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GREEN SCALE, COCCUS VIRIDIS (GREEN)

(HOMOPTERA: COCCIDAE) 1/

G. W. DEKLE 2/

INTRODUCTION: GREEN SCALE, COCCUS VIRIDIS (GREEN), AN INSECT PEST OF CITRUS AND OTHER PLANTS, IS FOUND OUT-OF-DOORS AND IN GREENHOUSES IN FLORIDA. THIS PEST WAS FIRST FOUND IN FLORIDA NEAR DAVIE, BROWARD COUNTY IN MAY 1942, BY STATE PLANT BOARD GROVE INSPECTORS, AND IS NOW WELL ESTABLISHED IN SOUTH FLORIDA.

DESCRIPTION: THE ADULT FEMALE IS SHINY PALE GREEN WITH A CONSPICUOUS BLACK IRREGULAR U-SHAPED INTERNAL MARKING THAT IS DORSALLY VISIBLE TO THE NAKED EYE. TWO SUB-MARGINAL BLACK EYE SPOTS ARE ALSO PRESENT AND CAN BE SEEN WITH A HAND LENS. THE OUTLINE SHAPE MAY BE DESCRIBED AS ELONGATE-OVAL AND MODERATELY CONVEX. SIZE: 2.5 - 3.25 MM (FIG. 1). DEAD SCALES ARE LIGHT BROWN OR BUFF COLOR AND THE BLACK INTERNAL MARKING IS LOST.

