Entomology Circular No. 315
February 1989

Fla. Dept. Agric. & Consumer Services
Division of Plant Industry

Larvae of Fruit Flies. V
Dacus cucurbitae (Melon Fly) (Diptera: Tephritidae)[1]

J.B. Heppner [2]

INTRODUCTION: The melon fly, *Dacus cucurbitae* Coquillett, is widespread throughout most of Southeast Asia, from India to Indonesia, also ranging north to Japan and nearby Pacific islands. It has been introduced into Hawaii (Back & Pemberton, 1917) and has been intercepted occasionally in California and ports of entry in Houston, Mobile, and Boston. Although thus far never intercepted in Florida, it is potentially a serious threat to agriculture. Larvae have been reported from over 125 species of plants (Weems, 1964), being particularly destructive to melons, cantaloupe, watermelon and other melons, pumpkin, squash, cucumber, tomato, string bean, and cowpea, and occasionally orange, papaya, mango, peach, and fig.

LARVAL DESCRIPTION: Larva white; typical fruit fly shape (cylindrical-maggot shape, elongate, anterior end narrowed and somewhat curved ventrally, with anterior mouth hooks, ventral fusiform areas and flattened caudal end); last instar larvae range from 7.5 - 11.8 mm in length; venter with fusiform areas on segments 2-11 (2-4 are weakly developed); anterior buccal carinae usually 18-20 in number (Fig. 1); anterior spiracles (Fig. 2) slightly convex in lateral view, with tubules averaging 18-20 in number and relatively small.

Cephalo-pharyngeal skeleton (Fig. 3) with large, sharply pointed convex mouth hook each side, with prominent dorsal lobe, and each hook about 3X hypostome length; hypostomium with prominent, semi-rounded subhypostomium; post-hypostomial plates curved to dorsal bridge, fused with sclerotized rays of central area of dorsal wing plate; parastomium prominent; dorsal wing plate with posterior ray split; dorsal bridge relatively unsclerotized except on posterior curve to pharyngeal plate; a prominent hood on pharyngeal plate and several striae ventrally.

Caudal end (Fig. 4) with paired dorsal papillules (D1 and D2) diagonally dorsad each spiracular plate; intermediate papillules as a curved ridge to each side, with a prominent central dark line below spiracles about midway between spiracles and anal lobes, but with I3 to each side of spiracles; L1 on median edge of caudal end; ventral papillules not evident on raised plates; posterior spiracles (Fig. 5) as three elongated oval openings (length = 3-3.5X width) on each kidney-shaped spiracular plate, with dorsal spiracles and lower pair angled to caudal end center; interspiracular processes (hairs) numerous, at 4 sites on each plate, tips bifurcate; anal lobes (Fig. 6) entire and small.

DISCUSSION: The larva of the melon fly is particularly distinctive in having a dark sclerotized horizontal line below the spiracular region on the caudal end, with a curved ridge on each side of it. No other known fruit fly larva has this combination of characters, plus other features of the anterior spiracles and cephalo-pharyngeal skeleton (Berg, 1979; Chu, 1949; Green, 1929; Hardy, 1949; Phillips, 1946; Pruitt, 1953). The related oriental fruit fly, *Dacus dorsalis* Hendel, likewise is distinguished from melon fruit fly larvae in these features (Heppner, 1988).

LITERATURE CITED:

Back, E. A., and C. E. Pemberton. 1917. The melon fly in Hawaii. USDA Bull. 491:1-64.

Berg, G. H. 1979. Pictorial key to fruit fly larvae of the family Tephritidae. San Salvador: Organ. Internac. Reg. Sanidad. Agropec. 36p.

Chu, H. F. 1949. A classification of some larvae and puparia of the Tephritidae (Diptera). Cont. Inst. Zool., Natl. Acad. Peiping (Beijing) 5(3):93-138, pl. 7-11.

Green, C.T. 1929. Characters of the larvae and pupae of certain fruit flies. J. Agric. Res. (Washington) 38:489-504.

Hardy, D. E. 1949. Studies in Hawaiian fruit flies (Diptera, Tephritidae). Proc. Ent. Soc. Washington, 51:181-205.

Heppner, J. B. 1988. Larvae of fruit flies IV. *Dacus dorsalis* (Oriental fruit fly) (Diptera:Tephritidae). Florida Dept. Agric. Consumer Serv., Ent. Circ. 303: 1-2

Phillips, V. T. 1946. The biology and identification of trypetid larvae (Diptera: Trypetidae). Mem. American Ent. Soc. 12: 1-161, 16 pl.

Pruitt, J. H. 1953. Identification of fruit fly larvae frequently intercepted at ports of entry of the United States. Univ. Florida (Gainesville), MS thesis. 69p, 17pl.

