

ment could be adapted to commercial use as well. This would be done by increasing the size of the filter pump, the volume and pressure of water pumped through it, the size of the granule reservoir, and the rate of flow of the granules. Advantages over aircraft application would include a more even distribution of the granules, elimination of accidental insecticide contamination of adjacent land areas, and possible financial savings through the use of available personnel and less expensive equipment.

EFFECTIVENESS OF PYRETHRUM SPRAYS AGAINST MOSQUITOES AND HOUSE FLIES IN DARKNESS AND LIGHT

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During the course of aerosol studies at Beltsville, Maryland, against adult mosquitoes at practical

(Fales *et al.* 1952, 1954). The dosage was 13.9 ml. per 1000 cubic feet. The Official Test Insecticide, which contains 1 mg./ml. of pyrethrins and another spray containing 2 mg./ml. were tested against house flies at the standard Peet-Grady dosage of 55.6 ml. per 1000 cubic feet. Ten-minute exposures were used in all the tests.

The tests without light were made in complete darkness. This was easy to accomplish, since the Peet-Grady chamber was located in a windowless room. In the tests with light a single 200-watt incandescent light was used. The tests under both conditions were performed at temperatures between 27° and 30° C. The sprays were not delivered until 5 minutes after the insects were released into the chamber.

The results of this study are given in Table 1. With both species of mosquitoes no difference in mortality of either males or females occurred when exposed in darkness or light, but the knockdown of *Aedes aegypti* was less in darkness. Much lower kills and knockdowns of house flies were obtained in darkness than in light.

TABLE 1.—Comparison of effectiveness of pyrethrum sprays against mosquitoes and house flies in darkness and in light

Concentration (mg./ml.)	Condition of chamber	Percent knockdown in 10 minutes	Percent kill in 1 day	
			Males	Females
<i>Aedes aegypti</i> (3 Tests)				
0.033	Dark	66	32	27
ditto	Light	88	33	31
<i>Culex pipiens</i> (3 Tests)				
0.8	Dark	98	88	52
ditto	Light	97	88	53
<i>Musca domestica</i> (4 Tests)				
			Total	
1.0	Dark	83		2
ditto	Light	96		17
2.0	Dark	92		20
ditto	Light	97		45

use dosages (7 grams per 1000 cubic feet) in large darkened spaces, it was decided to employ house flies (*Musca domestica* L.) also. These tests indicated that darkness reduced the effectiveness of aerosols against house flies but not against mosquitoes. A Peet-Grady chamber was then used to study the effect of light and darkness on knockdown and mortality of laboratory-reared non-resistant free-flying adult mosquitoes and house flies (NAIDM 1948). Tests were conducted with odorless kerosene sprays containing pyrethrins at 0.033 mg./ml. against *Aedes aegypti* (L.) and at 0.8 mg./ml. against *Culex pipiens* L. Both concentrations had been used in prior mosquito studies

Under the conditions of these tests it can be concluded that mosquitoes can be controlled by space sprays to the same degree in darkness as in light, but that this is not true of house flies.

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