



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

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JUN 13 1996

OFFICE OF  
PREVENTION, PESTICIDES, AND  
TOXIC SUBSTANCES

MEMORANDUM:

SUBJECT: Review of Avian Reproduction Studies with Metalaxyl

FROM: Anthony F. Maciorowski, Chief  
Ecological Effects Branch  
Environmental Fate and Effects Division (7507C)

*AP Cont for 06/13/96*

TO: Linda Propst, Product Manager 73  
Special Review and Reregistration Division (7508W)

EEB has completed review of the two avian reproduction studies which were completed in 1980 by Wildlife International Laboratories (MRID 436246-02 and 436246-01). These studies were apparently not submitted to the Agency by Ciba Geigy Corporation until 1995, following receipt of the reregistration DCI.

The results indicate significant effects to survival of young hatchlings of bobwhite quail at concentrations less than 900 ppm. For mallard ducks the differences in numbers of hatchlings produced from viable embryos was lower for concentrations of 300 ppm and 900 ppm. However, the statistical analysis based on individual pen counts and % of hatch vs. total viable embryos was not significant to the 0.05 p value. Eggshell Thickness was reduced in mallard ducks at 900 ppm. All raw data used by the laboratory to calculate their statistical analysis was not provided to the Agency. The studies were, however, conducted before the Agency had published its standard evaluation procedures for this type of study. As such, the studies failed to meet all criteria as published in the 1986 SEP. Individual bird weights prior to egg laying were not provided—only pen weights (3 adults bobwhite and 7 adults for mallard) were provided in raw data. Weekly records of eggs laid per hen, eggs hatched, and mortality of juveniles should also be provided with reports to determine when effects begin to occur. Though the test material is listed as "technical," the branch generally prefers that the percent active ingredient in the test material be clearly specified. Generally the newer studies are conducted for 21-23 weeks to allow a longer period of egg production (usually 10 weeks) and to assure that the egg laying process has passed its peak. This study used an 8 week laying period and a total exposure duration of 19 weeks. Though these studies failed to meet some of the present criteria used by the Agency, the studies were conducted well in other respects. If the laboratory can provide more detailed raw data on the weekly variations for the tested parameters seen during the study and assure the Agency that the egg laying period was indeed completed the Agency

will be better able to conduct independent statistical analysis. The percent of active ingredient tested should be provided by the registrant. At that time the Agency will consider an upgrade of these studies. Until this time the studies will be considered as partially (supplemental) but not completely fulfilling the guidelines for reproductive testing of avian waterfowl and terrestrial gamebird species.

Further questions regarding these studies should be directed to Les Touart at 305-6134 or Brian Montague at 305-6438.

**DATA EVALUATION RECORD**  
**§ 71-4 -- AVIAN REPRODUCTION TEST**

1. **CHEMICAL:** Metalaxyl **PC Code No.:** 113501  
2. **TEST MATERIAL:** CGA-48988 Technical **Purity:** Not Reported  
Fungicide FL 791106

3. **CITATION:**

**Authors:** Fink, R. and J.B. Beavers  
**Title:** CGA-48988 Technical: One-Generation  
Reproduction Study - Bobwhite Quail  
**Study Completion Date:** October 27, 1980  
**Laboratory:** Wildlife International Ltd., Easton, MD.  
**Sponsor:** Ciba-Geigy Corporation, Greensboro, NC  
**Laboratory Report ID:** 108-175  
**MRID No.:** 436246-02 and 436246-01  
**DP Barcode:** D215018


4. **REVIEWED BY:** Rosemary Graham Mora, M.S., Associate Scientist  
KBN Engineering and Applied Sciences, Inc.

**Signature:**  **Date:** 1/19/96  
(for R.G.M.)

**APPROVED BY:** Pim Kosalwat, Ph.D., Senior Scientist  
KBN Engineering and Applied Sciences, Inc.

**Signature:** P. Kosalwat **Date:** 1/19/96

5. **APPROVED BY:**

**Signature:**  **Date:** 4/3/96

6. **STUDY PARAMETERS:**

**Scientific Name of Test Organism:** *Colinus virginianus*  
**Age of Test Organisms at Test Initiation:** 5 months  
**Definitive Study Duration:** 18 weeks

7. **CONCLUSIONS:** This study is scientifically sound but does not meet the guideline requirements for an avian reproduction study using bobwhite quail. The NOEC was 300 ppm, based on significant effects on 14-day survivors as a percentage of hatchlings reared at 900 ppm.

