

THE BLACKBERRY PSYLLID, TRIOZA TRIPUNCTATA (FITCH)^{1/}

(HOMOPTERA: PSYLLIDAE)

F. W. MEAD

INTRODUCTION: BLACKBERRY PRODUCTION IS INCREASING IN FLORIDA DUE TO THE ACCELERATED PLANTING OF IMPROVED VARIETIES; THEREFORE, ALL PESTS OF BLACKBERRY ASSUME A NEW IMPORTANCE. SO FAR, THE BLACKBERRY PSYLLID SEEMS TO BE RELATIVELY SCARCE IN FLORIDA, BEING KNOWN TO THE WRITER FROM ONLY A FEW SAMPLES SUBMITTED FROM ALACHUA AND BAKER COUNTIES IN NORTH FLORIDA. THIS PSYLLID (SOMETIMES CALLED THE BRAMBLE FLEA LOUSE) DOES NOT POSE A THREAT TO BLACKBERRY PRODUCTION AT THIS TIME BUT GROWERS AND PLANT SPECIALISTS MIGHT DO WELL TO LEARN SOME OF THE SYMPTOMS CAUSED BY THIS PSYLLID. MOST OF THE INFORMATION HEREIN PRESENTED HAS BEEN OBTAINED FROM THE PAPER BY PETERSON (1923).

SYMPTOMS: THE BLACKBERRY PSYLLID CURLS AND STUNTS THE GROWTH OF NEW, RAPIDLY GROWING SHOOTS AND LEAVES OF WILD AND CULTIVATED BLACKBERRIES (FIG. 1 AND 2). EARLY IN THE SEASON THE INJURED TISSUE, PARTICULARLY THE LEAVES, IS USUALLY A MUCH DARKER GREEN, WHILE LATER IN THE SEASON DISTORTED NEW GROWTH MAY HAVE A NORMAL GREEN COLOR. ADULTS MAY ALSO ATTACK NEW FRUIT SPURS BEARING FRUIT BUDS, STUNTING THE FRUIT BUDS' GROWTH. THE INJURED SHOOTS NEVER BEAR NORMAL, WELL DEVELOPED BERRIES.



DAMAGE TO WILD BLACKBERRY BY THE BLACKBERRY PSYLLID. NORMAL LEAVES TO THE RIGHT; STUNTED AND DISTORTED LEAVES TO THE LEFT AT THE TERMINAL END OF THE CANE.

FIG. 1



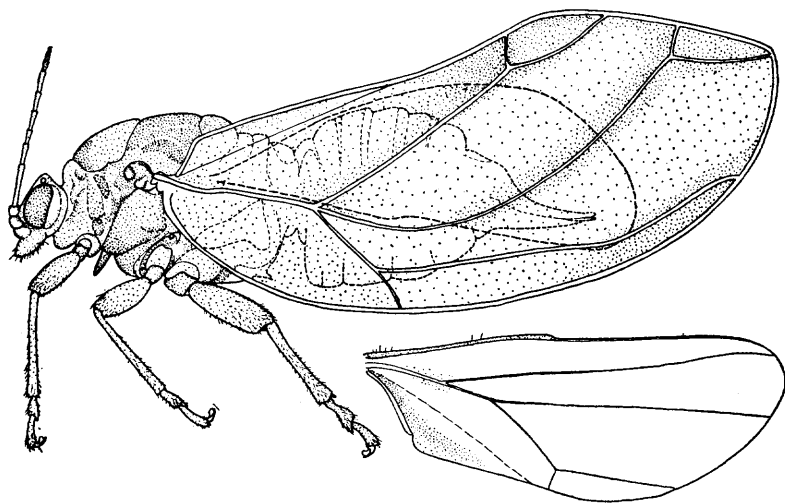
INTERMEDIATE DAMAGE TO YOUNG BLACKBERRY LEAVES BY THE BLACKBERRY PSYLLID.

