

In the younger soybeans, 41% of the plants inspected showed evidence of LCB damage, and many of the damaged plants were dead or dying. In contrast, only 10% of the older plants sampled were damaged. Local areas in the field that showed apparent herbicide injury (crinkled, chlorotic leaves) or other physiological stress also had greater LCB damage.

While soybean planting date cannot be fully utilized as a LCB management tool until accurate methods of predicting LCB development are developed, these observations indicate that younger soybeans may be more susceptible to LCB injury and this consideration should be incorporated into LCB management strategies.

REFERENCES CITED

- HERBERT, D. A., AND T. P. MACK. 1987. Identification of lesser cornstalk borer damage to soybean. Alabama Agric. Exp. Sta., Leaflet 103.
- ISLEY, D., AND F. D. MINER. 1944. The lesser cornstalk borer, a pest of fall beans. J. Kansas Entomol. Soc. 17: 51-57.
- SPRENKEL, R. K. 1984. Insect loss estimates for the major row crops in North Florida in 1983. Florida Cooperative Extension Service, IPM Newsletter No. 3.
- . 1985. 1984 Insect losses—summary. Florida Cooperative Extension Service, IPM Newsletter No. 19.
- . 1986. 1985 Insect loss estimates. Florida Cooperative Extension Service, IPM Newsletter No. 3.
- . 1987. 1986 Insect loss estimates from North Florida row crops. Florida Cooperative Extension Service, IPM Newsletter No. 8.
- TODD, J. W., AND E. F. SUBER. 1982. Lesser cornstalk borer as a pest of soybean, pp. 47-50. In H. H. Tippins (ed.), A Review of Information on the Lesser Cornstalk Borer, *Elasmopalpus lignosellus* (Zeller). Univ. of Georgia College of Agric. Exp. Sta. Spec. Publ. 17.

THE FIRST RECORDS OF THE WHITEFRINGED BEETLE,
GRAPHOGNATHUS LEUCOLOMA (COLEOPTERA:
CURCULIONIDAE), IN NEW MEXICO AND TEXAS

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Graphognathus leucoloma (Boheman) (Coleoptera: Curculionidae) is one of four species of this genus in the United States known as whitefringed beetles. This parthenogenic and flightless species is highly polyphagous and has been reported to feed on 385 species of plants (Young et al. 1950), many of which are crops. Adult beetles feed on leaves and usually cause only minor damage (Anon. 1972). Ottens & Todd (1980) showed that as many as 50 *G. leucoloma* adults per soybean plant were required to significantly reduce pod production. However, the primary damage is incurred through the feeding activity of the larvae on subterranean plant parts. Larvae typically feed on newly germinated seeds and roots, and tunnel through tubers. Damage by larvae is evidenced as chlorotic, wilted, or dead plants, and the damage in heavily infested fields usually progresses until the crop must be replaced (Gross & Harlan 1975). Populations of *G. leucoloma* reach

peak levels in pure stands of legumes (including alfalfa) as compared with grasses (King & East 1979) and fecundity is highest among adults on legumes (East 1977). Many crops grown in the southwestern U.S., such as alfalfa and cotton, are recorded as host plants of this beetle (Anon. 1959). Records of this pest in South America indicate that it could become established in irrigated areas of the western U.S. (Anon. 1959).

Whitefringed beetles are native to Argentina, Brazil, Chile, and Uruguay (Young et al. 1950). In addition to South America, *G. leucoloma* is presently known to occur in southern Africa, southeastern Australia, New Zealand, and the southeastern United States (May 1975). Whitefringed beetles were first collected in the United States near Svea, Okaloosa Co., Florida in 1936 (Buchanan 1947). Buchanan (1947) discussed distribution and Warner (1975) provided maps that show the U.S. distribution of the four *Graphognathus* species. *G. leucoloma* occurs from the Florida panhandle north to Virginia and Kentucky, and west to central Arkansas and Louisiana.

Prior to this report, no specimens of *G. leucoloma* were known from New Mexico or Texas. We collected adult and larval specimens of *G. leucoloma* in an irrigated alfalfa field ca. 10 km north of Lovington, Lea Co., New Mexico on 25 September and 16 October 1987. This ca. 4.0 ha field was adjacent to State Highway 18. To estimate adult beetle density, we randomly placed 10, one-meter quadrats in a transect across this field and recorded 5.6 ± 2.0 ($\bar{x} \pm \text{SE}$) live and dead adult beetles/meter² on 25 September. Visual inspection for adult beetles in four other alfalfa fields within a ca. 8 km radius revealed very low infestation levels (<1 beetle/meter²) in two fields and no *G. leucoloma* in the other two. The Texas record is based on one adult specimen of *G. leucoloma* collected at Buffalo Springs Lake, Lubbock Co., Texas on 5 October 1986 by Mr. K. Stair.

