## SCIENTIFIC NOTES

EFFECTIVENESS OF JACKSON TRAPS FOR FRUIT FLIES IMPROVED BY ADDITION OF COLORED PATTERNS—A trap used commonly for survey and detection of tephritid flies, known as the "Jackson trap", is essentially a triangular tube made of heavy waxed paper and provisioned with a paper insert coated with an adhesive. Attraction is based upon use of chemical lures in the trap. Its design was apparently first described in print by Harris et al. 1971; J. Econ. Ent. 64: 62-4). To our knowledge, no effort has been made to improve upon the original design through incorporation of color, and all Jackson traps being used in survey and detection programs are white.

As earlier studies showed that certain colors were attractive to the Caribbean fruit fly, *Anastrepha suspensa* (Loew) (Diptera: Tephritidae) (1977; Greany et al., Ent. exp. & appl. 121: 63-70; 1978; Greany et al., Ent. exp. & appl. 23: 20-5), we set up tests to evaluate the effect of adding color to Jackson traps to improve trap effectiveness for detection of this species. A fluorescent orange paint, Arc Yellow (pigment A-16, Day-Glo Color Corp., Cleveland, Ohio) with a peak reflectance of 590 nm, was the most attractive paint tested earlier and was therefore chosen for these tests. The Jackson traps employed were of the standard design used in current state and federal trapping programs (12.5 cm long with a triangular opening 9.5 cm on each edge) and were provisioned with 10 x 15-cm adhesive inserts. The paint patterns we tested are indicated in Table 1. No chemical attractants were included in these tests.

Bioassays were performed using laboratory reared flies confined in an outdoor screen cage (3.7 x 3.7 x 2.5 m) at the Subtropical Horticulture Research Laboratory, ARS, USDA, Miami, Florida. The bioassay methods used were similar to those employed by A. K. Burditt, Jr., and T. P. McGovern for tests of candidate chemical attractants (1979; USDA Publ. ARM-S-6). The cage was provisioned with ca. 25,000 flies of mixed ages and sexes. The traps were suspended from the rim of a slowly rotating (0.44 rpm) 1.2 m diameter wheel (to avoid position effects) ca. 0.75 m from the top of the cage. Tests were conducted during mid-day and were 1 hr in duration. Two traps of each design were presented simultaneously, but were positioned next to traps of other types rather than adjacent to each other. The tests were repeated on 10 non-consecutive days during September and October 1976 (summary of results in Table 1).

These results clearly show the benefit of adding fluorescent orange paint to the traps. Traps painted over the entire external surface (type B) caught ca. twice as many flies as the standard white trap. The increase in response was heightened further by selective painting of the traps, so that those traps (type E) painted with a 2.5-cm stripe on each end on the exterior surface and uniformly in the interior caught ca. 5 times more flies than the unpainted white traps. Increased capture of flies in traps with painted exterior end stripes may be due to either (1) increased attractiveness of the trap per se due to its contrasting white/orange pattern, which possibly provides increased stimulation through an optomotor effect, or (2) increased efficiency of the trap due to enhanced orientation of flies to the open ends, thereby mediating movement toward the interior sticky surface. This question should be resolvable through direct behavioral observation.

TABLE 1. RESPONSE OF CARIBBEAN FRUIT FLIES TO JACKSON TRAPS: EFFECT OF INCORPORATING ARC YELLOW COLOR.

| Trap type (color pattern) | Mean (± S.E.) no. flies captured[1] |
|---|---|
| A–Plain (no color added) | 6.9 (± 1.1) a |
| B–Outside only (entire surface) | 11.7 (± 2.1) a |
| C–Inside only (entire surface, incl. insert) | 21.1 (± 3.8) b |
| D–Entire trap (inside & outside) | 25.0 (± 3.3) b |
| E–Inside (incl. insert) & 2.5 cm stripe on ends | 32.9 (± 4.7) c |

[1]Means followed by different letters differ significantly at the 5% level by Duncan's new multiple range test.

Assuming these results can be confirmed in field tests with wild flies, we believe it may be possible to significantly enhance the effectiveness of Jackson traps employed for survey and detection of various tephritid species. It is also possible that trap effectiveness could be synergized by combining visual and chemical attractants. Mention of a commercial or proprietary product does not constitute an endorsement by the USDA.— P. D. GREANY, A. K. BURDITT, JR.[1], AND D. L. CHAMBERS, Insect Attractants, Behavior and Basic Biology Research Laboratory, ARS, USDA, Gainesville, FL 32604.

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*DATANA PERSPICUA* (LEPIDOPTERA: NOTODONTIDAE) ATTACKS *COTINUS OBOVATUS*, A NATIVE WOODY ORNAMENTAL— The sumac caterpillar, *Datana perspicua* Dyar (Lepidoptera: Notodontidae), has been thought to be restricted to members of the sumac genus, *Rhus* (Anacardiaceae). C. P. Kimball (1965, The Lepidoptera of Florida, an Annotated Checklist. Florida Dept. of Agric., Gainesville, 363 p.) merely listed "sumac" as its food, whereas H. M. Tietz (1972. An Index to the Described Life Histories, Early Stages and Hosts of the Macrolepidoptera of the Continental United States and Canada. I.A.C. Allyn, Sarasota, 536 p.) specified *R. aromatica* Ait. (fragrant sumac), *R. copallina* L. (shining sumac), and *R. typhina* L. (staghorn sumac) as hosts. Other members of genus *Datana*, namely *D. major* Grote and Robinson, *D. ranaeceps* Guréin-Ménéville, and *D. integerrima* Grote and Robinson (walnut caterpillar), also appear to be closely tied to a single host genus each. However, *D. ministra* (Drury) (yellownecked caterpillar), *D. angusi* Grote and Robinson, and *D. contracta* Walker attack fairly diverse hosts (Kimball 1965, *in* loc cit.).

*Cotinus obovatus* Raf. (American smoketree) (Anacardiaceae) is an uncommon shrub or slender tree up to 10 m high found naturally on rocky limestone hills in Texas, Oklahoma, Arkansas, Missouri, Alabama, Tennessee, and Kentucky (Vines, R. A. 1960. Trees, Shrubs, and Woody Vines of the Southwest. Univ. of Texas Press, Austin. 1104 p.). There appear to be no previous records of arthropods damaging *C. obovatus*.

Data were collected in 1979-1981 from a lone specimen of *C. obovatus*