



Progress In Poultry

"THROUGH RESEARCH"

FIELD EVALUATION OF SYNERID™ AS A HOUSE FLY LARVICIDE IN A NORTHERN CALIFORNIA CAGED-LAYER FACILITY

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Introduction: The halogenated xanthene dyes have been shown to have insecticidal effects on a wide variety of insects. In past years, developmental efforts have been concentrated on determining the effects of one of these dyes, erythrosin B (Synerid™) against larvae of the house fly, Musca domestica. Label directions call for weekly application of Synerid to poultry manure (3.67 oz/2000 ft²) for six weeks to bring a housefly population under control.

Objective: To evaluate the efficacy of Synerid topical spray (3.67 oz/2000 ft²) for controlling a field population of the house fly, Musca domestica.

Methods: A caged-layer facility was located near Santa Rosa, California, where two identical enclosed houses were selected to evaluate the larvicidal efficacy of Synerid against the house fly, Musca domestica. Each house contained approximately 25,000 White Leghorn birds, confined in 12 single rows of back-to-back cages (approximately 3 birds/ft² manure surface). Each house was cooled with a pad and fan system and very little outside light entered the buildings. The houses were kept shut the majority of the time, thereby restricting fly migration between houses.

The houses were both equipped with a pyrethrin mist system, which was utilized by the operator approxi-

mately once a week to knock down adult flies. For the purposes of our study, the operator misted both houses at identical times on the same day. The manure in the houses (approx. 8"-10" deep) was extremely wet and had a high larval and adult house fly population.

One house was randomly chosen to receive six weekly Synerid treatments at a rate of 3.67 oz/2000 ft². The treatments were applied with a 50-gallon sprayer situated on top of an electric egg cart. Approximately one gallon of spray was applied to 200 ft² of manure surface. The six treatments were applied during August and September of 1985.

The efficacy of the Synerid treatments in reducing the house fly population was determined by two different adult fly monitoring methods: 1) 3" x 5" white spot cards, 2) Aeroxon® sticky fly tapes. Twelve spot cards were placed uniformly throughout each house, and replaced weekly. Spots were counted on the exposed side of each card. Eight sticky tapes were hung uniformly throughout each house and were also changed weekly.

A set of five manure samples was taken from each house in September to determine the manure moisture content. Each sample was weighed wet, dried for three days at 60°C, and weighed again. A pretreatment count of flies and spots was taken in each house for one week prior

(August 9 - 16) to the initial application of Synerid.

Results: Figures 1 and 2 show the average fly and spot counts in each house during the seven-week evaluation period. Adult flies were so numerous in each house that sticky tapes were saturated (500 flies/tape) within a day's time making it impossible to accurately measure a greater population density. This is the reason that the fly numbers do not vary a great deal from week to week in Figure 1. A decreasing fly population, could have been detected

very easily with the sticky tapes, but neither the control nor the treated house ever had a population lower than the initial pretreatment count (week 0, Figure 1). The spot cards gave a more accurate estimate of the fly population in each house (Figure 2). The number of spots/card increased almost 100% during the first week after the pretreatment count. On week 2, however, the Synerid house showed a decline in spot numbers over the previous week, with continuing increase in spot numbers in the control house. The declining numbers in the Synerid

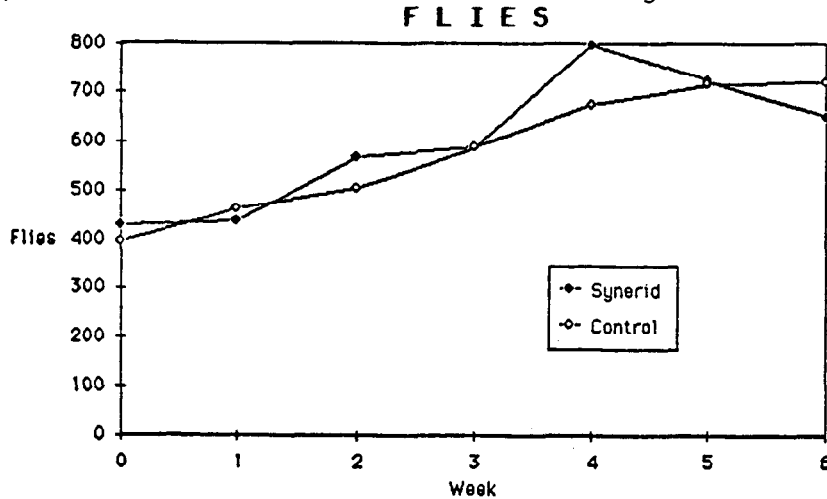


Figure 1. Average number of adult flies caught each week on fly tapes on control and Synerid houses.

