Scudder (1869. Mem. Peabody Acad. Sci. 1: 1-28) published the most recent comprehensive taxonomic key to *Scapteriscus* spp. but made no use of maxillary features. David A. Nickle, U.S.D.A. Systematics Laboratory, currently is revising this group; maxillary structure may be useful in separating other species as well.—E. L. MATHENY, JR., AND R. L. KEPNER, Department of Entomology and Nematology, University of Florida, Gainesville, 32611.

THE EFFECT OF WAXY ENDOSPERM CORN ON RESISTANCE TO THE MAIZE WEEVIL—(*Note*). Chemical constituents of the corn, *Zea mays* L., kernel have been reported (F. S. McCain and W. G. Eden. 1965. Crop and Soils 17: 27-8.) to have an influence on kernel resistance to attack by the rice weevil, *Sitophilus oryzae* (L.). Morales (1975. Philippine Agric. 58: 280-6.) and Villacis et al. (1972. Rev. Peruana Ent. Agr. 15: 147-52.) concluded that opaque-2 corns seemed to be more effective in meeting the nutritional requirements of the maize weevil (*Sitophilus zeamais* Motschulsky) than other corn types.

Waxy endosperm corns have been used as chromosome markers in genetic studies of resistance to the corn earworm, *Heliothis zea* (Boddie) (D. S. Robertson and E. V. Walter. 1963. J. Hered. 54: 267-72.). In addition to being useful as a genetic marking device, some waxy types have been shown to be very susceptible to earworm damage; consequently, they are useful also as a susceptible check or topcross parent (N. W. Widstrom and B. R. Wiseman. 1973. J. Hered. 64: 83-6.). The influence of waxy endosperm on resistance to maize weevil must be known if similar genetic markers and testers are to be used in maize weevil resistance studies. Schoonhoven et al. (1972. Ent. Soc. of Amer., N. Cent. Br. Proc. 27: 108-10.) have demonstrated the importance of pericarp in relation to endosperm tissue in conditioning kernel resistance to the maize weevil. Since isogenic lines are well suited for illustrating the influence of endosperm apart from the pericarp, we chose 10 waxy lines for which isogenic non-waxy starch counterparts were available (Widstrom et al. 1975. Crop Sci. 15: 890) for testing in the present study. Our purpose was to determine the importance of the waxy endosperm character in conditioning seed resistance to maize weevil injury relative to other resistance factors.

Each of the 10 waxy inbreds (GT201wx through GT210wx) and their starchy counterparts were selfed. Isogenic pairs were also reciprocally crossed so that four 100-g lots of seed were available for testing within each inbred group, with each group being composed of lots with 0, 1, 2, and 3 doses of the waxy endosperm gene. Standard procedures, described by Widstrom et al. (1978. J. Econ. Ent. 71: 901-3.), were used to equilibrate and evaluate 5 replications of each sample. Results from data recorded on percentage weight loss/sample and number of weevil progeny produced/sample were identical; therefore, only percentage weight loss data will be discussed. Percentage weight losses varied significantly ($P = 0.01$) among inbreds, ranging from 11.5% for Mp464 to 27.0% for GT112, indicating that substantial differences also exist among these inbreds for resistance due to pericarp and factors other than waxy endosperm, because all inbred groups

have equal waxy endosperm contributions. Differences among genotype with 0, 1, 2, and 3 doses of the waxy gene were not significant. Even though there appeared to be a slight trend for genotypes with waxy genes to be more susceptible to weevil feeding (non-waxy genotypes had 19.5% sample weight loss and waxy genotypes lost 20.9% of their sample weight), a high level of confidence cannot be attached to it. A significant interaction occurred between inbred groups and dosage effect of the waxy gene, supporting the idea that important reversals of the trend for waxy genotypes to be susceptible do occur. Such was the case for the inbred F6 in which the waxy inbred and the waxy x non-waxy hybrid sustained only an 8.0% combined sample weight loss, whereas the non-waxy inbred and the non-waxy x waxy hybrid sustained a combined sample weight loss of 21.1%.

We conclude that, overall, the waxy endosperm character is not an important factor in determining the resistance of corn to maize weevil feeding, but that other factors such as pericarp and other genetic determinants contribute substantially more to resistance than the waxy character. However, the resistance of certain inbreds may be substantially influenced by the waxy character for reasons which are not presently understood.—N. W. WIDSTROM, W. W. MCMILLIAN, AND B. R. WISEMAN, Agricultural Research, Sci. and Educ. Admin., USDA, Tifton, GA 31793.

SOUTHERN PINE BEETLE OUTBREAKS IN FLORIDA SINCE 1974—(*Note*). When we discussed the reported infrequency of outbreaks of *Dendroctonus frontalis* Zimm. (Coleoptera: Scolytidae) in Florida (Fla. Ent. 58: 22), an outbreak in the Alaqua Creek drainage on Eglin Air Force Base Forest (Walton Co.) covered 250 acres. This unusually persistent outbreak spread to almost 1,400 A by September 1975; some 250,000 trees were salvaged from 1,200 A by December 1975.

Additional infestations in west Florida have included (year-location and size): (1975—Leon Co., 13 spots of from 1-20 trees each), (1976—Leon Co., 3 spots totaling over 115 trees plus 1 spot of over 300 trees; Liberty Co., 33 spots of from 2-400 trees each; Walton Co., 2 spots of over 35 trees each), (1977—Leon Co., 1 spot of over 10,000 trees), (1979—Calhoun Co., 1 spot of over 600 trees). These data indicate that considerable timber losses can occur in Florida when conditions are favorable for beetle development and that infestations probably occur much more frequently than previously indicated.—C. W. CHELLMAN, Fla. Div. of Forestry, Tallahassee, and R. C. WILKINSON, Dept. Entomology & Nematology, 3103 McCarty Hall, Univ. of Florida, Gainesville, 32611.