**Results Synopsis**

**Most sensitive endpoints:** 14-day survivors as a percentage of hatchlings reared.

**NOEC:** 300 ppm

**LOEC:** 900 ppm

20  
(2705-1000002)

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**8. ADEQUACY OF THE STUDY:**

- A. Classification:** Supplemental.
- B. Rationale:** There are several deficiencies with the study, including the lack of adult body weight data (reported by sex), length of the egg collection period, lack of verification of the test diets, and lack of pen data for food consumption. Also, environmental conditions (i.e., temperature, humidity, pen size) for the adults were not described. In addition, hatchlings were randomly chosen for rearing by hatch group (Groups A to H), not by pen. Consequently, the effects of the test compound on 14-day survivors as a percentage of eggs set could not be evaluated.
- C. Repairability:** No.

**9. GUIDELINE DEVIATIONS:**

- 1. The length of the egg collection period (8 weeks) was shorter than recommended (10 weeks).
- 2. Individual adult body weights were not reported. Adult body weights were presented as mean adult body weights. Weight was not determined by sex.
- 3. The test conditions (temperature and relative humidity) to which the adult bobwhite were exposed were not reported. In addition, pen sizes were not reported.
- 4. The purity of the test material was not reported.
- 5. Analysis of the test material in the test diets was not reported.
- 6. The amount of vehicle (corn oil) used in the test diets was not reported and the control diet was not described.
- 7. Food consumption data was reported as treatment means for each two-week period. Pen means were not presented.

**10. SUBMISSION PURPOSE:**

**11. MATERIALS AND METHODS:**

- A. Test Organisms**

Guideline Criteria	Reported Information
<p><b><u>Species</u></b>                      A wild waterfowl species, preferably the mallard (<i>Anas platyrhynchos</i>), or an upland game species, preferably the northern bobwhite (<i>Colinus virginianus</i>)</p>	<p><i>Colinus virginianus</i></p>
<p><b><u>Age at beginning of test</u></b>                      Birds should be approaching their first breeding season.</p>	<p>5 months old; birds were approaching their first breeding season.</p>
<p><b><u>Supplier</u></b>                      All birds should be from the same source.</p>	<p>Wildlife International Ltd., Easton, MD</p>
<p><b>Were birds pen-reared?</b></p>	<p>Yes.</p>
<p><b>Were birds phenotypically indistinguishable from wild birds?</b></p>	<p>Yes.</p>
<p><b><u>Health observation period</u></b>                      2 to 6 weeks.</p>	<p>Not reported. Gross necropsy and bacteriologic and serologic examination of representative birds by the Maryland Department of Agriculture determined the quail to be healthy.</p>
<p><b>Were birds healthy and without excessive mortality prior to the test?</b></p>	<p>Pre-test mortality was not reported.</p>

**B. Test System**

Guideline Criteria	Reported Information
<p><b>Were pens for adult birds of adequate size and designed to conform to good husbandry practices?</b></p>	<p>Not reported. Birds were housed indoors in Georgia Quail Farm Breeding pens (Model 206).</p>
<p><b>Were pens for chicks of adequate size and designed to conform to good husbandry practices?</b></p>	<p>Not reported. Chicks were housed in Beacon battery brooders (Model B755).</p>

Guideline Criteria	Reported Information
<b>Were pens constructed of a nonbinding material such as galvanized or stainless steel?</b>	Not reported.
<b>Was adequate ventilation provided?</b>	Not reported.
<b>Temperature</b> Approx. 21°C (70°F)	Not reported.
<b>Relative humidity</b> Approx. 55%	Mean: Not reported.
<b>Lighting</b> <u>First 8 weeks:</u> 7 h per day. <u>Thereafter:</u> 16-17 h per day. At least 6 footcandles at bird level.	First 6 weeks: 8 h per day. Thereafter: 17 h per day. Illumination of 10 footcandles.
<b>Diet</b> A commercial breeder feed (or its equivalent) that is appropriate for the test species.	19.4% protein 6.7% fat 3.8% fiber 2.7% calcium 0.77% phosphorus
<b>Preparation of test diet</b> A premixed containing the test substance should be mechanically mixed with basal diet. If an evaporative vehicle is used, it must be completely evaporated prior to feeding.	The test material and corn oil were mixed with basal diet into a premix, and then frozen until used for weekly preparation of the final diet.
<b>Was the premix stored under conditions which maintain stability?</b>	Yes.
<b>Was the diet analyzed to verify homogeneity and stability of the test substance?</b>	Samples of the test diets were shipped to the sponsor for analysis. Results were not reported.
<b>Replenishment of feed</b>	Adult diets were prepared weekly and presented to the birds <i>ad libitum</i> .

