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Entomology

• COMPARATIVE INSECTICIDE RESISTANCE OF HOUSEFLIES FROM A NORTH CAROLINA POULTRY FARM. *N. N. Raghuvir and R. C. Axtell.* Puparia of "wild" houseflies were collected from the manure under caged laying hens at a farm near Pittsboro, N.C. The adult flies emerged in the laboratory and the subsequent generation were reared on CSMA (Chemical Specialties Manufacturers Association) medium. The same rearing procedures were used for the CSMA laboratory strain of houseflies used for comparison.

The insecticides were tested on 4- to 6-day-old female flies. The F_2 generation of the wild strain was used. The flies were immobilized with CO_2 , immersed in 100 ml of the desired concentration of insecticide in a glass cylinder, the cylinder covered, inverted once, and the contents poured onto a screen that retained the flies. The flies were transferred to paper toweling three times to absorb the excess liquid. Mortality among the flies was determined after holding the flies for 48 hours at $27^\circ \pm 2^\circ C$. in mesh-covered glass beakers with food and under constant light. Each insecticide was tested at three or four concentrations with three replications of 30 flies each per concentration. Technical grade insecticides were dissolved in acetone at the desired stock concen-

tration. One ml of the acetone solution and 1 ml of 0.1% surfactant (Tween-20) was added to enough distilled water to make 100 ml. Subsequent dilutions were made as needed.

The LD/50 and LD/90 values (expressed as % on W/W basis) were determined by plotting the percentage of mortality versus insecticide concentration on long-probit graph paper. The LD/50 and LD/90 values, respectively, for each insecticide for the wild strain were as follows: DDT—.26, .7; trichlorfon—.18, .4; malathion—.10, 1.2; dieldrin—.025, .15; dimethoate—.012, .027; ronnel—.0095, .023; and diazinon—.0066, .018. The LD/50 and LD/90 values, respectively, for each insecticide for the laboratory strain were as follows: DDT—.0041, .0043; trichlorfon—.001, .1; malathion—.033, .09; dieldrin—.00045, .01; dimethoate—.000075, .00037; ronnel—.00075, .0023; and diazinon—.00068, .0017. The degree of resistance measured by the ratio of the LD/50 value of the wild flies to the corresponding value for the laboratory flies for each insecticide was as follows: DDT—63 \times ; trichlorfon—180 \times ; malathion—3 \times ; dieldrin—45 \times ; dimethoate—166 \times ; ronnel—12 \times ; and diazinon—9 \times . (This research supported in part by PHS Grant No. EC-246 and NSF Research Participation for College Teachers Program Grant No. GY 4098.)