BLUE OAT MITE CONTROL.

The status of the blue oat mite (*Penthaleus major* (Duges)) as a pest in Queensland has been discussed by Smith (1928), in Vol. III. of the Queensland Agricultural and Pastoral Handbook (Officers of the Department of Agriculture and Stock 1951) and by May (1954).

During the late winter and early spring of 1953, this mite heavily infested wheat fields in the Bongeen district, Darling Downs. This opportunity was taken to set out two 8 x 3 randomised block trials, eight weeks after germination, using BHC, DDT and dieldrin. A plot size of 1/100th acre was used.

When treatments were applied on July 2, subsoil moisture was adequate but surface soil moisture was low. Some two inches of rain fell eight weeks later.

Pest survival was assessed as plot infestation ratings as follows:— 0 = 0; 1 = 1 to 5; 2 = 6 to 10; 3 = 11 to 15; 4 = 16 to 20; 5 = >20 mites recorded. Counts were made on two widely spaced rows of plants in each plot, 22 ft. 10 in. in length, during late afternoon as mites emerged to feed on the leaves. Yields were taken on November 17 in one trial only, which was harvested for grain and straw weights with a hand-operated power mower.

Results and treatment details are given in Tables 1 and 2.

Table 1.

RESULTS OF TRIAL 1.

Treatments.	Ratings.				Yield.*
	At 5 Days.		At 12 Days.		
	Transformed Mean. ($\sqrt{\times + \frac{1}{2}}$.)	Equivalent Mean.	Transformed Mean. ($\sqrt{\times + \frac{1}{2}}$.)	Equivalent Mean.	Bulk Weight (Lb./Plot).
BHC 1½ oz. *g.i.*/ac.	1·39	1·4	1·44	1·6	19·00
BHC 1 oz. *g.i.*/ac.	2·04	3·7	1·82	2·8	19·50
BHC ½ oz. *g.i.*/ac.	1·72	2·5	1·90	3·1	18·50
DDT ½ lb./ac.	·71	0·0	·71	0·0	18·50
DDT ¼ lb./ac.	1·22	1·0	·71	0·0	19·00
DDT ¼ lb./ac. + BHC ½ oz. *g.i.*/ac.	1·00	0·5	1·05	0·6	20·17
Dieldrin ½ lb./ac.	1·64	2·2	1·34	1·3	19·00
No treatment	2·19	4·3	2·20	4·3	17·50
Differences necessary for significance { 5%	·72		·53		
1%	1·00		·74		

* In the analysis of variance the value for F was not significant.

Table 2.

RESULTS OF TRIAL 2.

Treatments.	Ratings.			
	At 12 Days.	At 26 Days.	At 54 Days.	
	Equivalent Mean.	Equivalent Mean.	Transformed Mean. ($\sqrt{x+\frac{1}{2}}$)	E quivalent Mean.
BHC 1½ oz. *g.i.*/ac.	5·0	4·7	2·27	4·7
BHC 1 oz. *g.i.*/ac.	5·0	4·7	2·35	5·0
BHC ½ oz. *g.i.*/ac.	4·7	3·7	2·27	4·7
DDT ½ lb./ac.	0·0	1·3	1·46	1·6
DDT ¼ lb./ac.	0·3	0·3	1·46	1·6
DDT ¼ lb./ac. + BHC ½ oz. *g.i.*/ac.	0·3	0·0	1·64	2·2
BHC 1 oz. *g.i.*/ac. + detergent 1½ pt./100 gal.	4·7	3·7	1·82	2·8
No treatment	5·0	4·3	2·27	4·7
Differences necessary for significance { 5%	+	+	·52	
Differences necessary for significance { 1%			·72	

\+ Treatments containing DDT obviously less than remainder.

DDT proved superior to BHC and dieldrin and a dosage rate of ¼ lb./acre reduced the population as effectively as ½ lb./acre. This effect persisted for almost two months after spraying. Under the conditions experienced, yield differences could not be expected in these trials (see May 1954), as plants were continually dependent on the seedling root system till the early September rain.

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