

## A MUSCID FLY, *ATHERIGONA ORIENTALIS* SCHIN., A PEST ON CANTALOUPE

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In May, 1953, a grower in the Miami region noted a small maggot associated with a rapid breakdown in the stem-attachment area of his cantaloupes. These melons were picked for shipping, so were not overripe, but the wet rot in the stem-end developed rapidly enough to result in heavy loss by the time the melons reached northern markets.

Investigation revealed typical dipterous maggots in the melons, tunnelling through the flesh at the stem-attachment wound. The larvae were found in the melons just as they came from the field, and elongate eggs were observed attached around the edges of the abscission area. Adult flies reared from these larvae were identified by C. W. Sabrosky, U. S. National Museum, as *Atherigona orientalis* Schin. In advising the writer of this identification, Dr. C. F. W. Muesebeck stated "we had supposed this form to live principally as a scavenger following damage by other insects or feeding upon overripe fruit." He referred this record to Dr. D. J. Caffrey of the Division of Truck Crop and Garden Insect Investigations of the Bureau of Entomology and Plant Quarantine, who advised that no record of damage from this species had previously been reported. Dr. Caffrey also quoted correspondence from Dr. Orin A. Hills of the Bureau's laboratory at Phoenix, Arizona, to the effect that the species had not been observed on cantaloupes in the Southwest. Further search of available literature has revealed no reference to this species as an economic pest.

Through the courtesy and cooperation of local melon growers<sup>1</sup> many fruits were brought into the laboratory directly from the field as they were picked for detailed life history studies and trials on possible control methods. For the latter, various insecticide and fungicide dusts were applied to the stem-end of the fruit. Of the different materials tested, a 20-80 copperlime dust proved quite effective in preventing development of the larvae and protecting the fruit from the accompanying wet

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<sup>1</sup> Charles Burr, Thomas Mitchell and J. N. Vernam generously permitted access to their fields for observations and collection of material. The author wishes to express, herewith, his appreciation to these men for their kind cooperation in this study.

rot. Several growers later reported that use of this material, applied with a soft brush as the fruit was packed, proved entirely satisfactory in preventing loss of fruit shipped.

Field observations revealed that the eggs of this fly were attached to the melons before they were picked. As soon as the abscission of the stem began, eggs were attached at this area. The fruit was considered ready for picking as soon as this abscission completely encircled the stem. Eggs were frequently found attached to the edge of the stem break as well as on the fruit edge of the abscission wound.

Adult flies collected in the field for life history observations were placed in small glass cages with a portion of ripe cantaloupe. As typical of such observations, the following record is from three female flies caged at 7:00 p.m. on July 24. Numerous eggs had been deposited along the edge of the cut surface of the fruit by 9:00 a.m. the following morning, when the flies were removed from the cage. First larvae were observed from these eggs at 9:00 p.m., July 25, with several eggs still unhatched. First maggots appeared full grown, as indicated by their extensive crawling through the cellucotton in the bottom of the cages, at 9:00 a.m. on August 1, and first puparia were found completed that evening at 9:00 p.m. Adult flies emerged from these puparia on August 6, thus completing the life cycle. These observations revealed the minimum duration of the various stages of this fly as follows: egg incubation, 36 hours; larval stage, 7 days; pupal stage, 5 days.

These studies clearly indicate that this species is a primary pest on uninjured cantaloupes picked before they are fully ripe for shipping. The infestation is established in the field by egg deposition at the time of abscission of the stem from the fruit. The larvae begin feeding in the exposed fleshy area at the stem-end as soon as they hatch, and continuous breakdown in this area soon renders the fruit unmarketable. The fly is not limited in its development to this stem-end area. Numerous infestations of this species were observed in other wound areas, growth cracks, and overrip fruit discarded in the field.

Other species of this genus are listed in economic entomological literature. *A. exigua* Stein is known as the Rice Stem Fly in India. Cassava, sorghum and pineapple are other host plants for related species in various countries. However, no reference has been found to any species of the genus in the literature of North American economic studies.