

Article

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EXPERIMENT TO TEST THE REACTION OF BLOW-FLIES IN THE LABORATORY
TO RESIDUAL FILMS OF DIELDRIN.

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The object of this experiment was to test the reaction of blow flies in the laboratory to Dieldrin applied as a residual film. It was hoped by this means to obtain a standard with which to compare the effects of spraying residual films in the field.

BLOW FLIES.

The blow flies were reared on liver placed in wire cages in a room at a constant temperature of 24°C, from eggs of a normal local fly population. Four species were found to be present :- *Lucilia cuprina*, *Chrysomya marginalis*, *C. albiceps* and *C. chloropyga*. The latter were the most abundant and a batch of these flies, all of which emerged on the same day, were used for the experiment.

DIELDRIN.

The Dieldrin was received from Standardised Disinfectants Co., Ltd., in the form of a 20% emulsifiable concentrate of Dilstan and this was broken down into concentrations of 0.5, 1, 2, 4 and 8% Dieldrin made up in chloroform.

EXPERIMENT.

The above concentrations of Dieldrin were applied to filter papers at the rate of 1.0 ml solution per 100 sq. cm. The papers were allowed to dry and then placed in petri dishes. Batches of three flies were then placed in the dishes in such a way that they were forced to walk on the paper. For easier handling and a method of identification, one or both wings were removed.

The flies were exposed to the different concentrations of insecticide for periods ranging from 0.5 minutes to 2.5 minutes and then placed in recovery chambers composed of paper cups covered with gauze. Controls were placed in similar chambers and the time taken to render all the flies completely immobile, presumed dead, was recorded.

RESULTS.

The results were analysed as a factorial and then compared with the controls.

As shown by an F test the concentrations showed very significant differences, but those between the times of exposure were significant only at a 5% level.

Comparing the concentrations with controls the 0.5% and 1% were not significantly different, but the 2%, 4% and 8% concentrations were.

Comparing times of exposure and controls only the 0.5 minutes exposure was not significantly different from the control.

These rather unexpected results are probably due to the flies being near

the.....

the end of their life span at the time of the experiment.

CONCLUSIONS.

Any conclusions from the experiment should be drawn with reservations due to the age of the flies mentioned above, but it would appear that a 4% concentrated Dieldrin applied as a residual film is the most efficient in causing death provided the flies are exposed to it for more than 0.5 minutes.

Mean time to death.

controls

18.58 hours

Time of exposure

0.5 minutes 18.88 hours

1.0 minutes 18.41 hours

1.5 minutes 15.01 hours

2.0 minutes 12.68 hours

2.5 minutes 12.05

conc. Dieldrin

0.5 % - 0.057 mgms / cm² 22.00 hours

1 % - 0.111 mgms / cm² 22.97 hours

2 % - 0.223 mgms / cm² 14.89 hours

4 % - 0.446 mgms / cm² 9.77 hours

8 % - 0.892 mgms / cm² 7.41 hours

SALISBURY.

23rd February, 1958.

BLOW FLIES - INSECTICIDE TRIAL.

Chrysomya chloropyga. Dieldrin.

Analysis of Variance.

$$\text{correction} = \frac{(\text{grand total})^2}{\text{No. of plots}}$$

<u>Variation</u>	<u>d.f.</u>	<u>ss.</u>	<u>m.s.</u>	<u>F.</u>
Total	74	(indiv.) ² - corr.	-	-
replications	2	1/25 R ² - corr	<u>ss</u> d.g.	<u>ms</u> error ms
concentrations	4	1/15 C ² - corr	"	"
times	4	1/15 T ² - corr	"	"
error	64	by subtraction	"	-
		correction = $\frac{(1155.58)^2}{75} = 17927.22$		

<u>Variation</u>	<u>d.f.</u>	<u>ss.</u>	<u>m.s.</u>	<u>F.</u>
total	74	6083.69	-	-
replications	2	157.87	78.94	1.93
concentrations	4	2826.73	706.68	17.24***
times	4	475.98	119.00	2.90*
error	64	2623.11	40.99	

Control - mean of means = 18.58

Times	-	1	mean = 18.88
		2	" = 18.41 *
		3	" = 15.01 *
		4	" = 12.68 *
		5	" = 12.05 *

concentrations	0.5%	= 22.00
	1%	= 22.97
	2%	= 14.89 *
	4%	= 9.77 *
	8%	= 7.41 *

* = significance at 5% level.
 ** = " " 1% level.
 *** = " " 0.1% level.

BLOWFLIES - DIELDRIN.

