

# Seasonal Abundance of *Musca vitripennis* (Diptera: Muscidae) on Terceira, Azores

JERRY T. LANG<sup>1</sup> AND RICHARD GRAY<sup>2</sup>

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**ABSTRACT** Data from pyramid and electrocuting traps as well as records of *Musca vitripennis* Meigen interceptions on cargo aircraft indicate that *M. vitripennis* adults reach peak abundance on Lajes Field, Azores, from mid-August through mid-October. Disinsection of military cargo aircraft and other quarantine actions to prevent accidental movement of flies from the Azores to airports in the United States are required during this period.

**KEY WORDS** Insecta, *Musca vitripennis*, seasonal abundance

*Musca (Musca) vitripennis* Meigen is a livestock pest in the Palearctic and Ethiopian regions (including the Azores) with a biology similar to that of the face fly, *Musca autumnalis* De Geer (Schmidtmann et al. 1985). In addition to the importance of *M. vitripennis* as a highly annoying livestock pest, it also may be a vector of *Parafilaria bovicola* Tubangui, the causative agent of "green meat disease" in Europe, Africa, and southern Asia (Sahai & Singh 1971, Bech-Nielsen 1983). Although there is some confusion in the taxonomic literature between *M. vitripennis* and the closely related *Musca oestrus* Weidemann (Pont 1986), the presence of *M. vitripennis* has been confirmed in the Azores, Spain, Tunisia, Hungary, and Turkey by recent reexamination of museum specimens (R. J. Gagné, personal communication).

The high potential for introduction of *M. vitripennis* from Lajes Field, Terceira, Azores, to the United States via military cargo aircraft was brought to the attention of the U.S. Air Force after two male flies were found in a warehouse at McGuire Air Force Base, N.J., in 1982 (Schmidtmann et al. 1985). After the 1982 interception of *M. vitripennis* at McGuire, the Military Airlift Command began an aircraft disinsection program requiring treatment with 2% d-phenothrin of all military cargo aircraft departing Lajes Field for the United States.

Because Portuguese-owned cattle are grazed throughout the year on the Lajes airfield near parked aircraft, there are ample opportunities for flies to enter open aircraft doors during times of *M. vitripennis* abundance. With the moderate Azorean climate (February mean max-min, 17°/11°C; August mean max-min, 26°/18°C), fly activity can occur outdoors year-round; however, casual observation indicated that *M. vitripennis* adult populations were present during only part of the year.

Here, we describe preliminary data that define the period of adult *M. vitripennis* activity on Terceira and that can be used to focus international quarantine efforts toward seasons when accidental movement of flies by cargo aircraft operating from Lajes Field is most likely.

### Materials and Methods

Pyramid traps, which were shown by Pickens et al. (1986) to be a sensitive method of monitoring *M. vitripennis* on Terceira, were used weekly during the summer and fall of 1987 and on an irregular basis during 1986 to determine the relative abundance of the flies on Lajes Field. Five pyramid traps were placed adjacent to airfield cattle grazing sites for a 1-d period each week in 1987. Four traps were used in 1986. Traps were positioned upright on the ground in open, sunlit, and grassy areas. After 24 h, the traps were collected, and *M. vitripennis* adults captured on the sticky paper were counted. In addition to pyramid traps, monthly fly collections from electrocuting fly traps in five food-serving facilities on Lajes Field were examined for *M. vitripennis* from January 1986 to January 1987. All of the electrocuting traps used an ultraviolet light attractant and operated continuously.

### Results and Discussion

Although there were gaps in the data because of adverse weather and manpower shortages, the adults of *M. vitripennis* were clearly most abundant on Lajes Field from mid-August until mid-October, with peak numbers occurring in September (Fig. 1). Only six *M. vitripennis* specimens were identified from electrocuting traps. Five of these specimens were collected in August 1986, and one specimen was captured in October 1986. Taxonomically confirmed *M. vitripennis* interceptions on Air Force cargo aircraft arriving at McGuire Air Force Base from Lajes Field further confirm a peak in adult fly activity during late summer and early fall. Since 1982, USDA Animal and Plant

The opinions and assertions contained herein are those of the authors and are not to be construed as views of the U.S. Department of the Air Force.

