Ross Chick MRID 00062005

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DATA EVALUATION RECORD

TRICHLORFON

Reproductive Evaluation of Trichlorfon
Administered to the Diet to Hens

CITATION: Ross E, Sherman M. 1960. The effect of selected insecticides on growth and egg production when administered continuously in the feed. Poultry Science. 39(5):1203-1211.

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DATA EVALUATION RECORD

STUDY TYPE: Reproductive evaluation of dietary trichlorfon in hens.

CITATION: Ross E, Sherman M. 1960. The effect of selected insecticides on growth and egg production when administered continuously in the feed. Poultry Science. 39(5):1203-1211.

ACCESSION NUMBER: Not available.

MRID NUMBER: 00062005.

LABORATORY: Department of Poultry Science and Entomology, University of Hawaii, Honolulu, Hawaii.

TEST MATERIAL: Trichlorfon (Dipterex, 0,0-dimethyl-2,2,2-trichloro-1-hydroxyethylphosphonate, source and purity not stated).

PROTOCOL:

1. Trichlorfon (Dipterex, 0,0-dimethyl-2,2,2-trichloro-1-hydroxyethyl-phosphonate) was evaluated for its reproductive toxicity. The source and purity of the trichlorfon were not stated.

2. Twelve New Hamphire hens were utilized in the test. The hens were 48 weeks of age and were randomly assigned to treatment groups. Each group consisted of four hens. [A second part of the study consisted of a subchronic feeding study in chicks.]

3. Trichlorfon was administered to the hens through the feed. One group of hens received 20 mg/lb [44.4 mg/kg] trichlorfon during weeks 0-4 of the study and 60 mg/lb [133.3 mg/kg] during weeks 5-29 of the study. A second group of hens received 40 mg/lb [88.9 mg/kg] during the entire 29 weeks study. The control group received the basal diet.

4. Individual food consumption and body weights were recorded weekly from weeks 0-4 of the study and every second week from weeks 5-29 of the study. Mortality was recorded. Daily egg production was recorded and eggs were "periodically" hard boiled, shelled, and subjected to a "'sniff test'" to detect the presence of any trichlorfon odor.

5. A one-tailed "t" test at $p \leq 0.05$ and $p \leq 0.01$ was used to analyze the data.

RESULTS:

The results of trichlorfon administration are presented in Table 1. Three of four hens receiving the 44.4/133.3 mg/kg dose levels died during the study. One of the hens died while receiving 44.4 mg/kg (day 6) and the remaining two hens died while receiving 133.3 mg/kg (days 115, and 173). One death occurred on day 170 of the study among the hens receiving 88.9 mg/kg trichlorfon. The authors did not report any clinical observations. During the first four weeks of the study, hens from the trichlorfon-treated groups lost weight compared to a body weight gain among the controls. The trichlorfon groups yielded body weight gains comparable to or surpassing the gains observed in the control group after week 5 of the study. Food consumption data were presented as a percent of the food consumed by the controls. The trichlorfon group receiving 44.4 mg/kg during weeks 0-4, consumed markedly less food than the controls. [The food consumption data were erratic which would not be unexpected with no more than four animals per group.] The percentage of days that the hens laid eggs appeared reduced over the 29 weeks of study in both trichlorfon groups.

CONCLUSIONS:

Two separate treatment groups of New Hampshire hens were administered trichlorfon in their diet. One treatment group received 44.4 mg/kg for the first five weeks of study and 133.3 mg/kg for the remaining 24 weeks of study. The other group received 89.9 mg/kg for the entire 29 weeks.

Three of four hens receiving 44.4/133.3 mg/kg and one of four hens receiving 88.9 mg/kg died during study. Despite these mortality rates and the absence of any mortality in the controls group, the reliability of the data are questionable. The authors did not report any clinical observations for the dead birds, and disease as a cause of death cannot be eliminated. The group sizes were also small.

Administration of trichlorfon initially produced weight losses from which the hens recovered. Despite the small group sizes, the magnitude of the weight loss made it apparent that trichlorfon was toxic to the hens. Group sizes of one to four hens make conclusions drawn from the food consumption data unreliable.

The percentage of days that hens laid eggs was reduced over the 29 week study in both trichlorfon groups. The small number of hens per group renders the significance of this finding suspect. [This reviewer believes that the mean number of eggs laid per day per hen would have been a more accurate indicator of any treatment affect on egg production.]

TABLE 1. Effect of Trichlorfon Administration in New Hampshire Hens

	Treatment (mg/kg)		
	Control	44.4/133.3/133.3	88.9/88.9/88.9
Body weight gain weeks 0–4	121	-157*	-99*
Body weight gain weeks 5–7	14	229	95
Body weight gain weeks 8–24	125	139	295
Body weight gain weeks 0–29	260	196	209
Mortality (percent)	0	75	25
Food consumption, weeks 0–4 (percent of controls)	100	61*	81*
Food consumption, weeks 8–29 (percent of control)	100	83	101
Food consumption, weeks 0–29 (percent of controls)	100	81	96
Egg days (percent of days laying eggs) weeks 0–4	39.8	1.8	41.1
Egg days (percent of days laying eggs) weeks 5–7	61.5	39.6	34.4
Egg days (percent of days laying eggs) weeks 8–29	47.8	32.7	41.9
Egg days (percent of days laying eggs) weeks 0–29	51.4	29.0	40.8

*Significantly lower than controls ($p \leq 0.05$).

CORE CLASSIFICATION: Supplementary data.

The following deficiencies were noted:

- The number of hens per group were small.
- No clinical observation data were provided.
- The actual number of eggs laid per day was not provided.
- The source and purity of the trichlorfon was not stated.
- The reliability of the "sniff" test for trichlorfon in hard boiled eggs is not known.