FIG. 2

LIFE HISTORY: A STRIKING FEATURE OF THE LIFE HISTORY IS THAT THE BLACKBERRY PSYLLID OVERWINTERS ON AN ALTERNATE HOST OF SOME KIND OF CONIFER. ADULTS MIGRATE TO CONIFERS IN THE FALL, WITH THE FEMALES PREDOMINATING. AS THE MONTHS PASS, MALES BECOME LESS NUMEROUS AND BY MARCH THEY COMPLETELY DISAPPEAR, ACCORDING TO THE NEW JERSEY STUDIES BY PETERSON. THE LIFE HISTORY HAS NOT BEEN STUDIED IN THE DEEP SOUTH. IN NEW JERSEY, ADULT FEMALES START MIGRATING FROM CONIFERS IN MAY AND COMPLETE THIS MIGRATION BY EARLY JUNE. THE ADULTS MAY BE ON BLACKBERRY PLANTS FROM 7 TO 10 DAYS BEFORE DISTORTION APPEARS. SEVERE DISTORTION MAY OCCUR BEFORE A SINGLE EGG HAS HATCHED. THE DISTORTION MAY CONTINUE TO DEVELOP TO A LIMITED EXTENT EVEN AFTER THE ADULTS HAVE DISAPPEARED AND WHERE NO NYMPHS OR EGGS ARE PRESENT. APPARENTLY THE ADULT INJECTS SOME FLUID INTO THE PLANT WHICH BRINGS ABOUT A DISTINCT LOCAL STUNTING OF THE GROWING TISSUE AND ALSO A CHANGE OF COLOR. THIS FLUID MUST BE VERY ACTIVE, FOR ONE ADULT FEEDING ON AN UNINJURED SHOOT MAY BRING ABOUT A DECIDED CURLING AND STUNTING OF THE TERMINAL END. SIMILARLY, NYMPHS PROBABLY INJECT SOME SUBSTANCE WHILE FEEDING, AS THE MALFORMATION OF THE TISSUE CONTINUES FOR THE ENTIRE SEASON ON THE NEW GROWTH OF THE INJURED SHOOTS. THE NYMPHS OF ALL STAGES EXCEPT THE FIFTH INSTAR WILL BE FOUND MOSTLY ON THE UNDERSIDES OF THE OLDER LEAVES. THE FIFTH INSTAR NYMPH MIGRATES TO THE GREEN CANE AND THE YOUNGER DISTORTED LEAVES NEARER THE TIP END OF THE INJURED CLUMPS. THIS MIGRATION TAKES PLACE WHEN THE OLDER PART OF THE INJURED CLUMP BECOMES QUITE DRY AND THE DISTORTED LEAVES START TO TURN BROWN. IN NEW JERSEY THE BLACKBERRY PSYLLID HAS ONE GENERATION PER YEAR. ONE FEMALE MAY DEPOSIT 39 TO 202 EGGS. IT USUALLY TAKES 10 DAYS FOR EGGS TO HATCH. THE FIRST STAGE NYMPH TAKES 18 OR MORE DAYS TO REACH FULL GROWTH; 2ND STAGE 25 DAYS; 3RD STAGE 20 DAYS; 4TH STAGE 15 DAYS AND 5TH STAGE 30 DAYS.

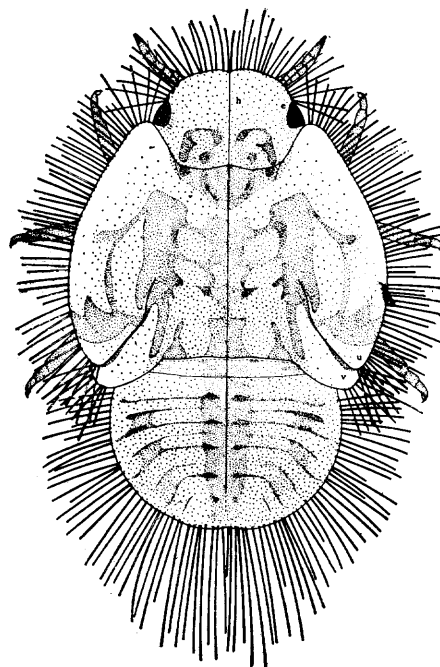
DISTRIBUTION: THE BLACKBERRY PSYLLID RANGES FROM MAINE, NEW YORK, MICHIGAN, AND IOWA IN THE NORTH, TO LOUISIANA AND FLORIDA IN THE SOUTH.

