

# Melanagromyza obtusa (Malloch)

## INTRODUCTION

The podfly is a serious pest of pigeonpea in its natural range Asia & Australia could be of significance if it spreads throughout the Caribbean. 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.

## IDENTITY

Authority	:(Malloch)
Classification	
Kingdom	: Animalia
Phylum	: Arthropoda
Class	: Insecta
Order	: Diptera
Family	: Agromyzidae
Genus	: <i>Melanagromyza</i>
Species	: <i>obtusa</i>
Synonyms	:
Common Names	: pigeonpea pod fly; pod fly
Role	:Pest

## Signs and Symptoms

Larvae feed in the seed consuming its starchy portions and the embryo. 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.

## Morphology

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

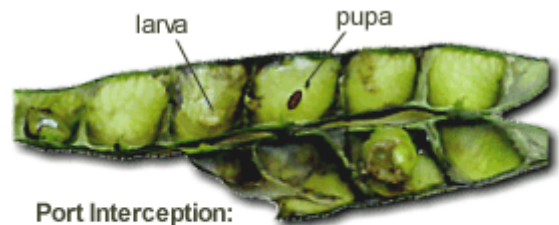


Fig. 1. Ocellar triangle indicated by circle.

examined under magnification. The head has a prominent ocellar triangle (Fig. 1), 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. The male is similar to the female but lacks an ovipositor.

**Biology and Ecology**

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. 2). 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.



Port Interception:  
Pigeonpea Pod Fly, *Melanagromyza obtusa*  
intercepted from personal baggage in Puerto Rico,  
February 2000 Photo Alba Sanchez (USDA-APHIS-PPQ)

Fig. 2 Immature stages inside pod.

**IMMATURE STAGES:** Mature larvae are white and up to about 3.5 mm long. Pupal cases (Fig. 3) 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. Photography credits: Jeffrey Lotz, FDACS



Fig. 3. Puparium of *Melanagromyza obtusa*, dorsal view; posterior spiracles indicated by circle.

**Dispersal and Vectors**

This is effected mainly through infested pods.

**Management**

**Cultural control**

The development of insect –resistant and or –tolerant pigeon pea cultivars has being a high priority in research programmes.

**Biological Control**

Parasitic Hymenoptera that attack the larval stage are the only natural enemies reported for *M. obtusa*. (Shanower). The two most important taxa in this regard are *Euderus spp.* ( Hymenoptera: Eulophidae) and *Ormyrus orientalis* and *Ormyrus fredricki*.

**Chemical Control**

Spray seedlings up to 3 weeks old with dimethoate or triazophos. Soil application of carbofuran is recommended.

## **Pest Significance and Phytosanitary Risk**

*M. obtuse* is one of the most important pest of pigeonpea in Asia. It has been reported from the Caribbean region as occurring in the Dominican Republic, Puerto Rico, Haiti and Florida. If this pest continues to spread in the region it could impact negatively on pigeonpea production in the Caribbean.

### **Host Notes**

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

### **Distribution**

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, Haiti and Puerto Rico.

### **Inspection Procedures**

Pod fly immature stages are within the pod, and are therefore difficult to detect in unshelled peas. Detection in shelled peas "in the bag" is also problematic. Indications of surface mining on seed containing larvae may or may not be present.

Another species, *M. chalcosoma*, is present in Africa and is difficult to distinguish from *M. obtusa*. Both species are considered serious pests of pigeonpea, and are similar in both morphology and ecology.

### **Bibliography**

- Spencer, K. A. 1973. Agromyzidae (Diptera) of Economic Importance. Series Entomologica, Vol. 9. Dr. W. Junk, The Hague.
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