C. Test Design

Guideline Criteria	Reported Information
<p><b><u>Nominal concentrations</u></b>                      At least two concentrations other than the control are required; three or more are strongly recommended. The highest test concentrations should show a significant effect or be at or above the maximum field residue level.</p>	<p>Nominal concentrations:                      Control, 100, 300, 900 ppm                       Max. residue level: 500 ppm</p>
<p><b><u>Control</u></b>                      Vehicle control.</p>	<p>A description of the control diet was not provided.</p>
<p><b><u>Vehicle</u></b>                      Corn oil or other appropriate vehicle.</p>	<p>Corn oil.</p>
<p><b><u>Vehicle amount (% of diet by weight)</u></b>                      Not more than 2%.</p>	<p>Not reported.</p>
<p><b><u>Number of birds per pen</u></b>                      One male and 1 female per pen is strongly recommended. For quail, 1 male and 2 females may be acceptable. For ducks, 2 males and 5 females may be acceptable.</p>	<p>1 male and 2 females per pen.</p>
<p><b><u>Number of pens per group</u></b>                      At least 5 replicate pens are required for mallards housed in groups of 7. For other arrangements, at least 12 pens are required, but considerably more may be needed if birds are kept in pairs.</p>	<p>12 pens per group.</p>
<p><b><u>Pre-laying exposure duration</u></b>                      At least 10 weeks prior to the onset of egg-laying.</p>	<p>10 weeks.</p>
<p><b><u>Exposure duration with egg-laying</u></b>                      At least 10 weeks.</p>	<p>8 weeks.</p>

Guideline Criteria	Reported Information
<u>Withdrawal period</u> If reduced reproduction is evident, a withdrawal period of up to 3 weeks may be added to the test phase.	N/A.

**D. Egg Collection and Incubation**

Guideline Criteria	Reported Information
Were eggs collected daily?	Yes.
<u>Egg storage temperature</u> Approximately 16°C (61°F)	13°C
<u>Egg storage humidity</u> Approximately 65%	87%
Were eggs set weekly?	Yes.
Were eggs candled for cracks prior to being set for incubation on Day 0?	Yes.
<u>Candling for fertility</u> Quail: approx. Day 11 Ducks: approx. Day 14	Eggs were candled on Day 11.
<u>Transfer of eggs to hatcher</u> Bobwhite: Day 21 Mallard: Day 23	Eggs were transferred on Day 21.
<u>Hatching temperature</u> 39°C (102°F) is recommended	37°C
<u>Hatching humidity</u> 70% is recommended	Not reported.
<u>Day after egg set that chicks were removed and counted</u> Bobwhite: Day 24 Mallard: Day 27	Chicks were removed and counted on Day 25.

**E. Eggshell Thickness Measurement**





Guideline Criteria	Reported Information
<p><b>Collection Schedule</b> At least once every two weeks (Week 1, 3, 5, 7 and 9).</p>	<p>One egg from every other pen in each treatment group was collected daily for measurement.</p>
<p>Were shells opened, washed, and air dry for at least 48 hours before measuring?</p>	<p>Yes; shells air dried for one week.</p>
<p><b>Measurement</b> 3-4 measurements per eggs to the nearest 0.01 mm.</p>	<p>3-5 measurements to the nearest 0.01 mm.</p>

