

CHERRY FRUIT FLY, CHERRY MAGGOT, RHAGOLETIS CINGULATA (LOEW)
(DIPTERA: TEPHRITIDAE) 1/
H. V. WEEMS, JR.

SYNONYMS: TRYPETA CINGULATA LOEW, 1862

INTRODUCTION: LARVAE OF TWO CLOSELY RELATED SPECIES OF FRUIT FLIES IN CENTRAL AND EASTERN NORTH AMERICA ---RHAGOLETIS CINGULATA (LOEW), COMMONLY CALLED THE CHERRY FRUIT FLY OR CHERRY MAGGOT, AND RHAGOLETIS FAUSTA (OSTEN SACKEN), THE BLACK CHERRY FRUIT FLY---ATTACK CHERRY AND CAUSE WORMY FRUITS. ONLY R. CINGULATA OCCURS IN FLORIDA, WHERE IT ATTACKS WILD CHERRIES AND IS OF LITTLE ECONOMIC IMPORTANCE. THESE TWO SPECIES CLOSELY RESEMBLE A THIRD PEST SPECIES, THE APPLE MAGGOT, RHAGOLETIS POMONELLA (WALSH); THE ADULTS OF ALL THREE HAVE BANDED WINGS. R. CINGULATA BREEDS IN ALL VARIETIES OF CHERRIES INCLUDING THE SWEET CHERRY. A WEEVIL, THE PLUM CURCULIO, CONOTRACHELUS NENUPHAR (HERBST) IS THE MOST SERIOUS PEST OF CHERRIES AND PLUMS, AND ITS LARVAE MAY BE MISTAKEN FOR THOSE OF THE FRUIT FLIES. HOWEVER, PLUM CURCULIO LARVAE HAVE HEAVY CHEWING MANDIBLES AND A BLUNTLY ROUNDED HEAD WHICH READILY DISTINGUISH THEM FROM FRUIT FLY LARVAE WHICH HAVE SHARP-POINTED, DOWNWARD-CURVED MOUTH HOOKS AND A SHARPLY POINTED HEAD.

DISTRIBUTION: MICHIGAN TO NEW HAMPSHIRE, SOUTHWARD TO FLORIDA, OCCURRING OVER THE ENTIRE MIDDLE AND EASTERN REGION OF THE UNITED STATES; SOUTHEASTERN AND SOUTHCENTRAL CANADA. RHAGOLETIS INDIFFERENS CURRAN, ONCE CONSIDERED A SUBSPECIES OF R. CINGULATA, OCCURS IN THE WESTERN UNITED STATES FROM IDAHO AND WASHINGTON SOUTHWARD INTO CALIFORNIA. R. FAUSTA, THE THIRD SPECIES IN THIS COMPLEX, OCCURS ACROSS SOUTHERN CANADA SOUTHWARD TO NEW YORK IN THE EAST AND TO CALIFORNIA ALONG THE WEST COAST.

HOSTS: CULTIVATED CHERRIES (SWEET CHERRY, PRUNUS AVIUM L.; SOUR CHERRY, PRUNUS CERASUS L.; MAHALEB OR ST. LUCIE CHERRY, PRUNUS MAHALEB L.), WILD CHERRY (PRUNUS SEROTINA EHRH.), R. CINGULATA HAS BEEN REARED FROM PLUM (PRUNUS spp.), FRINGE TREE (CHIONANTHUS VIRGINICA L.), AND WILD OLIVE (OSMANTHUS AMERICANUS (L.) GRAY). R. CINGULATA ATTACKS BOTH SWEET AND SOUR CHERRIES WHILE R. FAUSTA PRIMARILY ATTACKS THE SOUR CHERRIES. SINCE BOTH ARE NATIVE SPECIES, THEIR ORIGINAL FOOD MUST HAVE BEEN THE WILD SPECIES OF CHERRY.

LIFE HISTORY AND HABITS: ADULTS EMERGE FROM THE GROUND DURING THE SPRING AT THE TIME THE CHERRIES ARE ABOUT HALF GROWN AND FEED FOR A FEW DAYS ON MOISTURE AND OTHER MATERIALS ON THE SURFACE OF THE LEAVES AND FRUIT BEFORE LAYING EGGS. THIS IS THE VULNERABLE TIME FOR CONTROL. EACH FEMALE MAY DEPOSIT 300 TO 400 EGGS. ONLY ONE LARVA MATURES IN A FRUIT, ALTHOUGH MORE THAN ONE EGG MAY BE DEPOSITED IN A SINGLE FRUIT. AFTER OVIPOSITION THE EGGS HATCH IN 5-8 DAYS, AND THE YOUNG LARVAE TUNNEL DIRECTLY TO THE SURFACE OF THE CHERRY SEED. THEY PASS THROUGH 3 INSTARS AT AN AVERAGE OF 11 DAYS AT 77°F. BY THE TIME THE CHERRIES ARE RIPE THE LARVAE MATURE, DROP TO THE GROUND, AND BURROW INTO THE SOIL TO A DEPTH OF ONE TO THREE INCHES WHERE THEY PUPATE AND EVENTUALLY OVERWINTER. INFESTED CHERRIES AT FIRST DO NOT FALL BUT HANG ON THE TREE, AND SUNKEN AREAS MAY DEVELOP ON SOME OF THEM. BY HARVEST TIME AS MANY AS 75 PER CENT OF THE CHERRIES MAY BE INFESTED. MANY LARVAE ARE LIKELY TO BE IN THE FRUITS OF EARLY VARIETIES AT HARVEST TIME, PASS UNDETECTED, AND BE DISTRIBUTED AROUND THE COUNTRY IN MARKETING. A FEW FLIES EMERGE IN AUGUST AND SEPTEMBER AS A SECOND GENERATION, BUT ABOUT 99 PER CENT REQUIRE A YEAR TO COMPLETE A LIFE CYCLE.