IDENTIFICATION: LENGTH OF ADULT (FIG.3) TO TIP OF FOREWING 4-4.5 MM. GENERAL COLOR BROWN TO DARK BROWN, DORSUM OFTEN BLACK; HEAD LIGHTER; ANTENNAE YELLOWISH, BLACK AT TIP; LEGS LIGHT BROWN. FOREWING HEAVILY SHADED WITH BROWN ALONG VEINS, GIVING A BEAUTIFUL BANDED APPEARANCE. THIS BANDING, TOGETHER WITH THE POSTERIOR TIBIAE HAVING ONLY TWO BLACK SPINES ON INNER SIDE AND ONE OUTSIDE, ARE KEY CHARACTERS FOR THIS SPECIES. THE NYMPHS (FIG.4) ARE YELLOWISH, SOMETIMES SHADING TO A PALE GREEN ON THE THORAX. THE EYES ARE RED. MARGINAL WAX HAIRS SURROUND THE ENTIRE LATERAL MARGIN OF THE NYMPH. THIS IS TYPICAL OF THE GENUS TRIOZA. MICROSCOPIC EXAMINATION OF THE CIRCUM-ANAL PORE RING IS ONE OF THE BEST METHODS TO SEPARATE NYMPHS OF THE BLACKBERRY PSYLLID FROM OTHER CLOSELY RELATED SPECIES OF TRIOZA. NYMPHS TEND TO BE GREGARIOUS IN WHITE FLUFF ON THE VENTRAL SURFACE OF A BLACKBERRY LEAF. THEY ARE SOMETIMES MISTAKEN FOR MEALY-BUGS.



LATERAL VIEW OF ADULT FEMALE, TRIOZA TRIPUNCTATA.
(DRAWING BY ALVAH PETERSON)
FIG. 3

CONTROL: SPRAY WITH MALATHION AS NEEDED UP TO ONE DAY FROM HARVEST, USING THE DOSAGE RECOMMENDED ON THE LABEL FOR APHIDS. ALSO, KEEP BLACKBERRY PATCHES AWAY FROM CONIFERS WHENEVER POSSIBLE. INCREASING THE DISTANCE OF THE PATCH FROM CONIFERS DECREASES THE CHANCE OF INFESTATION WHEN THE ADULT PSYLLIDS MIGRATE FROM THE CONIFERS TO BLACKBERRY IN THE SPRING. DR. PETERSON FOUND NO PSYLLID DAMAGE TO BLACKBERRIES WHEN THE PATCHES WERE A MILE OR MORE FROM CONIFERS.



DORSAL VIEW OF A NYMPH IN THE FIFTH STAGE OR INSTAR. (DRAWING BY ALVAH PETERSON)
FIG. 4

ACKNOWLEDGEMENT: THE AUTHOR GREATLY APPRECIATES RECEIVING PERMISSION FROM DR. ALVAH PETERSON, EMERITUS PROFESSOR, DEPT. OF ZOOLOGY & ENTOMOLOGY, OHIO STATE UNIVERSITY, TO USE MATERIAL FROM HIS PUBLICATION ON THE BLACKBERRY PSYLLID.

REFERENCE CITED:

PETERSON, ALVAH. 1923. THE BLACKBERRY PSYLLID, TRIOZA TRIPUNCTATA FITCH. NEW JERSEY AGR. EXP. STA. BULL. 378, 32 P.