12. REPORTED RESULTS

Guideline Criteria	Reported Information
<p>Quality assurance and GLP compliance statements were included in the report?</p>	<p>Yes; the study was conducted in accordance with the GLP Standards of 1978.</p>
<p>Did diet analysis verify the concentrations of test material?</p>	<p>Not reported.</p>
<p>Did diet analysis show that the test substance was stable and homogeneous?</p>	<p>Not reported.</p>
<p>Were body weights of adults reported for test initiation and biweekly up to week 8 or the onset of egg laying?</p>	<p>Yes; but only average body weight of adults (male and females combined) per pen was reported every other week.</p>
<p>Was average food consumption of adults reported at least biweekly?</p>	<p>Yes; but only treatment means were reported every two weeks.</p>

Guideline Criteria	Reported Information
<p><b>Reproductive Endpoints</b>                      The following endpoints should be reported:</p> <ul style="list-style-type: none"> <li>• Eggs laid</li> <li>• Eggs cracked</li> <li>• Eggs set</li> <li>• Viable embryos</li> <li>• Live 3-week embryos</li> <li>• Normal hatchlings</li> <li>• 14-day-old survivors</li> <li>• Weights of 14-day-old survivors</li> <li>• Egg shell thickness</li> <li>• Total food consumption</li> <li>• Initial and final body weights, by sex</li> </ul>	<p>All endpoints listed at left (excluding initial and final adult body weights by sex and food consumption by pen) plus number of hatchlings reared, hatchling weight, and mean adult body weights.</p>
<p>Were data reported by pen for all endpoints?</p>	<p>Yes; with the exception of the data for body weights of hatchlings and the number and body weights of 14-day old survivors which were reported by hatch group (weekly lot). In addition, food consumption data were reported as treatment means, not as pen means.</p>

**Significant Results:** By test termination, there was 6% mortality (2 females) in the control, 6% mortality (2 females) in the 100 ppm group, 0% mortality in the 300 ppm group, and 3% mortality (1 female) in the 900 ppm group. Necropsy of the dead birds showed no compound-related abnormalities.

There was a statistically significant decrease in adult body weight and hatchling body weight at all test levels. A statistically significant reduction in the percentage of 14-day survivors was noted at 900 ppm. However, the authors did not believe the effects were biologically significant since the maximum difference in adult body weight was only 8 grams and the actual difference in hatchling body weights was only 0.3 grams. In a supplemental report entitled "Metalaxyl Technical Ecological Risk to Birds" (MRID No. 436246-01), the data were re-analyzed using "modern statistical techniques." The result of these analyses indicated that the observed "effects" on body weights were not statistically significant. The new statistical analysis verified a significant reduction in percentage of 14-day

survivors at 900 ppm. The author of the supplemental report concluded that the "effect" was actually a reflection of cannibalism in one group of chicks; and therefore, the NOEC for the study was 900 ppm.

13. **VERIFIED STATISTICAL RESULTS:** Individual adult body weights by sex were not presented in the report. Adult body weights were presented as mean weights (male and females combined) by pen. Number of hatchlings reared (HR), number of 14-day survivors (HS), weight of hatchlings (HATWT), and weight of 14-day survivors (SURVWT) were analyzed by hatch group, not by pen.

Food consumption data were not analyzed since data were presented as treatment means for each 2-week periods, not by pen means.

Means of Endpoints

Endpoint	Control	100 ppm	300 ppm	900 ppm
Eggs laid (EL)	68 (23)	67 (17)	70 (17)	70 (13)
Eggs cracked (EC)	2.9 (3.1)	6.2 (3.2)	7 (7)	4.3 (2.9)
Eggs set (ES)	61 (22)	57 (14)	59 (15)	61 (14)
Viable embryos (VE)	53 (24)	51 (13)	41 (20)	53 (14)
Live 3-wk embryos (LE)	52 (24)	50 (14)	41 (20)	52 (14)
Normal hatchlings (NH)	32 (18)	35 (12)	29 (14)	36 (12)
Hatchlings reared (HR)*	38 (15)	40 (15)	36 (19)	41 (16)
14-day-old survivors (HS)*	36 (14)	36 (14)	32 (18)	34 (15)
Egg shell thickness (THICK)	0.22 (0.01)	0.21 (0.01)	0.22 (0.01)	0.22 (0.01)
Hatchling weight (HATWT)*	6.5 (0.3)	6.2 (0.3)	6.2 (0.3)	6.3 (0.4)
14-day-old survivor weight (SURVWT)*	18.4 (1.6)	19.4 (2.2)	18.5 (2.6)	19.4 (1.6)

Endpoint	Control	100 ppm	300 ppm	900 ppm
Final adult weight (POSTWT)	235 (13)	230 (8)	229 (12)	228 (14)

\* = Reported by hatch group.