Weems, Jr., H. V. 1964. Melon fly (*Dacus cucurbitae* Coquillett) (Diptera: Tephritidae). Florida Dept. Agric. Consumer Serv. Ent. Circ. 29: 1-2.

---

[1] Contribution No. 697, Bureau of Entomology

[2] Taxonomic Entomologist, FDACS, Division of Plant Industry, P. O. Box 1269, Gainesville, Florida 32602

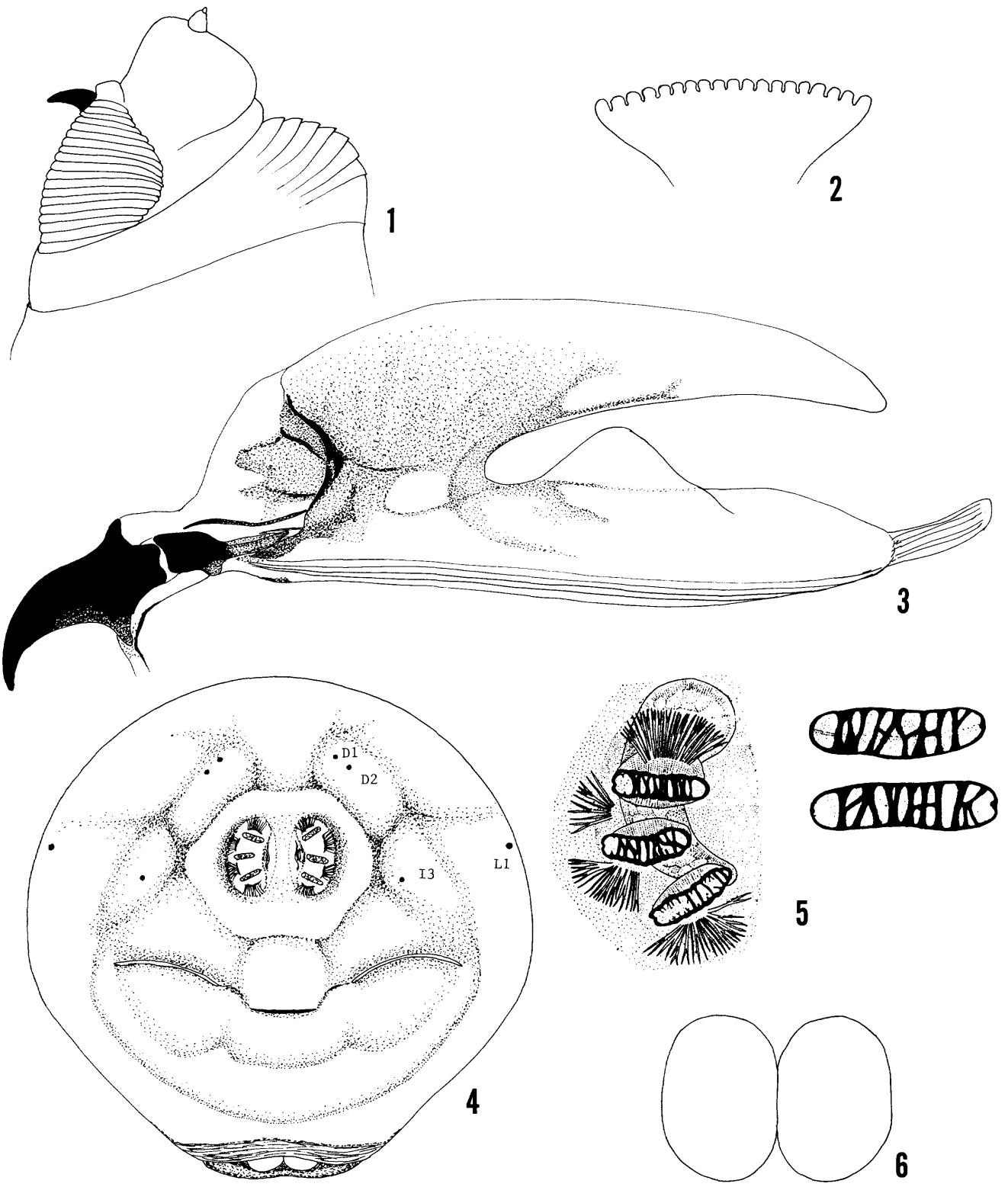

Fig. 1-6. *Dacus cucurbitae*: 1, head and buccal carinae; 2, anterior spiracle; 3, cephalo-pharyngeal skeleton (left side); 4, caudal end of last instar larva; 5, posterior spiracles (left side) (after Phillips, 1946), with detail of 2 spiracle slits (after Hardy, 1949); 6, anal lobes.

This publication was issued at a cost of $ 554.40 or $ 0.16 per copy to provide information on proper recognition of plant pests. PI89T-11