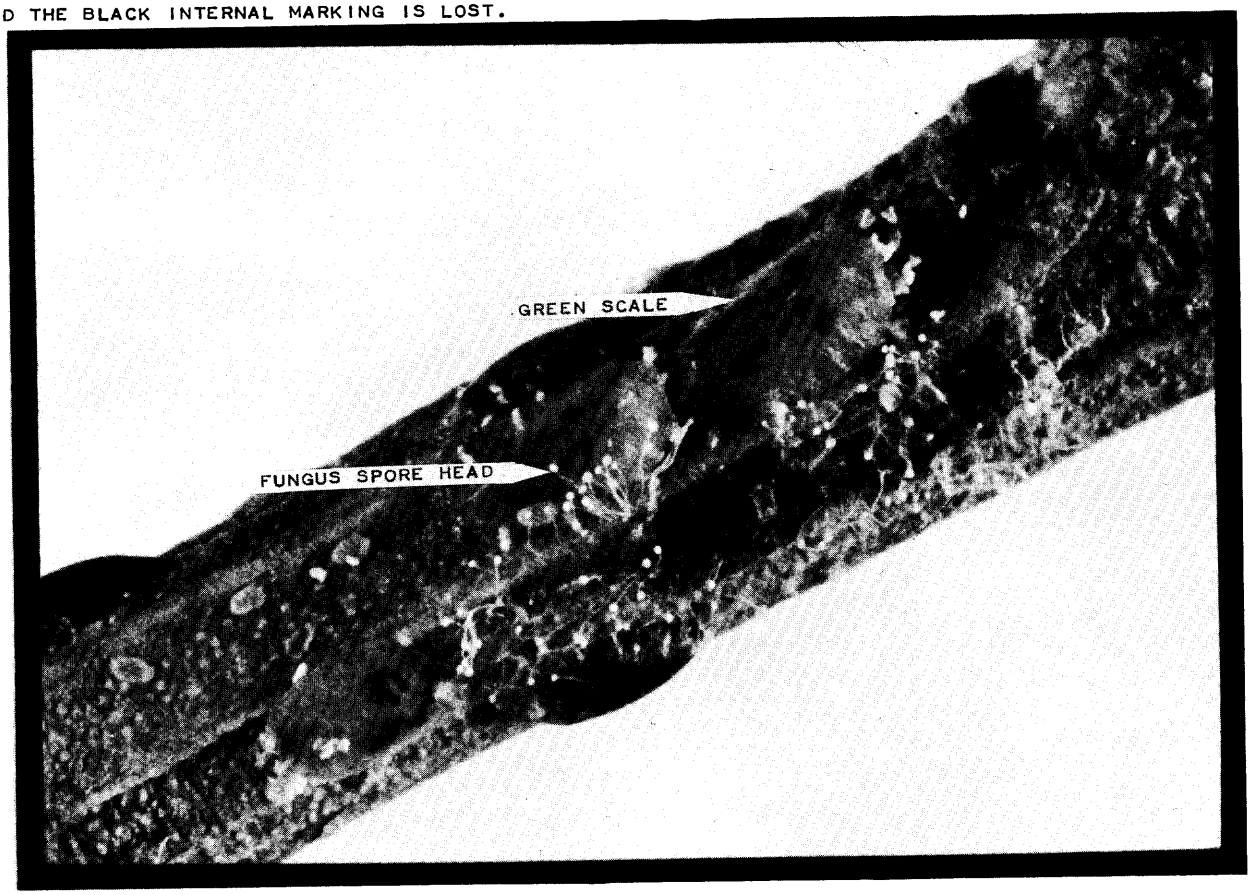

FIG. 1 GREEN SCALE, COCCUS VIRIDIS (GREEN), ON CITRUS (X10); NOTE FUNGUS SPORE HEADS THAT APPEAR TO BE DEVELOPING ON DEAD SCALES.

LIFE HISTORY AND HABITS: GREEN SCALE IS PARTHENOGENETIC AND OVIPAROUS (FREDRICK, 1943). THE WHITISH GREEN, ELONGATE-OVAL EGGS ARE LAID SINGLY AND HATCH BENEATH THE FEMALE. SOME ADULTS WERE OBSERVED BY FREDRICK TO COMPLETE EGG DEPOSITION IN 8 DAYS, AND OTHERS DEPOSITED EGGS OVER A 42-DAY PERIOD. IN SOUTH FLORIDA THE LENGTH OF TIME THAT PASSED FROM THE EGG TO EGG-DEPOSITING MATURITY DURING THE LATE SUMMER MONTHS WAS FROM 50-70 DAYS (FREDRICK, 1943). GREEN SCALE APPEARS IN A RATHER DEFINITE PATTERN ON CITRUS LEAVES. THE UNDERSURFACE OF THE LEAF IS PREFERRED, AND ADULT SCALES MAY BE FOUND IN A LINE ALONG BOTH SIDES OF THE MIDRIB AND LATERAL LEAF VEINS. OFTEN THEY ATTACK THE YOUNG SHOOTS, THEN ONE CAN USUALLY SEE ONLY A MASS OF SCALES (MARTORELL, 1945).

HOST PLANTS: THE PREFERRED HOST FOR GREEN SCALE IN FLORIDA IS GROUNDSEL BUSH, BACCHARIS HALIMIFOLIA L., A NON-CULTIVATED PLANT. PREFERRED CULTIVATED HOSTS ARE GARDENIA AND IXORA. THE DIVISION OF PLANT INDUSTRY HAS RECORDED GREEN SCALE ON 174 HOSTS IN FLORIDA SINCE 1942.

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ECONOMIC IMPORTANCE: THIS TROPICAL SOFT SCALE MAY OCCUR ON CULTIVATED HOSTS IN COMMERCIAL NURSERIES, RESULTING IN A QUARANTINE OF THE INFESTED PLANTS UNTIL THE SCALE IS UNDER CONTROL. USUALLY INFESTATIONS ARE ACCOMPANIED BY SOOTY MOLD, A BLACK FUNGUS GROWTH, WHICH DEVELOPS ON HONEYDEW EXCRETED BY THE SCALE. ACCUMULATIONS OF SOOTY MOLD CAUSE THE INFESTED PLANT TO BE UNSIGHTLY.

CONTROL: GUTHION OR MALATHION ARE MATERIALS RECOMMENDED BY R. F. BROOKS, ENTOMOLOGIST, AGRICULTURAL RESEARCH AND EDUCATION CENTER, LAKE ALFRED, FOR COMMERCIAL GROWERS. DIAZINON OR MALATHION ARE MATERIALS AVAILABLE TO THE HOMEOWNER. DIRECT SPRAY TO LOWER LEAF SURFACES AND NEW GROWTH TO GIVE THOROUGH COVERAGE. READ CAREFULLY AND FOLLOW LIMITATIONS AND PRECAUTIONS ON MANUFACTURERS' LABELS.