Statistically Significant Endpoints

Endpoint	Statistical Method	Levels at which Effect Was Observed
14-day-old survivors of hatchlings reared (%)	Least Square Means Contrast	900 ppm

14. **REVIEWER'S COMMENTS:** There were several deficiencies with the study, including: 1) the lack of individual adult body weight measurements by sex, 2) the length of the egg collection period (8 weeks) was shorter than required (10 weeks), 3) test conditions (temperature and relative humidity) for F<sub>0</sub> birds and pen sizes for F<sub>0</sub> and F<sub>1</sub> birds were not reported, 4) food consumption data were presented as treatment means per 2-week period (not as pen means), 4) results of the analysis of test diets, and 5) the purity of the test compound, were not reported. In addition, hatchlings were randomly chosen for rearing by hatch group (Groups A to H), not by pen. Consequently, the effects of the test compound on 14-day survivors as a percentage of eggs set could not be evaluated.

Based on the available data, the LOEC of CGA-48988 for bobwhite quail was determined to be 900 ppm due to a significant effect on 14-day survivors as a percentage of hatchlings reared at this level. The NOEC was 300 ppm. This study is scientifically sound but does not meet the guideline requirements for an avian study using bobwhite quail. The study is classified as Supplemental.

TITLE: Metalaxyl Bobwhite Egshell Thickness  
FILE: metlxegs.bwq  
TRANSFORM: NO TRANSFORM

NUMBER OF GROUPS: 4

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	control	1	0.2230	0.2230
1	control	2	0.2070	0.2070
1	control	3	0.2200	0.2200
1	control	4	0.2190	0.2190
1	control	5	0.2340	0.2340
1	control	6	0.2340	0.2340
1	control	7	0.2100	0.2100
1	control	8	0.2110	0.2110
1	control	9	0.2110	0.2110
1	control	10	0.2140	0.2140
1	control	11	0.2280	0.2280
1	control	12	0.2240	0.2240
2	100 ppm	1	0.2210	0.2210
2	100 ppm	2	0.2060	0.2060
2	100 ppm	3	0.2200	0.2200
2	100 ppm	4	0.2270	0.2270
2	100 ppm	5	0.2130	0.2130
2	100 ppm	6	0.2180	0.2180
2	100 ppm	7	0.1950	0.1950
2	100 ppm	8	0.2090	0.2090
2	100 ppm	9	0.1950	0.1950
2	100 ppm	10	0.1960	0.1960
2	100 ppm	11	0.2140	0.2140
2	100 ppm	12	0.2260	0.2260
3	300 ppm	1	0.2280	0.2280
3	300 ppm	2	0.2090	0.2090
3	300 ppm	3	0.2130	0.2130
3	300 ppm	4	0.2230	0.2230
3	300 ppm	5	0.2030	0.2030
3	300 ppm	6	0.2300	0.2300
3	300 ppm	7	0.2260	0.2260
3	300 ppm	8	0.2270	0.2270
3	300 ppm	9	0.2150	0.2150
3	300 ppm	10	0.2180	0.2180
3	300 ppm	11	0.2030	0.2030
3	300 ppm	12	0.2200	0.2200
4	900 ppm	1	0.2130	0.2130
4	900 ppm	2	0.2050	0.2050
4	900 ppm	3	0.2110	0.2110
4	900 ppm	4	0.2080	0.2080
4	900 ppm	5	0.2330	0.2330
4	900 ppm	6	0.2340	0.2340
4	900 ppm	7	0.2230	0.2230
4	900 ppm	8	0.2080	0.2080
4	900 ppm	9	0.2250	0.2250
4	900 ppm	10	0.2100	0.2100
4	900 ppm	11	0.1920	0.1920
4	900 ppm	12	0.2200	0.2200

