Section V
Soil Arthropods

REVISITING MONITORING STRATEGIES FORROOT WEEVIL MANAGEMENT IMPROVEMENT IN NURSERIES

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Root weevil (Coleoptera: Curculionidae genus *Otiorhynchus*) damage to nursery crops is a persistent problem, physically and financially. Degree-day modeling and trapping are tools to supplement scouting to monitor development and presence of weevils in the field. A multi-year research study was conducted since 2005 at different locations in the north to mid-Willamette Valley.

Weekly visits to various nurseries were undertaken in the spring and summer seasons to trap and collect adults, monitor development (by digging), maintain traps, and download soil and air temperatures from data loggers. Relative stages and abundance were relayed to managers or owners to optimally assist in timing their spray regimens. Examination of potting media and soil in containers and in-ground plantings, respectively, was necessary to generate developmental curves.

Two types of traps were implemented for relative comparison.. One trap, called the Exotior™ Black Vine Weevil Trap, by Exosect (UK), had been used in previous seasons with some success. The second trap, tested for the first time, was an inverted cone suspended over a circular ramp (8 inch base diameter) with a sticky plastic circle placed under the cone (Figure 1). Both traps encased sticky plastic substrates, to detain the adults, and bait consisting of small dried apple chips. Seventy traps of each type were set among containers or susceptible in-ground plants at 7 separate locations (10 each per site in 4 nurseries and 2 strawberry blocks). Two of the sites were repeated from the previous year, which allowed for comparison. Developmental graphs were compared for a yew field, where the site was monitored in 2003, and a nearby site was monitored in 2005 (Figure 2).

Two HOBO™ data loggers at each site were used, each with three probes, two for soil temperatures (3 cm deep) and one for air (1 meter height). Transformation of data was

employed, using a 10^{o} C baseline to obtain cumulative degree days, both hourly and daily from a high-low averaging. Developmental graphs were compared for a yew field, where the site was monitored in 2003, and a nearby site was monitored in 2005.

Results of trapping showed a relative advantage of the Exotior™ traps at most sites, except the total capture was higher with the cone traps in the more populated yew field (Figure 3), the totals for the site accounting for over 72% of the total weevils captured and 87% of the total cone capture.

Figure 1

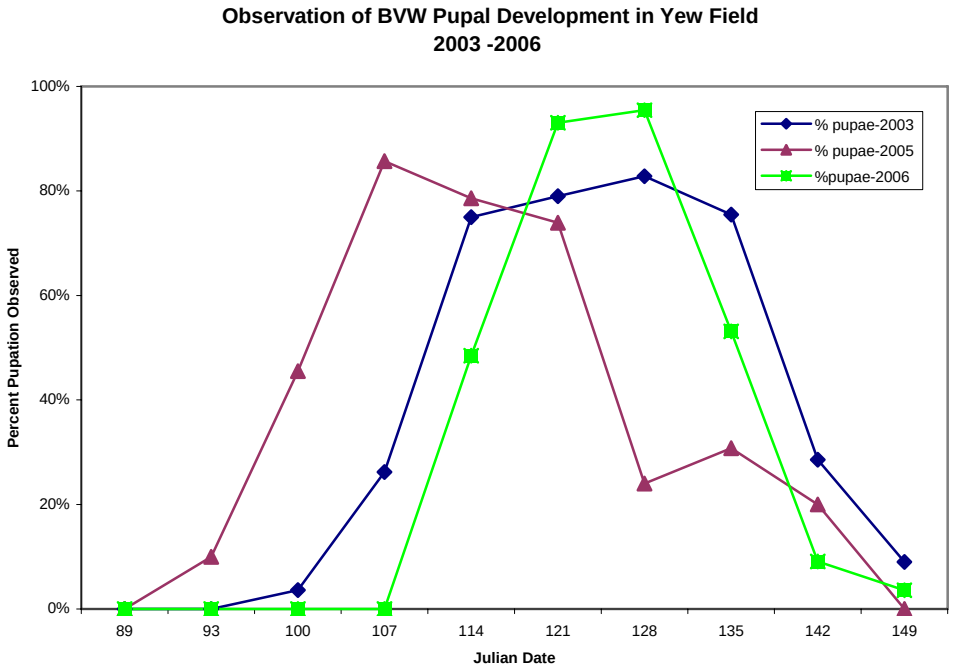

Figure 2

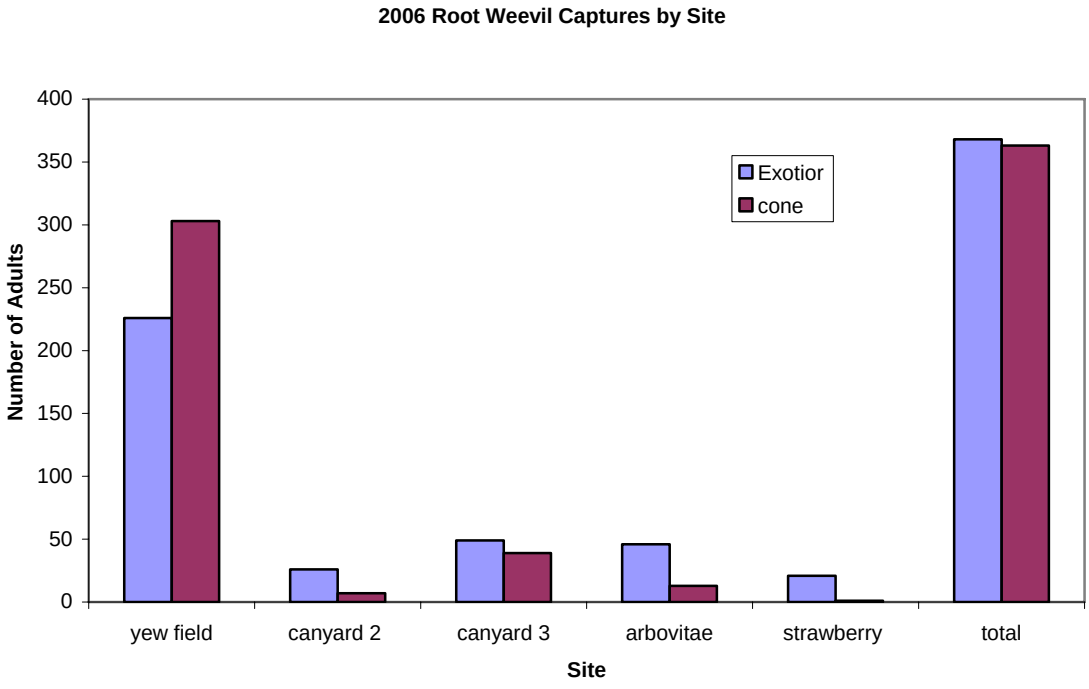

Figure 3