Sampling technique for mole crickets

Infestations of mole crickets, *Scapteriscus acletus* Rehn and Hebard and the changa, *S. vicinus* Scudder, are sporadic, unpredictable, and difficult to detect in early summer, at the optiets were counted for 3 min. following applied. Most nymphs are 1st to 3rd instars at this time and too small to cause noticeable tunnelling on the soil surface (Hayslip 1943, Fla. Ent. 26(3): 33-46). Usually infestations are not noticed until tunnelling activity is visible. When visible tunnels are present, damage has already occurred; the nymphs are approaching maturity and are more difficult to control.

During August 1978, 5 materials were applied to Bermudagrass, *Cynodon dactylon* (L.), and evaluated for their ability to flush mole crickets to the soil surface. The following materials and amounts were used per 4 liters of water: Fifteen ml of synergized pyrethrins (1.2% pyrethrins and 9.6% peperonyl butoxide), 15 ml Ivory® dishwashing soap, 118 ml 4% apple cider vinegar, 30 ml Lysol® , 60 ml Parson's Sudsy Ammonia®, and 118 ml 4% apple cider vinegar plus 15 ml Ivory® dishwashing soap. Water was used as a check. The treatments were randomly assigned in an infested area and 4 liters of mixture were applied with a 7.5 liter sprinkling can to 0.6 m/2 soil surface. Emerging mole crickets were counted for 3 min. following application. Each treatment was replicated 26 times.

Pyrethrins were the most effective material, flushing a mean of 11.46 mole crickets/0.6m/2. Mole crickets irritated with pyrethrins usually emerged on the soil surface within 30 sec after application. Dishwashing soap (Ivory Liquid® Flushed ca. 30% fewer mole crickets than pyrethrins but the flushing action was just as rapid. The addition of vinegar did not enhance the activity. Sudsy ammonia, Lysol® and vinegar flushed significantly fewer than pyrethrins or soap. No phytoxicity was noted with any of the materials.

In treated plots, we observed that other species of arthropods were rapidly flushed by pyrethrins or soap, including armyworm larvae, *Spodoptera* sp.; sod webworm, *Crambus* sp.; earwigs, *Euborellia* sp.; crickets, *Gryllus* sp.; and centipedes.

The soap mixtures was also evaluated on St. Augustine grass. Chinch bugs, *Blissus* sp.; and bigeyed bugs, *Geocoris* sp. were readily flushed to the surface of the grass. This technique was determined to be much easier simpler than the recommended coffee can technique for flushing chinch bugs (Brogdon and Kerr 1961, Agri. Ext. Serv., Univ. of Fla., Gainesville, Circ. 213).

Preliminary tests with Dove®, Joy®, Palmolive®, and Lux® liquid dishwashing soap indicated they were equally effective as Ivory® in flushing activity. The results of this test indicate that the use of dishwashing soap is a simple, effective and readily available surveillance material. — D. E. SHORT AND P. G. KOEHLER, Dept. of Ent. and Nema., University of Florida, Gainesville, 32611, from *The Florida Entomologist*, Sept. 1979.