First Record of Pepper Weevil Infestation in Virginia

Peter B. Schultz, Department of Entomology, Hampton Roads AREC, Virginia Tech, Virginia Beach 23455; and Thomas P. Kuhar, Department of Entomology, Eastern Shore AREC, Virginia Tech, Painter 23420

Corresponding author: Peter B. Schultz. schultzp@vt.edu


An infestation of pepper weevil, Anthonomus eugenii Cano (Coleoptera: Curculionidae), was detected in bell pepper in Virginia Beach, VA in summer 2007. To our knowledge, and based on our examination of pertinent insect collections, this is the first state record of this pest species in Virginia.

Pepper weevil is the major arthropod pest of peppers, Capsicum spp. L., in tropical and subtropical America. Adult weevils (Fig. 1) feed and oviposit in buds, flowers, and especially the fruit. Eggs are laid on plants in the genera Capsicum and Solanum, with adults feeding on all genera within Solanaceae (2). Larvae feed and develop inside the plant structures (Fig. 2). The feeding of both adults and larvae causes reduced yield through blossom bud and immature pod drop, and also severely damaged fruit (Fig. 3). A review of pepper weevil biology can be found in Riley and King (3). The origin of the pepper weevil is likely Mexico, though it has spread into Florida, Texas, and California (1). Because transplants are shipped northward each spring, pepper weevil occasionally occurs in more northern locations with records available from New Mexico, Georgia, North Carolina, and New Jersey (1). There is conflicting data with the European Plant Protection Organization (EPPO) pepper weevil data sheet listing distribution in the aforementioned states as well as Arizona, Louisiana, and New Mexico. However, the EPPO pepper weevil distribution map also includes South Carolina, North Carolina, and Virginia.

Bell peppers with scars indicative of pepper weevil injury were collected during a visit to a produce grower in Virginia Beach, VA (36°42.023'N, 85°59.728'W) by the authors on 11 August 2007. Seven adults were collected from within the fruit and submitted to the Virginia Tech Insect Identification Laboratory, and the Systematic Entomology Laboratory, USDA, for confirmation. The extent of infestation was evaluated by subsequently harvesting 20 mature peppers on 13 and 27 August 2007 for dissection. The number of fruit infested with pepper weevil larvae or adults was tabulated. Pepper weevil pheromone traps (PEW4424-04, Great Lakes IPM, Vestaburg, MI 48891) were deployed at this location, another nearby pepper field in Virginia Beach (1.0 mile from the site), two pepper fields in Chesapeake, VA (~20 to 40 miles from the site), and two pepper fields in Northampton County, VA (~70 to 80 miles from the site). The traps were monitored biweekly for 2 weeks, from 20 August to 4 September.

Specimens were identified as pepper weevil, Anthonomus eugenii Cano, by Eric R. Day, Virginia Tech and Jens Frena, SEL. Neither site had prior record of its collection in Virginia (E. Day and G. White, personal communication). Voucher specimens were retained at the Virginia Tech Entomology Department and the SEL. Destructive sampling of harvested peppers resulted in 30% infested fruit on 13 August, and 35% infested fruit on 27 August. Of the six locations surveyed with pheromone traps specific for pepper weevil, only the initial Virginia Beach site had positive finds of pepper weevil with six adults trapped.
The source of the pepper weevil infestation is not known. The location of this infestation in Virginia Beach is over 800 miles from its normal range of central Florida (1). This suggests pepper weevil transport into Virginia by shipment of pepper transplants from southern states where it survives the winter (e.g., Texas, Florida). However, the grower stated that he grew his pepper plants from seed. Furthermore, growers near his operation purchased their pepper transplants from this grower; thus, no known shipments of transplants from Florida or Texas were planted in the region. Two common weeds in Virginia — horsenettle (*Solanum carolinense*) and black nightshade (*Solanum nigrum*) — could support oviposition and development of this pest. However, a recent study of the herbivory community of *S. carolinense* in Virginia did not find pepper weevil present (4). The source of the outbreak is unknown. We will monitor for this insect pest again in 2008.

**Literature Cited**