Metalaxyl Bobwhite Egshell Thickness  
 File: metlxegs.bwq Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	control	12	0.207	0.234	0.220
2	100 ppm	12	0.195	0.227	0.212
3	300 ppm	12	0.203	0.230	0.218
4	900 ppm	12	0.192	0.234	0.215

Metalaxyl Bobwhite Egshell Thickness  
 File: metlxegs.bwq Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	control	0.000	0.009	0.003
2	100 ppm	0.000	0.012	0.003
3	300 ppm	0.000	0.009	0.003
4	900 ppm	0.000	0.012	0.004

Metalaxyl Bobwhite Egshell Thickness  
 File: metlxegs.bwq Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	0.0004	0.0001	1.000
Within (Error)	44	0.0051	0.0001	
Total	47	0.0055		

Critical F value = 2.84 (0.05,3,40)  
 Since  $F < \text{Critical } F$  FAIL TO REJECT  $H_0$ : All groups equal

Metalaxyl Bobwhite Egshell Thickness  
 File: metlxegs.bwq Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2  $H_0$ : Control < Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
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1	control	0.220	0.220	
2	100 ppm	0.212	0.212	1.939
3	300 ppm	0.218	0.218	0.408
4	900 ppm	0.215	0.215	1.082

Dunnett table value = 2.13 (1 Tailed Value, P=0.05, df=40,3)

Metalaxyl Bobwhite Egshell Thickness  
File: metlxegs.bwq Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	control	12			
2	100 ppm	12	0.009	4.0	0.008
3	300 ppm	12	0.009	4.0	0.002
4	900 ppm	12	0.009	4.0	0.004

Metalaxyl Bobwhite Egshell Thickness  
File: metlxegs.bwq Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	control	12	0.220	0.220	0.220
2	100 ppm	12	0.212	0.212	0.215
3	300 ppm	12	0.218	0.218	0.215
4	900 ppm	12	0.215	0.215	0.215

Metalaxyl Bobwhite Egshell Thickness  
File: metlxegs.bwq Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
control	0.220				
100 ppm	0.215	1.043		1.68	k= 1, v=44
300 ppm	0.215	1.043		1.76	k= 2, v=44
900 ppm	0.215	1.043		1.79	k= 3, v=44

s = 0.011

Note: df used for table values are approximate when v > 20.

Metalaxyl Bobwhite Adult Weight-Terminal Pen Avg.  
 File: metlxbwq.awt Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	control	12	212.000	251.000	234.833
2	100 ppm	12	215.000	244.000	230.417
3	300 ppm	12	200.000	246.000	228.833
4	900 ppm	12	206.000	250.000	227.667

Metalaxyl Bobwhite Adult Weight-Terminal Pen Avg.  
 File: metlxbwq.awt Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	control	165.242	12.855	3.711
2	100 ppm	58.992	7.681	2.217
3	300 ppm	145.970	12.082	3.488
4	900 ppm	186.970	13.674	3.947

Metalaxyl Bobwhite Adult Weight-Terminal Pen Avg.  
 File: metlxbwq.awt Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	354.896	118.299	0.849
Within (Error)	44	6128.917	139.294	
Total	47	6483.813		

Critical F value = 2.84 (0.05,3,40)

Since  $F < \text{Critical } F$  FAIL TO REJECT  $H_0$ : All groups equal

Metalaxyl Bobwhite Adult Weight-Terminal Pen Avg.  
 File: metlxbwq.awt Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2  $H_0$ : Control < Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG



GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	control	12			
2	100 ppm	12	10.263	4.4	4.417
3	300 ppm	12	10.263	4.4	6.000
4	900 ppm	12	10.263	4.4	7.167

Dunnett table value = 2.13 (1 Tailed Value, P=0.05, df=40,3)

Metalaxyl Bobwhite Adult Weight-Terminal Pen Avg.  
 File: metlxbwq.awt Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	control	12			
2	100 ppm	12	10.263	4.4	4.417
3	300 ppm	12	10.263	4.4	6.000
4	900 ppm	12	10.263	4.4	7.167

Metalaxyl Bobwhite Adult Weight-Terminal Pen Avg.  
 File: metlxbwq.awt Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	control	12	234.833	234.833	234.833
2	100 ppm	12	230.417	230.417	230.417
3	300 ppm	12	228.833	228.833	228.833
4	900 ppm	12	227.667	227.667	227.667

Metalaxyl Bobwhite Adult Weight-Terminal Pen Avg.  
 File: metlxbwq.awt Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
control	234.833				
100 ppm	230.417	0.917		1.68	k= 1, v=44
300 ppm	228.833	1.245		1.76	k= 2, v=44
900 ppm	227.667	1.487		1.79	k= 3, v=44

s = 11.802

Note: df used for table values are approximate when v > 20.

