

BEAN IPM: SAMPLING AND CONTROL OF WESTERN SPOTTED CUCUMBER BEETLE

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The western spotted cucumber beetle, Diabrotica undecimpunctata undecimpunctata Mann., feeds on snap bean pods, producing blemishes that reduce product value. Insecticides are often applied to beans 7 to 10 days before harvest in order to limit cosmetic damage and meet USDA and wholesale buyer standards.

As part of OSU Extension's bean IPM program, sweep net sampling was conducted in 1981 in order to determine beetle densities and control needs in 38 fields. Fields were sampled 1 to 3 times per week from bloom to harvest by collecting 10 sweeps at each of 10 sites per field. Insecticide application was recommended when cucumber beetle counts exceeded an average of 1.5 per set of 10 sweeps; only 9 of 38 fields required treatment. Pod damage, assessed by grading 1,000 pods collected just before harvest in each field, averaged 0.84 bites per 100 beans). Savings of insecticide (carbaryl) and application costs totalled over \$4800 for the 538 acres not treated. Assuming sampling costs of \$2.50/acre, control costs of \$9/acre, and infestation levels similar to those of 1981, over 50 percent of "blanket treatment" control costs could be saved in a fee-based sampling and control program to be operated in 1982.

Major differences were noted in several paired morning vs. mid-day sweep net counts in 1981. Mid-day counts dropped most drastically on extremely hot days ($>95^{\circ}\text{F}$), while on cool days (max. $<75^{\circ}\text{F}$) morning and mid-day counts were approximately equal. Sweep net counts drop as beetles move nearer to the soil surface when canopy moisture dissipates and canopy temperature rises. In order to develop an improved economic threshold for cucumber beetles in beans, correction factors must be established to compensate for sampling conditions.