SEASONAL ABUNDANCE OF THE FALL ARMYWORM AND VELVETBEAN CATERPILLAR (LEPIDOPTERA: NOCTUIDAE) AT FOUR LOCATIONS IN FLORIDA

V. H. WADDILL¹, E. R. MITCHELL², and W. H. DENTON³
S. L. POE⁴, and D. J. SCHUSTER⁵

ABSTRACT

Seasonal populations of the fall armyworm, Spodoptera frugiperda (J. E. Smith) and the velvetbean caterpillar, Anticarsia gemmatalis Hübner were surveyed during 1975-77 at Gainesville, Sanford, Bradenton, and Homestead, Florida. S. frugiperda was most abundant at Homestead during the spring and fall, and tended to be more numerous at the other locations during the summer and fall. A. gemmatalis larvae were present on soybeans at Homestead during all except 3 months of the study; populations peaked in the fall at all 4 sites.

RESUMEN

Se estudiaron las poblaciones estacionales de Spodoptera frugiperda (J. E. Smith) y Anticarsia gemmatalis Hubner, desde 1975 a 1977, en las ciudades de Gainesville, Sanford, Bradenton, y Homestead, en Florida, EUA. S. frugiperda abundó más en Homestead durante la primavera y el otoño y tendió a ser más numeroso en otras localidades durante el verano y el otoño. Habían larvas de A. gemmatalis presentes en las sojas en Homestead durante todos menos 3 de los meses del estudio, y las poblaciones máximas ocurrieron en el otoño en los 4 locales.

Fall armyworm (FAW), Spodoptera frugiperda (J. E. Smith) and velvetbean caterpillar (VBC), Anticarsia gemmatalis Hübner, are important pests thought to migrate northward each spring from overwintering sites in extreme southern regions of the U. S. (Luginbill 1928, and Watson 1916). In very mild winters, the FAW may survive in most of Florida and the coastal areas of Texas and Louisiana (Snow and Copeland 1969). This was substantiated for Hastings, Florida, a large agricultural area in the northeastern part of the state, by Tingle and Mitchell (1977). Wood et al. (1979) found emergence of FAW adults from pupae buried at 4 locations in Florida was positively correlated with mean soil temperature.

VBC larvae were found throughout the winter months in the southern half of peninsular Florida (Buschman et al. 1977); however, they did not survive the winter in southern Mississippi (Buschman et al. 1981). Greene (1976) estimated seasonal abundance of VBC larvae on soybean at Quincy, Florida, in the northern part of the state and indicated the population peaked during September-October. Recently, the FAW and VBC were among

¹University of Florida, IFAS, Agr. Res. & Educ. Center, 18065 S. W. 280 St., Homestead, FL 33031 USA.
²Insect Attractants and Basic Biology Laboratory, USDA, SEA, P. O. Box 14565, Gainesville, FL 32604 USA.
³Stauffer Chemical Co., 1691 Cameron Ave., Sanford, FL 32771 USA.
⁴Dept. of Entomology, VF&SU, Blacksburg, VA 24061 USA.
⁵University of Florida, Agr. Res. & Educ. Center, 5007 60th St. E., Bradenton, FL 34208 USA.
4 species cited as needing further studies of their overwintering and movement (Kennedy and Way 1979).

Reported here are data on the seasonal abundance of FAW and VBC at 4 locations in Florida as determined by pheromone traps and trap crops.

**Materials and Methods**

The 4 sites selected for this study were Homestead (latitude 25° 35' N), Bradenton (latitude 27° 27' N), Sanford (latitude 28° 48' N) and Gainesville (latitude 29° 38' N). Methods were standardized at all stations.

Eight 15 m rows of each, *Zea mays* cv. ‘Silver Queen’, for FAW, and soybean, *Glycine max* cv. ‘Coker 102’, for VBC, were planted monthly during the study. Whorl-stage corn was sampled weekly by inspecting 100 plants and recording the numbers of small (< 1 cm), medium (1-2 cm) and large (> 2 cm) FAW larvae per plant. Blooming and postbloom soybeans were sampled weekly (ten 3 m samples/wk) by shaking the plants over a cloth (1 x 0.65 m). VBC larvae were categorized by size (same as FAW) and the number of larvae were recorded.