DISTRIBUTION: OCCURS IN THE TROPICAL REGIONS OF THE WORLD (MERRILL, 1953). IT HAS NOW BEEN REPORTED IN 27 FLORIDA COUNTIES, BUT IS MORE COMMONLY FOUND IN SOUTHERN FLORIDA (FIG. 2).

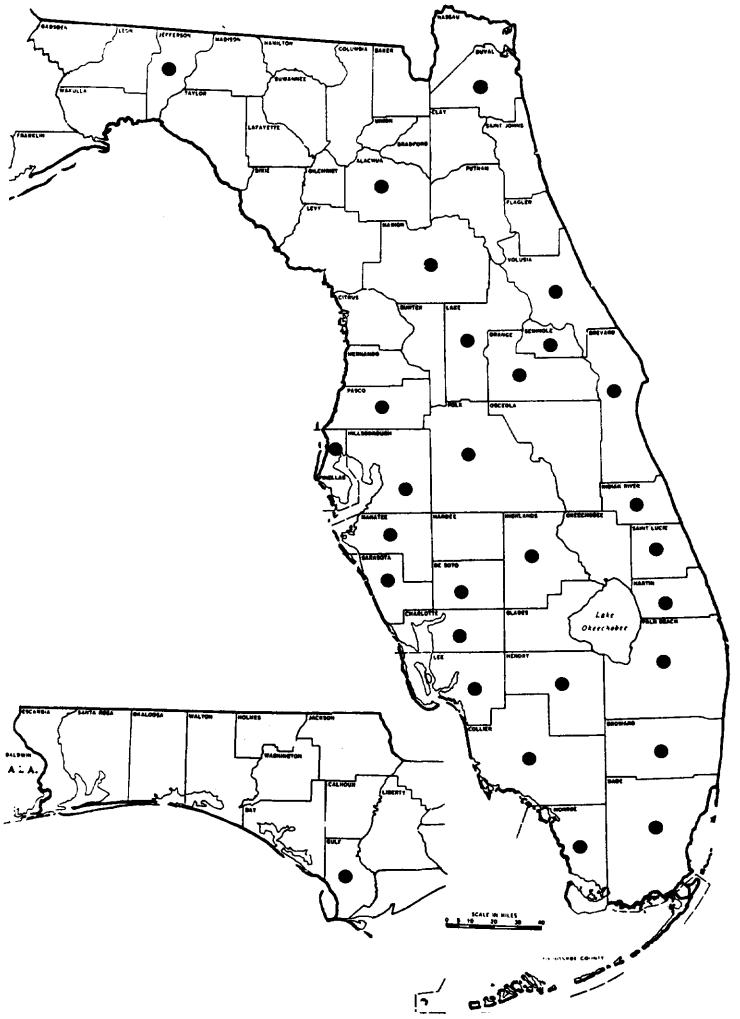

FIG. 2 COUNTIES IN FLORIDA WHERE GREEN SCALE HAS BEEN REPORTED.

REMARKS: SEVERAL ENTOMOGENOUS FUNGI WERE OBSERVED ASSOCIATED WITH GREEN SCALE ON CITRUS, AND SOME APPARENTLY PLAYED AN IMPORTANT ROLE IN THE NATURAL LIMITATIONS OF THE SCALE ON CITRUS DURING CERTAIN SEASONS OF THE YEAR (FREDRICK, 1943). CEPHALOSPORIUM LECANII ZIMMERMAN, A WHITE-FRINGED FUNGUS, IS THE MOST COMMON AND APPARENTLY CAUSES THE HIGHEST PERCENTAGE OF MORTALITY. ALL ATTEMPTS TO ARTIFICIALLY SPREAD OR INOCULATE THE FUNGUS TO HEALTHY GREEN SCALE WERE UNSUCCESSFUL (FREDRICK, 1943). THE USE OF INSECT PATHOGENS, AS A MEANS OF INSECT CONTROL, IS NOT FULLY UNDERSTOOD, BUT RENEWED INTEREST IN THIS AREA OF BIOLOGICAL CONTROL BY RESEARCHERS IS DEVELOPING.

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