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## Using Sticky Cards to Monitor Fly Populations in Poultry Houses<sup>1</sup>

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### INTRODUCTION

Several methods are available for sampling the adult housefly, *Musca domestica* (L.), on poultry farms to estimate relative population densities. These methods include modified Scudder grids, baited jug-traps, spot cards, sticky ribbons and the moving sticky tape.

The spot card is probably the most easily and most frequently used sampling tool. These 3 x 5-inch index cards are placed in poultry houses at predetermined locations, in areas where houseflies are most likely to rest. Flies rest on the cards, leaving behind vomit or fecal spots. At selected 1- to 7-day intervals, the cards are replaced. By counting the spots on the cards, poultrymen can determine relative changes in fly densities.

Despite its usefulness, the spot card has several limitations. For example, several spots can be made by the same fly. Such events can bias the population estimate, especially if the population size is small or the cards are used less than 7 days. Neither the

physiological age nor the sex of the flies can be determined from the spots left on the cards. With spot cards, it cannot be determined whether the spots were made by an old, established population or by a newly emerged population.

### USING STICKY CARDS TO STUDY FLY POPULATIONS

Recently, a fly behavior study was conducted in an enclosed, evaporatively cooled, high-rise pullet growing house in west central Florida measuring 500 feet x 45 feet and containing 100,000 birds. One of the purposes of the study was to test a new monitoring device called a sticky card. The 3 x 5-inch sticky cards, supplied by Olson Products, Medina, Ohio, were constructed from heavy card stock coated with an extruded adhesive and covered with a peelable backing. In this study, fly species, sex ratios and horizontal stratification of flies were recorded. Cards were placed at 108 locations in the manure pit beneath the cages, at 1.5 feet and 6 feet above floor level. Houseflies were marked with fluorescent dust

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and later recaptured to determine their movement during a 24-hour period.

Results of this study showed that fly densities were largest in the darker areas of the house. Higher densities were also found at 1.5 feet, closest to the floor. Marking study results showed that flies could move up to 94 feet in either direction from the site at which they were marked. The maximum dispersal distance was 160 feet, nearly one-third the length of the house.

Two major species of fly were recovered: the housefly and the black dump fly, *Ophyra aenescens* (Wied.), a fly whose larvae feed on housefly larvae. The presence of the black dump flies would have been overlooked if the authors had used spot cards instead of sticky cards.

The housefly sex ratio was about 50:50 throughout the house, suggesting an actively reproducing, growing population. A static or declining population would consist primarily of females.

## RESULTS AND CONCLUSIONS

The results of these studies show that sticky cards can be used to sample houseflies and other fly species in large, enclosed poultry houses. Besides providing population density estimates, they yield data on distribution, sex ratios and in-house dispersal. Flies captured during such studies can be subjected to physiological age grading if this information is required for further scientific research. For legal purposes, sticky cards can provide a photographic record of flies captured on farms suspected of producing nuisance-level populations.

## MORE INFORMATION

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