Metalaxyl Percent Nonviable Eggs  
 File: metlxbwq.via Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Control	12	2.700	90.000	19.921
2	100	12	0.000	34.000	11.539
3	300	12	1.500	99.000	28.467
4	900	12	1.300	38.300	13.308

Metalaxyl Percent Nonviable Eggs  
 File: metlxbwq.via Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	Control	583.585	24.158	6.974
2	100	83.914	9.160	2.644
3	300	719.042	26.815	7.741
4	900	134.079	11.579	3.343

Metalaxyl Percent Nonviable Eggs  
 File: metlxbwq.via Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	2119.362	706.454	1.858
Within (Error)	44	16726.828	380.155	
Total	47	18846.190		

Critical F value = 2.84 (0.05,3,40)  
 Since  $F < \text{Critical } F$  FAIL TO REJECT  $H_0$ :All groups equal

Metalaxyl Percent Nonviable Eggs  
 File: metlxbwq.via Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2  $H_0$ :Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
-------	----------------	------------------	-----------------------------------	--------	-----

1	Control	19.921	19.921	
2	100	11.539	11.539	1.053
3	300	28.467	28.467	-1.074
4	900	13.308	13.308	0.831

Dunnett table value = 2.13 (1 Tailed Value, P=0.05, df=40,3)

Metalaxyl Percent Nonviable Eggs  
 File: metlxbwq.via Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Control	12			
2	100	12	16.954	85.1	8.382
3	300	12	16.954	85.1	-8.546
4	900	12	16.954	85.1	6.612

Metalaxyl Percent Nonviable Eggs  
 File: metlxbwq.via Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Control	12	19.921	19.921	19.976
2	100	12	11.539	11.539	19.976
3	300	12	28.467	28.467	19.976
4	900	12	13.308	13.308	13.308

Metalaxyl Percent Nonviable Eggs  
 File: metlxbwq.via Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Control	19.976				
100	19.976	0.007		1.68	k= 1, v=44
300	19.976	0.007		1.76	k= 2, v=44
900	13.308	0.831		1.79	k= 3, v=44

s = 19.498  
 Note: df used for table values are approximate when v > 20.

LEVEL	CONTROL	TRT1	TRT2	TRT3	MEAN	STD DEV	CV
1 CONTROL	103	198	91	61	8	0.223	6.17
2 CONTROL	59	53	46	41	25	0.207	7.00
3 CONTROL	72	65	60	41	25	0.220	58.67
4 CONTROL	83	76	69	55	38	0.219	57.00
5 CONTROL	83	78	72	72	18	0.234	50.58
6 CONTROL	73	12	57	48	47	0.234	49.67
7 CONTROL	13	0	10	1	1	0.210	35.33
8 CONTROL	72	3	65	57	37	0.211	88.43
9 CONTROL	62	2	56	51	50	0.211	71.53
10 CONTROL	77	4	69	45	42	0.214	98.04
11 CONTROL	39	1	35	24	22	0.228	99.40
12 CONTROL	78	2	72	70	70	0.224	42.08
13 TRT1	73	10	59	49	48	0.221	52.26
14 TRT1	79	7	68	61	41	0.206	61.22
15 TRT1	47	0	43	41	29	0.220	70.64
16 TRT1	56	7	46	43	42	0.227	88.60
17 TRT1	75	11	60	57	55	0.213	90.37
18 TRT1	38	1	35	28	27	0.218	0.21
19 TRT1	61	6	51	51	40	0.195	6.21
20 TRT1	84	8	72	62	61	0.209	19.38
21 TRT1	93	8	81	72	59	0.195	0.22
22 TRT1	54	6	44	29	28	0.196	6.21
23 TRT1	62	4	54	52	50	0.214	18.50
24 TRT1	81	6	71	62	60	0.226	18.50
25 TRT2	82	2	56	49	49	0.228	230.42
26 TRT2	87	20	63	49	49	0.213	228.83
27 TRT2	63	4	55	31	21	0.223	40.25
28 TRT2	79	7	68	58	41	0.203	35.88
29 TRT2	41	3	35	28	26	0.230	0.22
30 TRT2	84	10	70	65	65	0.227	0.22
31 TRT2	52	0	49	24	18	0.227	0.22
32 TRT2	76	4	68	62	62	0.215	6.21
33 TRT2	73	3	66	65	65	0.218	18.50
34 TRT2	95	4	87	1	1	0.203	18.50
35 TRT2	55	4	47	30	30	0.220	18.50
36 TRT2	64	10	50	37	37	0.213	18.50
37 TRT3	54	2	48	47	47	0.205	18.50
38 TRT3	89	3	82	67	67	0.211	18.50
39 TRT3	78	6	68	55	54	0.208	18.50
40 TRT3	86	2	80	75	75	0.233	18.50
41 TRT3	84	7	73	57	54	0.234	18.50
42 TRT3	55	6	45	44	43	0.223	18.50
43 TRT3	69	5	60	37	36	0.208	18.50
44 TRT3	67	1	62	59	58	0.225	18.50
45 TRT3	55	7	44	37	35	0.210	18.50
46 TRT3	79	1	74	73	73	0.192	18.50
47 TRT3	54	2	48	45	44	0.220	18.50
48 TRT3							