One Pherocon® 1C trap baited with 25 mg (Z)-9-dodecen-1-1 acetate (Z-9-DDA) to attract FAW moths (Mitchell et al. 1975) was placed in each corn planting. The traps were checked at least twice per week and the bait replaced every 3-4 weeks.

**Results and Discussion**

FAW pheromone trap catches of male moths at the 4 locations are shown in Fig. 1. Moths were present during most months at Homestead, Bradenton, and Sanford; no moths were trapped during December 1975-April 1976 or December 1976-March 1977 at Gainesville. The population varied less at Homestead than at the other 3 locations, as evidenced by the small fluctuations in trap catches. Moths were most numerous at Homestead during the spring and fall, whereas they tended to be more numerous at the other locations during the summer and fall. Larger numbers were captured at the 2 northernmost locations.

FAW larval abundance (Fig. 1) followed similar trends as the pheromone trap catches, except at Bradenton where few larvae were found. Some larvae were found most months at the 3 southern sites. Larvae were most abundant at Homestead during the spring of 1976 and the spring and summer of 1977. Larvae were present, but in very low numbers, both years at Bradenton. At Sanford and Gainesville, most larvae were found during the summer and fall.

VBC larval abundance is shown in Fig. 2. Larvae were found at Homestead during all months except February 1976 and January-February 1977. Larval abundance first peaked in 1976 during June (Homestead), July (Bradenton), August (Sanford) and September (Gainesville). Larvae started to increase in April in 1977 at Homestead and peaked during September at the other 3 sites. As with the FAW, the VBC population appeared more uniform year round at Homestead than the 2 other sites where definite summer peaks were observed. These peaks probably correspond to the host cropping practices in the area.

The results reported here for the FAW and VBC follow closely previous reports on the seasonal occurrence in Florida of 2 other subtropical species,
Fig. 1. Fall armyworm moths per day (-----) captured in pheromone traps and larvae per corn plant (---) at 4 locations in Florida.

the cabbage looper, *Trichoplusia ni* (Hübner) (Chalfant et al. 1974), and soybean looper, *Pseudoplusia includens* (Walker) (Mitchell et al. 1975). Both looper species survive and reproduce continuously in southern Florida where average winter temperatures exceed 10°C. Adult movement northward from the overwintering areas as indicated by pheromone-baited black-light traps appear to follow the advancing 10°C temperature zone and indicates migration.

Florida Agricultural Experiment Stations Journal Series No. 3536.

REFERENCES CITED

Fig. 2. Velvetbean caterpillar larvae per 0.3 m of row on soybeans at 4 locations in Florida.


GENUS PARTHENICUS IN THE EASTERN UNITED STATES, WITH DESCRIPTIONS OF NEW SPECIES (HEMIPTERA: MIRIDAE)

Thomas J. Henry
Systematic Entomology Laboratory, IIBIII
Agricultural Research Service, USDA
c/o U.S. National Museum of Natural History
Washington, D.C. 20560 USA

ABSTRACT

The eastern United States species of the orthotyline plant bug genus Parthenicus Reuter (Hemiptera: Miridae) are reviewed. Parthenicus juniperi (Heldemann), P. psalliotes Reuter (type of genus), P. tazodii Knight, and P. vaccini (Van Duze) are redescribed. The new species P. knighti, P. rufus, and P. weemai are described from specimens collected in Florida. Known distributions and host plants, illustrations of male paratypes, photographs of adults, and a key to the 7 eastern U.S. species are provided.

RESUMEN

Se revisan las especies del género Parthenicus Reuter (Hemiptera: Miridae) del este de los Estados Unidos. Se describen de nuevo P. juniperi, P. psalliotes, P. tazodii y P. vaccini, y se describen nuevas especies, P. knighti, P. rufus, y P. weemai de especimenes de Florida. Se presentan las distribuciones conocidas y las plantas hospederas, ilustraciones de los parámetros del macho, fotografías de los adultos y una clave para las 7 especies del este de los EUA.