

Laboratory Evaluation of Cedar Oil (PCO Choice) against Litter Beetles

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Date(s) of test: Beetles collected January 30, 2009. Tests run from February 2 through February 9, 2009.

Source of beetles: Approximately 500 adult litter beetles (total) were hand-collected from 4 chicken houses – two houses near Laurel, MS, and two houses approximately 10 miles away near the Wayne County line. Beetles were allowed to mix in one container.

Pesticides tested and dilutions: Cedar oil was tested. Water was used as a control in the tests. All product was mixed according to label directions.

Test protocol(s): Two separate evaluations were performed with each product: 1) directly spraying a mist of the product on beetles (10 beetles per container, 3 replications), and 2) Indirectly exposing beetles to the product, i.e., spraying clean, new garden mulch with each product, allowing to dry, then placing beetles on it (again, 10 beetles per container, 3 replications) (see photos). Mulch used in this test was Scott's Nature-Scapes, Sierra Red. Observations and counts were made at the following time intervals: 2 hr, 24 hr, 3 days, and 7 days. At each observation period, the number of beetles ALIVE were counted and recorded. If there was any leg movement, a beetle was considered alive.

Data analysis and presentation: Data were entered into a Excel spreadsheet and graphs generated. Graphs were made of 1) direct spray data, 2) mulch exposure data, and 3) combination of the two.

Results: Almost all beetles in the control groups (water) remained alive throughout the test, allowing for a good comparison of the products tested. **Direct spray.** The cedar oil product killed 90% of beetles within 2 hours. Cedar oil killed none at 2 hr and 27% by day 7. **Combined data.**

Interpretation/caveats: We only used beetles collected from two chicken houses; a more thorough test would involve beetles from many locations around the state. **Historically, litter beetles have been heavily sprayed with organophosphates and pyrethroids, resulting in resistance. The relative effectiveness of cedar oil in this test are encouraging because these products offer alternative “classes” of insecticides to which the beetles are not resistant.**

Direct spray.



Mulch treatment.

