

Chemical Control/New Products

Control of codling moth in organic pear orchards

Rachel B. Elkins

University of California Cooperative Extension, Lake County, Lakeport, CA

*Keywords:* Codling moth, organic, pear

*Abstract:* A replicated single-tree trial was carried out in a mature Bartlett pear orchard in the third year of transition to becoming certified organic. Treatments were each applied using a hand-gun at dilute (about 300 gpa) rates to five trees in a randomized complete block design down the most upwind row in the orchard, bordered by walnuts. Codling moth (CM) pressure was high in 2001, thus likely assuring measurable results. The entire orchard was treated with the Sutterra CM Puffer for CM mating disruption (MD). Chemical treatments included Surround<sup>®</sup> (kaolin clay), Surround<sup>®</sup> to June 19 followed by 415 oil, 415 oil, two rates of Pyganic 1.4 EC<sup>®</sup> plus Nufilm P (pyrethrin), two rates of GF-773 (spinosad) plus 1% 415 oil, and untreated control (MD only). Treatments were applied 6-9 times and timed for each CM flight through July 12. CM eggs and damage were sampled through the season and percent control vs. untreated calculated. Ten leaves per tree were sampled biweekly for the presence of other arthropods. Results were significant, untreated controls averaged 5.6% CM damage just prior to harvest on July 29. Both Surround<sup>®</sup> treatment regimes and the oil program had 0% damage (100% control). GF-773-treated trees averaged 95% control, Pyganic 1.4 EC<sup>®</sup> averaged 57% (2 pints) and 82% (4 pints), respectively. Damage on August 20, after the 2B flight, increased to 16% in untreated controls, but control remained at 100% in Surround<sup>®</sup>, oil, and GF-773 (73 g) treatments, and 94% for GF-773 (109 g), indicating the longevity of these treatments. Damage in the Pyganic 1.4 EC<sup>®</sup> (2 pint)-treated trees was higher than in untreated controls and gave only 44% control at the 4-pint rate, indicating the very short residual of this material. These results indicate that integrated programs of CM MD combined with various combinations of Surround<sup>®</sup>, oil, and spinosad can effectively control CM in organic pear orchards, but this hypothesis must be tested on a wider scale using grower equipment.