These records represent a disjunct area of *G. leucoloma* occurrence ca. 1100 km west of the previously known range (Warner 1975). Voucher specimens from each collection locality and date are deposited in the Texas Tech University Entomological Collection.

The establishment of *Graphognathus leucoloma* in this area represents the addition of a significant pest because this species is both polyphagous and highly destructive. Alfalfa, cotton, and other crop host plants are grown extensively in eastern New Mexico and northwestern Texas and represent a vital part of the agricultural economy of these areas.

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REFERENCES CITED

- ANONYMOUS. 1959. The white-fringed beetle; how to control it with insecticides; how to prevent its spread. U.S. Dep. Agric. Leaflet No. 401, 8 pp.
- ANONYMOUS. 1972. Controlling white-fringed beetles. U.S. Dep. Agric. Leaflet No. 550, 8 pp.
- BUCHANAN, L. L. 1947. A correction and two new races in *Graphognathus* (white-fringed beetles) (Coleoptera: Curculionidae). J. Washington Acad. Sci. 37: 19-22.
- EAST, R. 1977. Effects of pasture and forage crop species on longevity, fecundity, and oviposition rate of adult white-fringed weevils *Graphognathus leucoloma* (Boheman). New Zealand J. Exp. Agric. 5: 177-181.

- GROSS, JR., H. R., AND D. P. HARLAN. 1975. Evaluation of preventative adulticide treatments for control of whitefringed beetles. *J. Econ. Entomol.* 68: 366-368.
- KING, P. D., AND R. EAST. 1979. Effects of pasture composition on the dynamics of *Heteronychus arator* and *Graphognathus leucoloma* populations (Coleoptera: Scarabaeidae and Curculionidae). *Proc. 2nd Australasian Conf. Grassland Invert. Ecol.* 79-82.
- MAY, B. M. 1975. White-fringed weevil, *Graphognathus leucoloma* (Boheman), life-cycle. *Dep. Sci. Indust. Res., Wellington, New Zealand, Inform. Ser. No. 105/12*, 4 pp.
- OTTENS, R. J., AND J. W. TODD. 1980. Leaf area consumption of cotton, peanuts, and soybeans by adult *Graphognathus peregrinus* and *G. leucoloma*. *J. Econ. Entomol.* 73: 55-57.
- WARNER, R. E. 1975. New synonyms, key, and distribution of *Graphognathus*, whitefringed beetles (Coleoptera: Curculionidae), in North America. *U.S. Dep. Agric. Coop. Econ. Ins. Rpt.* 25(44): 855-860.
- YOUNG, H. C., B. A. APP, J. B. GILL, AND H. S. HOLLINGSWORTH. 1950. White-fringed beetles and how to combat them. *U.S. Dep. Agric. Circ.* 850, 15 pp.

CENTIPEDES AND MILLIPEDES IN THREE CENTRAL FLORIDA PLANT COMMUNITIES (CHILOPODA AND DIPLOPODA)

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The scorpion, pseudoscorpion, opilionid and ground surface spider faunas in pond pine, sand pine scrub, and flatwoods communities in central Florida were recently documented (Corey 1987, Corey & Taylor 1987). This study describes the composition and abundance of centipedes and millipedes in these communities.

The study sites were within natural areas of the University of Central Florida campus, located approximately 17km east of Orlando in Orange County (S10 R31E T22S). The three plant communities are described in Corey (1987) and Corey & Taylor (1987).

Pitfall traps as described by Corey & Taylor (1987) and Corey (1987) were the collecting device; they have been used to sample milliped populations (Fairhurst 1979).

Species composition and abundance for centipedes in the communities are presented in Table 1. Twenty-eight centipedes representing 4 families and 5 species were collected.

The most abundant centipede was *Neolithobius xenopus* (Bollman) and represented 50% of the total centipede population. Most centipedes were collected in July (39.3%) and September (21.4%).

Species composition and abundance of millipedes collected in the communities are listed in Table 2. Ninety-seven millipedes from 4 families and 5 species were collected.

Dicellarius okefenokensis (Chamberlin) was the only millipede found in all three communities. This is a new county record for *D. okefenokensis* in Florida. *Dicellarius okefenokensis* has been reported from beneath logs in moist hardwood habitats (Shelley 1984). The three communities examined in this study are pinelands and therefore this is a new habitat for *D. okefenokensis*. It appears to be active during cool weather with 14.7% collected in January and 85.3% collected in March. Of the 17 Florida records