

MELON FLY (DACUS CUCURBITAE COQUILLET)<sup>1</sup>  
(DIPTERA: TEPHRITIDAE)  
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**INTRODUCTION:** WITHIN ITS RANGE, THE MELON FLY IS ONE OF THE MOST IMPORTANT PESTS WITH WHICH VEGETABLE GROWERS HAVE TO CONTEND. IT IS NOT ESTABLISHED IN THE CONTINENTAL UNITED STATES, ALTHOUGH A SINGLE SPECIMEN WAS COLLECTED DURING JULY 1956 IN LOS ANGELES COUNTY, CALIFORNIA, IN A GLASS MCPHAIL TRAP BAITED WITH AN AQUEOUS SOLUTION OF BROWN SUGAR, BREWERS' YEAST, AND PYRIDINE. PLANT QUARANTINE INSPECTORS AT WEST COAST PORTS OF ENTRY HAVE MADE MANY INTERCEPTIONS IN VARIOUS HOSTS FROM HAWAII AND OCCASIONALLY FROM THE ASIATIC AREA. OTHER INTERCEPTIONS HAVE BEEN MADE AT HOUSTON, TEXAS; MOBILE, ALABAMA; AND BOSTON, MASSACHUSETTS.

IN THE INDO-MALAYAN REGION, THE MELON FLY IS CONSIDERED THE MOST DESTRUCTIVE PEST OF MELONS AND RELATED CROPS, AND IT HAS GREATLY CURTAILED THE PRODUCTION OF MELONS, CUCUMBERS, AND TOMATOES IN HAWAII. THE EXTENSIVE DAMAGE CAUSED BY THIS FLY IN AREAS SIMILAR TO FLORIDA WHERE IT HAS BECOME ESTABLISHED INDICATES THAT THIS SPECIES COULD RAPIDLY BECOME A VERY SERIOUS PEST OF CUCURBITS AND OTHER TRUCK CROPS, AND POSSIBLY OF SOME FRUIT CROPS, IF IT WERE TO BE INTRODUCED INTO FLORIDA AND BE PERMITTED TO BECOME ESTABLISHED.

**DISTRIBUTION:** THE MELON FLY IS WELL DISTRIBUTED OVER MOST OF INDIA, WHICH IS CONSIDERED ITS NATIVE HOME, AND THROUGHOUT MOST OF SOUTHEASTERN ASIA, THE MARIANA ISLANDS, AND THE HAWAIIAN ISLANDS. IT WAS INTRODUCED INTO THE HAWAIIAN ISLANDS FROM JAPAN ABOUT 1895, AND BY 1897, WHEN IT WAS FIRST OBSERVED, IT WAS ALREADY A SERIOUS PEST.

**HOSTS:** MORE THAN 125 SPECIES OF PLANTS, INCLUDING CUCURBITS, TOMATOES, AND MANY OTHER VEGETABLES, HAVE BEEN RECORDED AS HOSTS OF THE MELON FLY. PREFERRED HOSTS INCLUDE CANTALOUPE, WATERMELON, PUMPKIN, SQUASH, GOURD, CUCUMBER, TOMATO, STRING BEAN, AND COWPEA. OCCASIONAL HOSTS INCLUDE EGGPLANT, ORANGE, PAPAYA, MANGO, PEACH, AND FIG. WILD HOSTS INCLUDE PASSION-FLOWER, PASSIFLORA SPP., AND TWO GENERA OF CUCURBITS--SICYOS SP. AND CHINESE CUCUMBER, MOMORDICA SPP.

**LIFE HISTORY:** DEVELOPMENT FROM EGG TO ADULT UNDER SUMMER CONDITIONS REQUIRES FROM 12 TO 28 DAYS, ACCORDING TO THE INDIVIDUAL AND TO HOST AND WEATHER CONDITIONS. THE DEVELOPMENTAL PERIODS MAY BE EXTENDED CONSIDERABLY BY COOL WEATHER. THE LENGTH OF THE STAGES IN THE PHILIPPINE ISLANDS, AT AN AVERAGE TEMPERATURE OF 86F, WAS 1.73 DAYS FOR EGGS, 4 TO 9 DAYS FOR LARVAE, AND 7 TO 11 DAYS FOR PUPAE. LABORATORY TESTS IN HAWAII PROLONGED THE EGG STAGE TO 11 DAYS, THE LARVAL STAGE TO 30 DAYS, AND THE PUPAL STAGE TO 51 DAYS, BY EXPOSING SPECIMENS TO LOW TEMPERATURES. IN THE PHILIPPINES THE PREOVIPOSITION PERIOD LASTED 7 TO 26 DAYS AND THE OVIPOSITION PERIOD 39 TO 95 DAYS. A SINGLE HARDY FEMALE MAY LAY AS MANY AS 1,000 EGGS. EGGS GENERALLY ARE LAID IN YOUNG FRUIT, ALTHOUGH THEY ARE LAID ALSO IN SUCCULENT STEMS OF MANY HOST PLANTS, IN CAVITIES MADE WITH THE AID OF A SHARP OVIPOSITOR. ONLY RIPE FRUIT OF SOME HOSTS ARE ATTACKED. PUPATION NORMALLY OCCURS IN THE SOIL, USUALLY BENEATH THE HOST, AT A DEPTH RANGING DOWNWARD TO 2 INCHES. ADULTS MAY LIVE MORE THAN A YEAR. ADULTS FEED PRIMARILY UPON JUICES OF HOST PLANTS, NECTAR, AND HONEYDEW SECRETED BY VARIOUS KINDS OF INSECTS. THERE MAY BE AS MANY AS 8 TO 10 GENERATIONS A YEAR.

