

Pest Alert

DACS-P-01703

Pest Alert created December 2003

Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Charles H. Bronson, Commissioner of Agriculture

Pigeonpea Pod Fly *Melanagromyza obtusa* (Malloch) (Agromyzidae)

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INTRODUCTION: Larvae and pupae from an infested dooryard planting of pigeonpea pods found on 20 December 2003 in Miami were reared to the adult stage. The immature and adult stages match published descriptions of the pigeonpea pod fly, *Melanagromyza obtusa* (Malloch), and specimens obtained from Puerto Rico. The pigeonpea pod fly is thought to have been present in Puerto Rico since about 2000. Surveys to date have detected other infested pigeonpea pods in four 1-square-mile sections in the Miami area. These are the first records of the pigeonpea pod fly from the continental United States.

DESCRIPTION: Pigeonpea pod fly is native to tropical Asia where it occurs widely, being present in India, Sri Lanka, Bangladesh, Myanmar, Nepal, Pakistan, Philippines, Thailand, Vietnam, Taiwan, Japan, Indonesia, Malaya and New Guinea. Recently, it has appeared in the Dominican Republic and Puerto Rico.

HOST PLANTS: Known hosts include one or more species of *Cajanus* (including pigeonpea (Fig. 1)), *Cicer* (e.g., chickpea), *Dunbaria*, *Flemingia*, *Phaseolus* (bean), *Rhyncosia*, *Tephrosia*, and *Vigna* (including mung bean and cowpea).

ECONOMIC DAMAGE: Larvae feed in the seed consuming its starchy portions and the embryo (Fig. 2). They leave a trail of excreta which renders the seed inedible, and damaged embryos will not germinate. Crop loss is highly variable depending on the crop, location, and season, but damage may be severe with over 90% of seeds infested.

BIOLOGY: Much is known of the biology of this species because it is a serious pest of important food crops in Asia. All immature stages (egg, larva, pupa) occur within the pod (Fig. 3). The adult emerges from its puparium inside the pod and escapes the pod through a thin epidermal window. Females can mate at 1 day of age and oviposit soon thereafter. Usually, several larvae infest a single pod. The entire life cycle is 4-5 weeks and probably several generations of breeding flies occur during a single growing season.

ADULT IDENTIFICATION: Both sexes are 2-3 mm long, and may appear black to the naked eye, but the thorax and abdomen have a distinct, green metallic sheen if examined under magnification (Fig. 4). The head has a prominent ocellar triangle (Fig. 5), also metallic green, that extends to the lunule (recessed crescent above the antennae). The wings are clear. The female has an unusually long, black ovipositor sheath (Fig. 6). The male is similar to the female but lacks an ovipositor (Fig. 7).

IMMATURE STAGES: Mature larvae are white and up to about 3.5 mm long. Pupal cases (Fig. 8) are orange-brown, about 3 mm long, with a pair of closely spaced anterior spiracles projecting forward, and a pair of prominently projecting posterior spiracles on tubercles that are joined basally.

REFERENCES:

- Spencer, K. A.** 1973. *Agromyzidae (Diptera) of Economic Importance. Series Entomologica, Vol. 9. Dr. W. Junk, The Hague.*
- Shanower, T. G., S. S. Lal, and V. R. Bhagwat.** 1998. *Biology and management of Melanagromyza obtusa Malloch (Diptera: Agromyzidae). Crop Protection 17: 249-263.*



Florida Department of Agriculture and Consumer Services
Adam H. Putnam, Commissioner

Shanower, T. G., J. Romeis, and E. M. Minja. *Insect pests of pigeonpea (Cajanus cajan) and their management. Annual Review of Entomology 44: 77-96.*



Fig. 1. Pigeonpea pods and seeds.
Photo credit: Jeffrey Lotz, FDACS

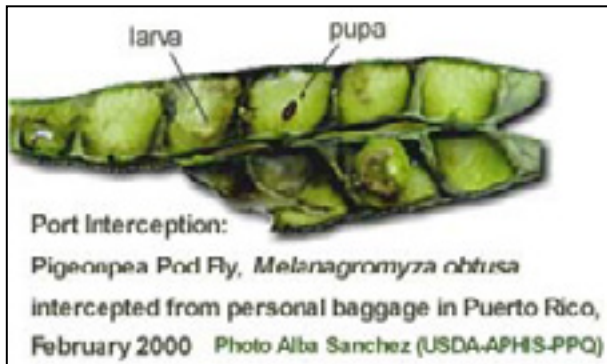


Fig. 3. Immature stages inside pod.
Photo credit: Alba Sanchez, USDA-APHIS-PPQ



Fig. 2. Pigeonpeas damaged by larval feeding.
Photo credit: Jeffrey Lotz, FDACS



Fig. 4. Adult *Melanagromyza obtusa*.
Photo credit: Jeffrey Lotz, FDACS



Fig. 5. Ocellar triangle indicated by circle.
Photo credit: Jeffrey Lotz, FDACS



Fig. 6. Female, circle indicates ovipositor sheath.
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Fig. 7. Male.
Photo credit: Jeffrey Lotz, FDACS

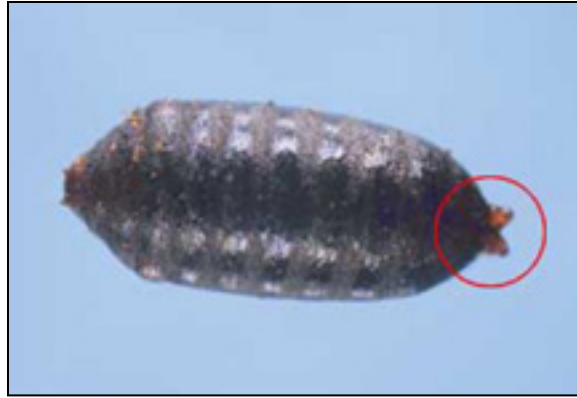


Fig. 8. Puparium of *Melanagromya obtusa*, dorsal view;
posterior spiracles indicated by circle.
Photo credit: Jeffrey Lotz, FDACS