IDENTIFICATION: THESE FLIES ARE A LITTLE SMALLER THAN A HOUSE FLY, 4-5MM LONG, AND GENERALLY BLACK WITH YELLOW MARGINS ON THE THORAX (FIG. 1). THE SCUTELLUM IS WHITE, THE TIBIAE AND Tarsi ARE YELLOWISH, AND THERE ARE TRANSVERSE AND OBLIQUE BLACKISH MARKINGS ON THE WINGS. THE CHERRY FRUIT FLY HAS 4 WHITE CROSSBANDS ON THE ABDOMEN, WHICH ARE NOT FOUND ON THE BLACK CHERRY FRUIT FLY; THE BLACKISH BANDS ON THE WINGS OF THE LATTER ARE MORE INTENSE. THE MAGGOTS FOUND IN THE FRUIT ARE YELLOWISH WHITE, UP TO 1/4 INCH LONG AND---TYPICAL OF FLY LARVAE---ARE POINTED AT THE HEAD END. KEY CHARACTERS FOR THE SEPARATION OF THE LARVAL STAGE FROM RELATED SPECIES ARE GIVEN BY PHILLIPS (1946).

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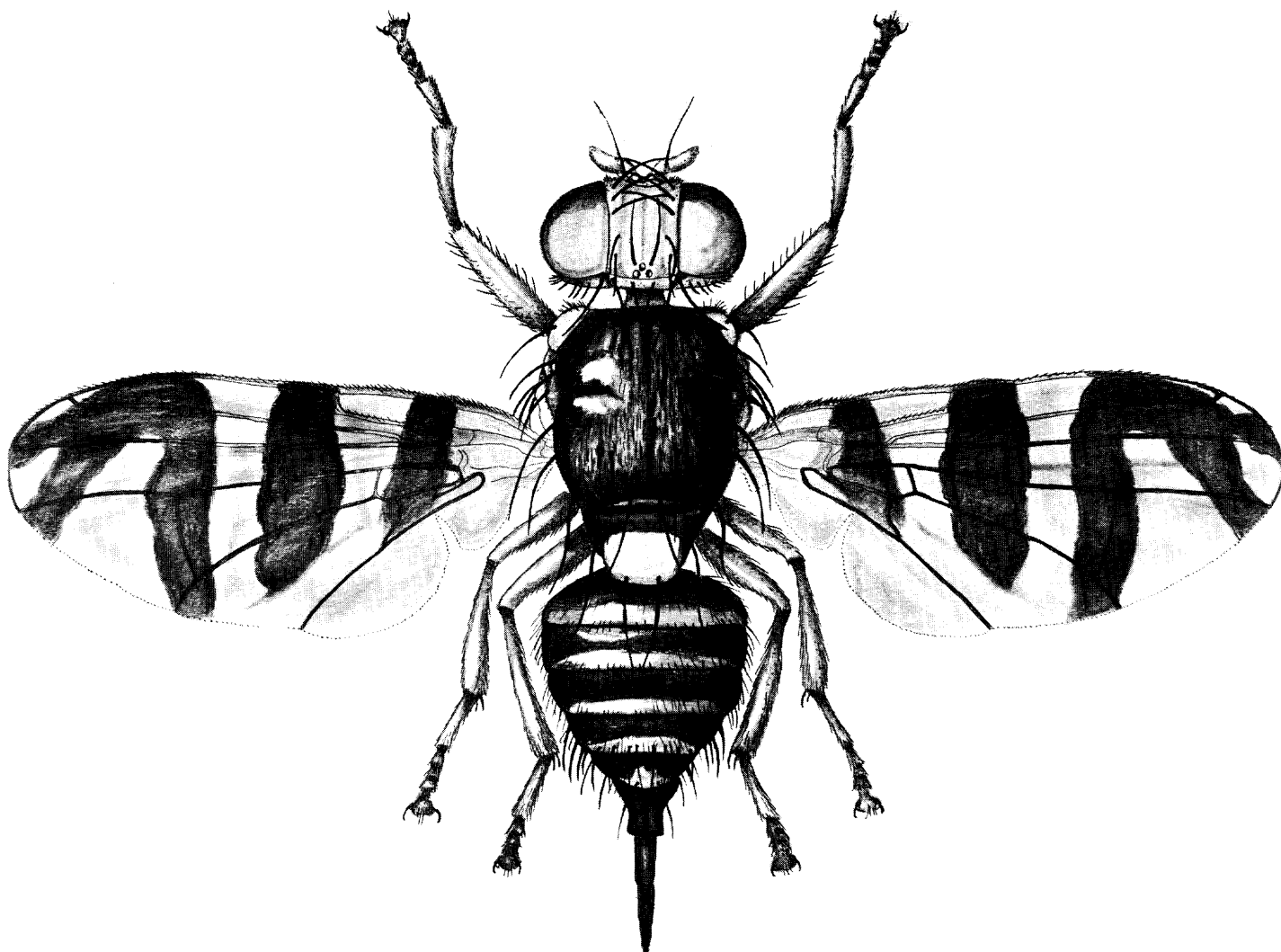


FIG. 1. CHERRY FRUIT FLY, RHAGOLETIS CINGULATA (LOEW), ADULT FEMALE.