<sup>1</sup> HQ MAC/DEEV, Scott AFB, Ill. 62225.

<sup>2</sup> 1605 ABG/DEMWE, Lajes Field, Azores.

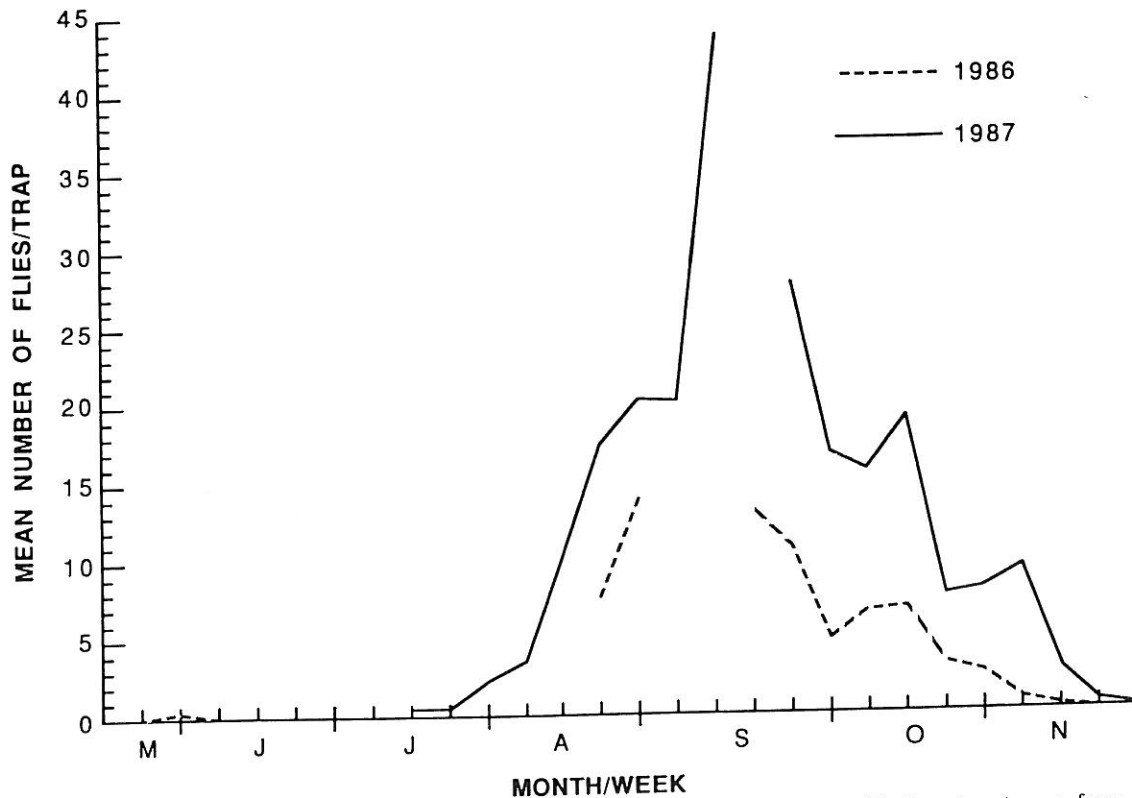


Fig. 1. Weekly catches of *M. vitripennis* on pyramid traps operated on Lajes Field, Terceira, Azores, from 5 March to 25 November 1987 and 14 May to 26 November 1986. Two-week moving averages are plotted for both years.

Health Inspection Service inspectors at McGuire have intercepted five arriving military aircraft with live *M. vitripennis* adults on board. The interception dates were 9 October 1984, 17 July 1985, 12 September 1986, and two interceptions in October 1986 (H. Mumma, personal communication).

The data, taken collectively, indicate that, despite a mild year-round climate on Terceira, Azores, *M. vitripennis* adults are present only during the summer and fall months with a peak abundance in September. Based on this information, aircraft disinsection and other quarantine efforts taken against the fly at Lajes Field can be limited to July through October each year.

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