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OLIVE FRUIT FLY (DACUS OLEAE (GMELIN))[1]

(DIPTERA: TEPHRITIDAE)

H. V. WEEMS, JR.

INTRODUCTION: THE OLIVE FRUIT FLY (DACUS OLEAE (GMELIN, 1788)) TAKES A TOLL EVERY YEAR OF NEARLY A THIRD OF ALL OLIVES PRODUCED ON COUNTLESS TREES IN THE MEDITERRANEAN AREA. IT IS SUCH A SERIOUS PEST IN THAT AREA AS TO PRECLUDE THE POSSIBILITY OF THE DEVELOPMENT OF A RIPE-OLIVE INDUSTRY. "WHEN WE CONSIDER THAT OLIVES AND OLIVE OIL COMPRISE A SUBSTANTIAL PART OF THE CALORIC INTAKE OF PEOPLE LIVING THERE, AND THAT GREECE ALONE HAS AN ESTIMATED 75 MILLION OLIVE TREES, THIS LOSS IS INDEED APPALLING," WROTE L. D. CHRISTENSON (1963). THE OLIVE FRUIT FLY IS GENERALLY A SERIOUS PEST OF CULTIVATED OLIVES THROUGHOUT ITS RANGE, BUT HAS NOT BECOME ESTABLISHED IN THE UNITED STATES. OLIVES ARE BEING GROWN COMMERCIALLY IN CALIFORNIA ON A LIMITED SCALE AND ARE GROWN ALSO AS ORNAMENTALS. IN FLORIDA OLIVE TREES--SLOW-GROWING EVERGREENS--ARE GROWN AS ORNAMENTALS AND HAVE NO COMMERCIAL APPLICATION IN RELATION TO THE FRUIT. THEIR USE AS ORNAMENTALS IS INCREASING, AND STATE AND FEDERAL REGULATORY AGENCIES SHOULD CONTINUE TO MAINTAIN VIGILANCE AGAINST INTRODUCTION OF THE OLIVE FRUIT FLY. LARVAE AND PUPAE ARE INTERCEPTED FREQUENTLY IN OLIVES FROM THE MEDITERRANEAN REGION. OCCASIONALLY ADULTS HAVE BEEN TAKEN ALONG WITH LARVAE AND PUPAE.

DISTRIBUTION: MEDITERRANEAN BASIN, NORTHERN, EASTERN AND SOUTHERN AFRICA, CANARY ISLANDS, INDIA, WESTERN ASIA, AND APPARENTLY WHEREVER THE GENUS OLEA OCCURS IN THE EASTERN HEMISPHERE.

HOSTS: OLIVES (OLEA SPP.).

LIFE HISTORY AND HABITS: UNDER SUMMER CONDITIONS, A PREOVIPOSITION PERIOD OF SIX TO TEN DAYS ELAPSES BEFORE MATING. FEMALES OVIPOSIT THROUGHOUT THEIR LIVES AFTER MATING, LAYING TEN TO 12 EGGS DAILY IN OLIVE FRUITS; ABOUT 200 TO 250 ARE LAID IN A LIFETIME. THE ADULT FEMALE PUNCTURES THE RIPENING OLIVE AND DEPOSITS HER EGGS BENEATH THE SKIN, USUALLY NO MORE THAN ONE EGG PER OLIVE. THE MAGGOTS FEEDING UPON THE TISSUE CAUSE THE OLIVES TO WITHER AND DROP OFF. LARVAE OR EARLY GENERATIONS PUPATE MOSTLY IN UNRIPE FRUITS, WHILE LAST GENERATION LARVAE PUPATE IN SOIL AND ELSEWHERE. THE EGG, LARVAL, AND PUPAL STAGES LAST TWO TO FOUR, TEN TO 14, AND ABOUT TEN DAYS, RESPECTIVELY, IN SUMMER IN YUGOSLAVIA. DURATION OF THE LIFE CYCLE VARIES FROM ONE TO SIX OR SEVEN MONTHS. THE NUMBER OF ANNUAL GENERATIONS VARIES FROM ONE TO SIX, DEPENDING ON THE CLIMATE; THREE IS THE USUAL NUMBER.

