA, THE DUTCH EAST INDIES, BURMA, INDIA, AND CEYLON. IT WAS FIRST DISCOVERED IN JAMAICA IN 1913, AND THE INFESTATION HAS SPREAD TO OTHER TROPICAL AND SUBTROPICAL AREAS OF THE WESTERN HEMISPHERE, INCLUDING CUBA, HAITI, THE BAHAMA ISLANDS, MEXICO, AND CENTRAL AMERICA, SOUTHWARD TO COLOMBIA.

HOSTS: -- IN THE FAR EAST THE CITRUS BLACKFLY OCCURS ONLY RARELY UPON PLANTS OTHER THAN CITRUS AND IS OF MINOR IMPORTANCE UPON THIS HOST, DUE ALMOST ENTIRELY TO CONTROL BY ITS NATURAL ENEMIES; WHEREAS IN CENTRAL AMERICA AND THE WEST INDIES MANY OTHER PLANTS ARE ATTACKED. ALTHOUGH PRIMARILY A PEST OF CITRUS, THE BLACKFLY ALSO INFESTS MANGO, COFFEE, ARDISIA, AVOCADO, PEAR, PLUM, POMEGRANATE, POPLAR, QUINCE, GRAPE, ASH, SAPODILLA, CASHEW, ROSE-APPLE, SUGAR-APPLE, SOURSOP, SAPOTE, BREADFRUIT, STAR-APPLE, GUAVA, MAMONCILLO, CANISTEL, AND MANY OTHER TROPICAL AND SUBTROPICAL PLANTS.

DESCRIPTION, LIFE HISTORY AND MORTALITY FACTORS: -- EGGS ARE LAID TYPICALLY IN A SPIRAL PATTERN ON THE UNDERSIDE OF THE LEAVES, ABOUT 35 TO 50 EGGS PER SPIRAL OR MASS (SEE FIG. 1). THE FEMALE MAY LAY CONSIDERABLY MORE THAN 100 EGGS IN A LIFETIME. THE EGGS ARE CREAMY WHITE WHEN FIRST LAID, BECOMING BROWN AND FINALLY BLACK BETWEEN THE EIGHTH AND TENTH DAYS. THEY ARE OBLONG, WITH ROUNDED ENDS, AND ARE ATTACHED TO THE LEAF BY A SHORT PEDICEL LOCATED NEAR THE POSTERIOR END. THE NYMPHS AND PUPAE ARE CHARACTERISTICALLY ALEYRODID IN SHAPE, BUT QUITE SPINY (SEE FIG. 2). THE NYMPHS ARE DARK BROWN AND THE PUPAE ARE BLACK. ADULTS ARE SLIGHTLY MORE THAN 1 MM IN LENGTH (SEE FIG. 3). WHEN THE ADULT FIRST EMERGES, THE HEAD AND THORAX ARE A BRIGHT, BRICK-RED COLOR, THE FRONT OF THE HEAD IS PALE YELLOW, THE ANTENNAE AND LEGS ARE WHITISH, AND THE EYES ARE A DEEP RED OR REDDISH BROWN. WITHIN TWENTY-FOUR HOURS THE ADULT BECOMES COVERED WITH A FINE POWDER WHICH GIVES IT A GENERAL SLATY-BLUE APPEARANCE, GIVING RISE TO THE NAME "BLUEFLY" BY WHICH IT IS KNOWN IN THE BAHAMAS. THE WINGS ARE GENERALLY DARK, WITH PALE SPOTS WHICH, WHEN THE WINGS ARE AT REST, FORM WHAT APPEARS TO BE A WHITE BAND ACROSS THE MIDDLE OF THE DORSUM,

[1] CONTRIBUTION NO. 16, ENTOMOLOGY SECTION.

WHILE THE COMPLETE LIFE CYCLE COVERS A PERIOD OF TWO MONTHS UPON ORCHARD TREES UNDER OPTIMUM CONDITIONS, UPON NURSERY PLANTS AND IN CAGES THIS PERIOD MAY BE SHORTENED BY AS MUCH AS TWO WEEKS. A HIGH MEAN HUMIDITY, A COMPARATIVELY HIGH AND UNIFORMLY DISTRIBUTED RAINFALL, AND A LOW INCIDENCE OF PARASITISM ARE ESSENTIAL CONDITIONS FOR OPTIMUM DEVELOPMENT. COMPARISON WITH RECORDS FOR CUBA, WHERE THE BLACKFLY ONCE WAS A MAJOR PEST, SHOWS THAT IN FLORIDA THE TOTAL AMOUNT AND DISTRIBUTION OF THE RAINFALL AND THE RANGE OF THE HUMIDITY ARE QUITE SIMILAR. SHOULD THE BLACKFLY BECOME ESTABLISHED IN FLORIDA, ITS STATUS MAY BE EXPECTED TO BE APPROXIMATELY THE SAME AS IN CUBA, BUT WITH A MORE PRONOUNCED PERIOD OF DELAYED DEVELOPMENT DURING THE WINTER DUE TO THE LOWER PREVAILING TEMPERATURES.