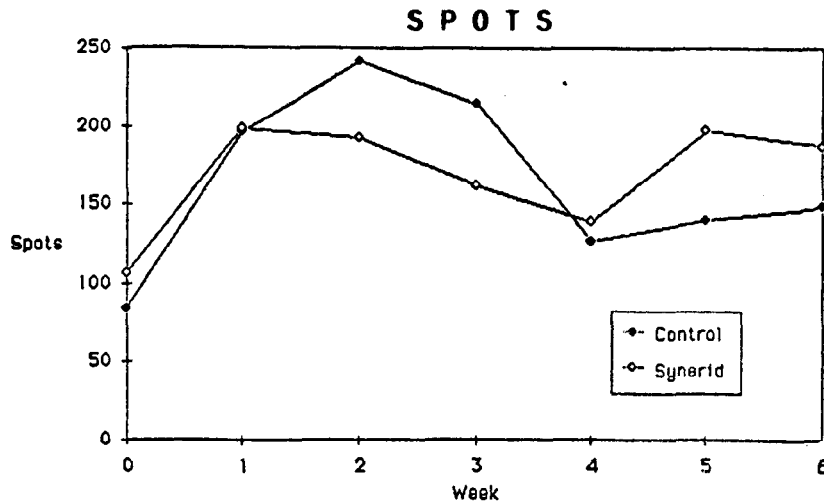


Figure 2. Average number of fly spots per 3" x 5" white card, replaced weekly in control and Synerid houses. Week 0 represents a pretreatment evaluation. Weeks 1 - 6 started on August 16, 1985.

house continued through week 4, followed by a sharp increase in week 5. The control house eventually declined to approximately the same level of the Synerid house by week 4. The control house inadvertently had four of the 12 rows of manure removed some time after week 4, which probably explains the "less than dramatic" increase in spot numbers after week 4.

Manure moisture values are shown in Table 1. The percent moisture averaged approximately 70% in the Synerid house and 66% in the control house. The manure moisture values are typical for the northern coastal California region since climate and housing style doesn't permit the type of drying that is typical in southern California.

Conclusions: The obvious conclusion to draw from these data is that Synerid did not effectively control a larval house fly population, when applied weekly at labeled rates. There was some hint of control being established during weeks 2 - 4, but the decline in spot numbers in the Synerid house was eventually accompanied by a decline in the control house. The sharp increase in spot counts during week 5 definitely

shows that the previous weeks' reduction was probably not due to Synerid.

The manure moisture was greater in this trial than in a previous trial conducted in Southern California a year earlier (Progress in Poultry #31). The somewhat similar results between these two trials would indicate that manure moisture was probably not a limiting factor in influencing Synerid's efficacy.

Pyrethrins were misted in each house each week during the trial. Observations of dead flies on the floor in each house confirm the effectiveness of the spray. The pyrethrin sprays were quite effective in killing the majority of adult houseflies. Therefore, the results shown in Figures 1 and 2 essentially represent one week's emergence of new flies.

Reference

Meyer, J.A., B.A. Mullens, and W.F. Rooney. 1986. Evaluation of Synerid and Synerid-100 as a topical spray for controlling house flies in poultry manure. Progress in Poultry No. 31, January.

Table 1. Percent manure moisture in samples taken from five different areas within control and Synerid houses (September 13).

Sample #	Control	Synerid
1	64.7	78.6
2	69.8	67.1
3	63.8	70.5
4	61.1	68.6
5	70.9	68.9
Mean	66.0	70.7

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