IDENTIFICATION: IMMATURE STAGES ARE SIMILAR IN APPEARANCE TO THOSE OF OTHER DACUS. PHILLIPS (1946) GIVES A DETAILED, ILLUSTRATED DESCRIPTION OF THE LARVA. THE OLIVE FRUIT FLY IS ONE OF THE SMALLEST SPECIES OF DACUS. THE ADULT FEMALE IS APPROXIMATELY FIVE MM LONG, HAS A WING EXPANSE OF APPROXIMATELY TEN MM, AND HAS MOSTLY TRANSPARENT WINGS MARKED WITH BROWN, INCLUDING A SPOT AT THE WING TIPS (FIG. 1). THE THORAX IS BLACK, WITH THE DORSAL SURFACE CLOTHED WITH FINE SILVERY PUBESCENCE, SO THAT THE BLACK FORMS THREE NARROW PARALLEL BLACK LINES; THE HUMERI, OR SHOULDERS, AND AN AREA ABOVE AND BELOW THE BASE OF THE WINGS ARE YELLOW; INNER PORTION OF THE SCUTELLUM IS BLACK, HIND PORTION YELLOW. THE ABDOMEN IS BLACK, COVERED WITH A SCATTERED GRAY PUBESCENCE, THE BASAL SEGMENTS MARKED WITH PALE TRANSVERSE BANDS AND AN IRREGULAR PARALLEL BAR OR BLOTCH OF REDDISH-BROWN OCCUPYING THE CENTER OF THE APICAL SEGMENTS, THE APICAL SEGMENT REDDISH-YELLOW, WITH THE SHEATH OF THE OVIPOSITOR BLACK, WITH THE OVIPOSITOR REDDISH.

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[1]CONTRIBUTION NO. 69, ENTOMOLOGY SECTION

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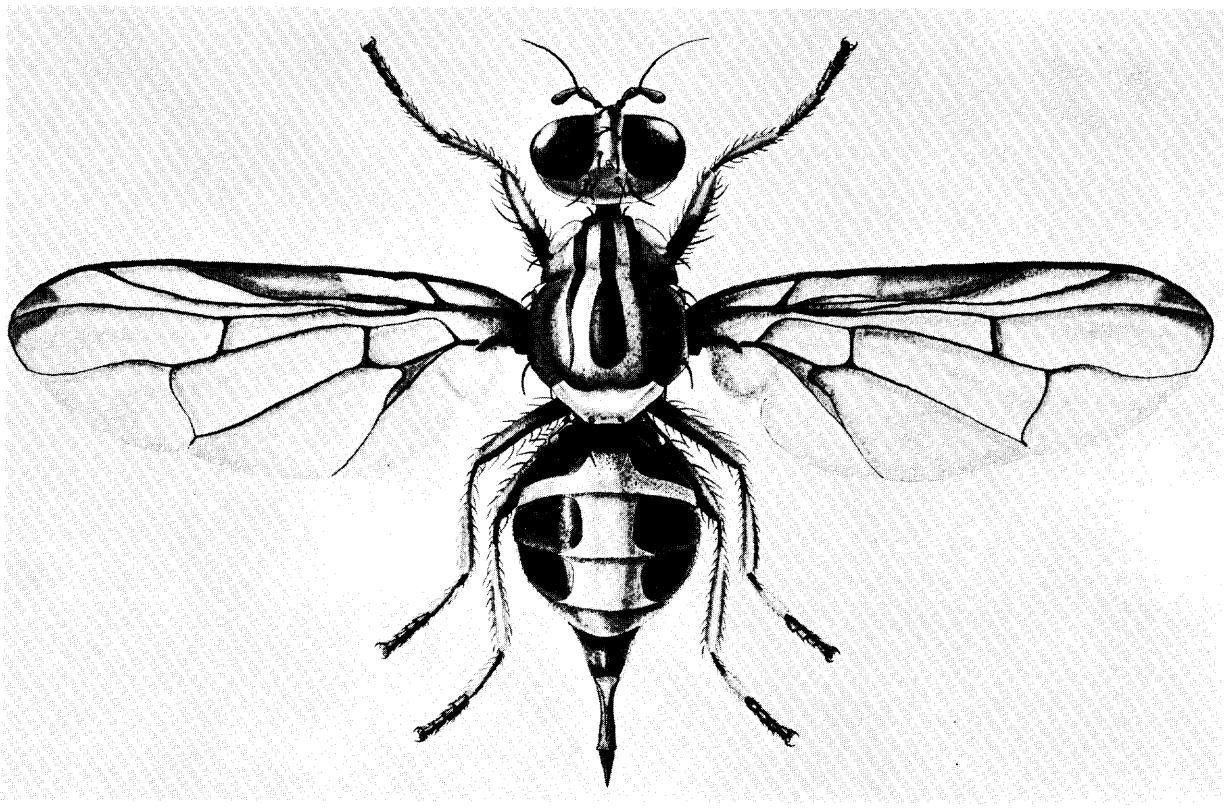

FIG. 1. DACUS OLEAE (GMELIN), ADULT FEMALE