REFERENCES:

EBELING, WALTER. 1959. SUBTROPICAL FRUIT PESTS. UNIV. CALIF., DIV. AGR. SCIENCES, BERKELEY, CALIF. P. 231-232, FIG. 8-2.

CLAUSEN, CURTIS P., AND PAUL A. BERRY. 1932. THE CITRUS BLACKFLY IN ASIA, AND THE IMPORTATION OF ITS NATURAL ENEMIES INTO TROPICAL AMERICA. U.S.D.A. TECH. BULL. 320:1-58, 19 FIGS.

BROWN, ARTHUR C. 1937. REPORT OF THE GROVE INSPECTION DEPARTMENT. P. 21-26. IN REPORT FOR THE PERIOD JULY 1, 1934 - JUNE 30, 1936. STATE PLANT BOARD OF FLORIDA, GAINESVILLE, FLORIDA.

BROWN, ARTHUR C. 1939. REPORT OF THE GROVE INSPECTION DEPARTMENT. P. 15-17. IN REPORT FOR THE PERIOD JULY 1, 1936 - JUNE 30, 1938. STATE PLANT BOARD OF FLORIDA, GAINESVILLE, FLORIDA.

FIG. 1. CITRUS BLACKFLY EGGS ON TOP LEAF; NYMPHS AND PUPAE ON BOTTOM LEAF.

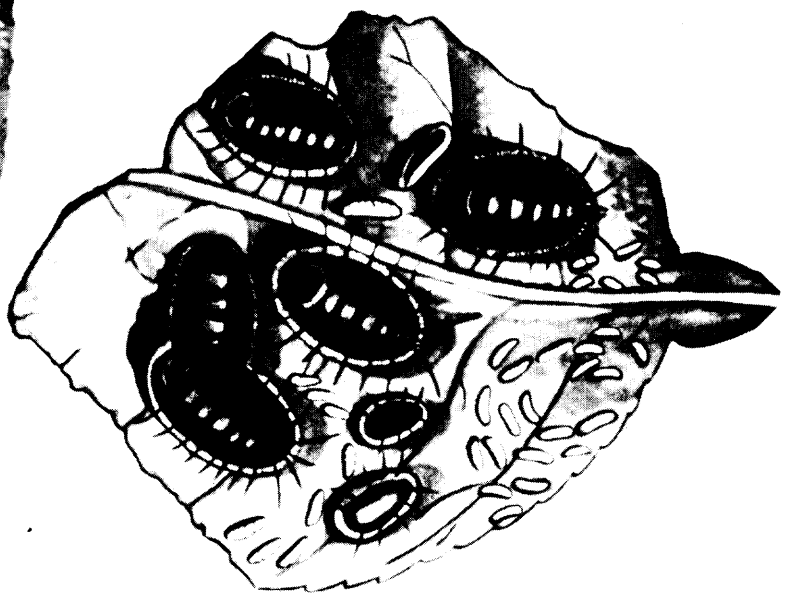

FIG. 2. NYMPHS AND PUPAE.

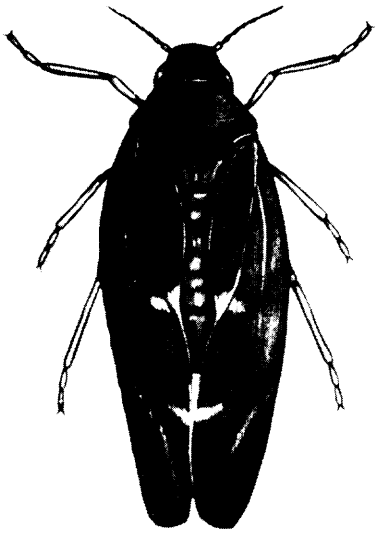

FIG. 3. ADULT

PHOTOS COMPLIMENTS USDA