**IDENTIFICATION:** THE EGG IS PURE WHITE, ABOUT 2 MM LONG, ELLIPTICAL, NEARLY FLAT ON THE VENTRAL SURFACE, MORE CONVEX ON THE DORSAL. EGGS OFTEN ARE SOMEWHAT CURVED. THE LARVA IN ALL THREE INSTARS IS PURE GLISTENING WHITE, EXCEPT AS APPEARANCES ARE ALTERED BY THE COLOR OF THE FOOD WITHIN THE ALIMENTARY CANAL. THE THIRD-INSTAR LARVA, WHICH IS OF TYPICAL MAGGOT APPEARANCE, IS ABOUT 10 MM IN LENGTH. ANTERIOR SPIRACLES ON LATERAL MARGINS OF THE SECOND SEGMENT ARE FAN SHAPED, WITH THE DISTAL MARGIN STRAIGHT OR SLIGHTLY ROUNDED, BEARING 18 TO 20 SMALL TUBERCLES. THE PUPARIUM IS ABOUT 5 TO 6 MM IN LENGTH AND VARIES IN COLOR FROM DULL RED OR BROWNISH YELLOW TO DULL WHITE, ACCORDING TO HOST. THE ADULT FLY IS 6 TO 8 MM

<sup>1</sup>CONTRIBUTION No. 44, ENTOMOLOGY SECTION

IN LENGTH. DISTINCTIVE CHARACTERISTICS OF THE ADULT ARE THE WING PATTERN (FIG. 1), LONG THIRD ANTENNAL SEGMENT, THE DORSUM OF THE THORAX REDDISH YELLOW WITH LIGHT YELLOW MARKINGS AND WITHOUT BLACK MARKINGS, AND THE HEAD YELLOWISH WITH BLACK SPOTS.

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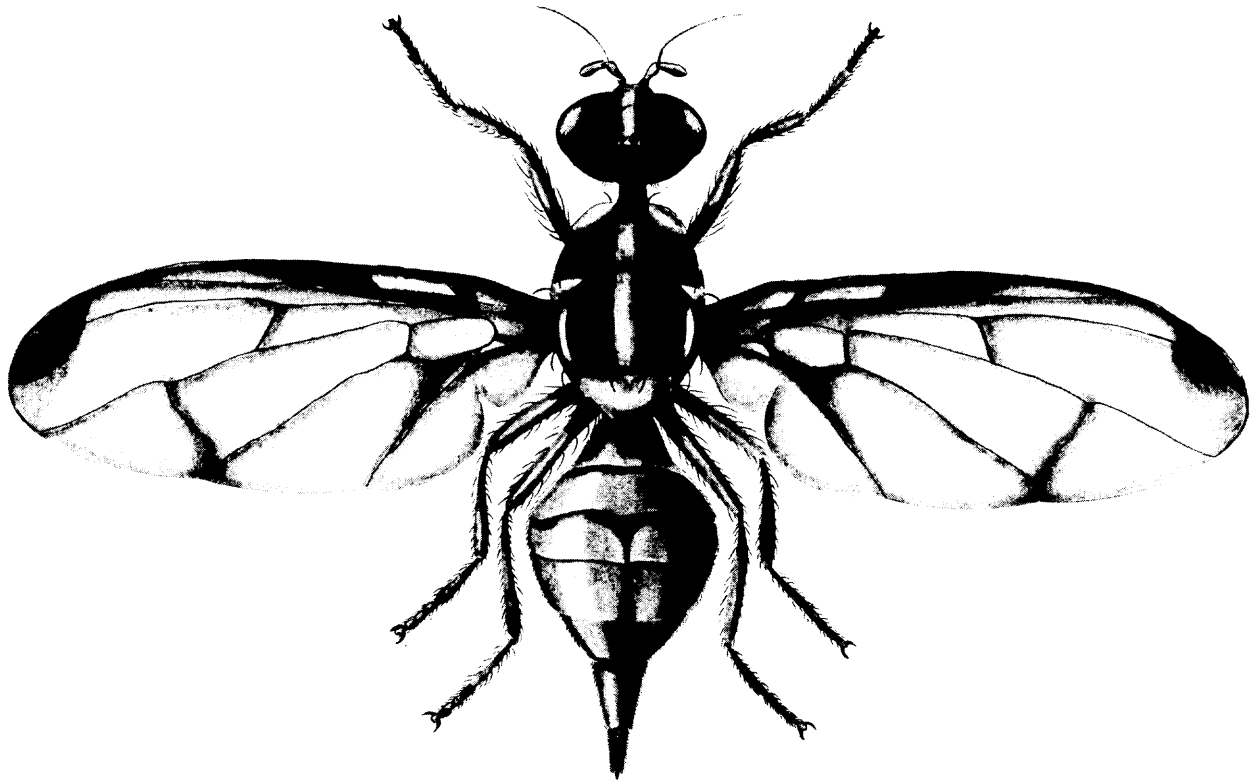


FIG. 1. DACUS CUCURBITAE COQUILLET, ADULT FEMALE