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 11:51 Thursday, January 4, 1996

LEVEL	CONTROL	TRT1	TRT2	TRT3	MEAN	STD DEV	CV
EL	67.83	66.92	69.50	69.50	67.83	3.745	5.51
EC							
ES							
VE							
LE							
NH							
THICK							
HATWT							
SURVWT							
FOOD							
POSTWT							
HR							

File:A:43624602.OUT Page 2

Variable	Label	N	Mean	Std Dev	CV
EL		12	67.833	23.151	34.129
EC		12	2.917	3.088	105.886
ES		12	61.167	22.323	36.496
VE		12	52.917	23.581	44.563
LE		12	51.750	24.008	46.392
NH		12	32.167	17.585	54.669
THICK		8	35.750	14.190	39.692
HATWT		8	0.220	0.009	4.225
SURVWT		8	6.488	0.327	5.041
FOOD		8	18.375	1.598	8.697
PREWT		12	197.667	6.583	3.330
POSTWT		12	234.833	12.855	5.474
HR		8	38.000	15.288	40.231
ES_EL	ES/EL (%)	12	89.005	5.655	6.353
NH_EL	NH/EL (%)	12	43.463	18.075	41.588
ENC_EL	(EL-EC)/EL (%)	12	95.900	4.212	4.392
VE_ES	VE/ES (%)	12	80.048	24.151	30.171
NH_ES	NH/ES (%)	12	48.353	19.405	40.133
LE_VE	LE/VE (%)	12	97.250	3.745	3.851

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 11:51 Thursday, January 4, 1996

LEVEL=CONTROL

NH LE 12 64.601 18.415 28.507  
 NH/LE (%) 8 93.984 4.177 4.444  
 HS\_HR

LEVEL=TRT1

Variable Label	N	Mean	Std Dev	CV
EL	12	66.917	16.506	24.666
EC	12	6.167	3.243	52.584
ES	12	57.000	13.967	24.504
VE	12	50.583	13.480	26.650
LE	12	49.667	13.527	27.235
NH	12	35.333	12.198	34.522
HS	8	35.750	13.761	38.491
THICK	12	0.212	0.012	5.489
HATWT	8	6.213	0.253	4.076
SURVWT	8	19.375	2.200	11.354
FOOD	0			
PREWT	12	197.583	8.107	4.103
POSTWT	12	230.417	7.681	3.333
HR	8	40.250	14.714	36.556
ES_EL	12	85.440	3.963	4.638
NH/LE (%)	12	52.261	10.608	20.298
ENC_EL	12	91.226	4.286	4.698
VE/ES (%)	12	88.426	9.184	10.387
NH/ES (%)	12	61.218	12.323	20.130
LE/VE (%)	12	98.035	1.595	1.627
NH/LE (%)	12	70.642	11.925	16.881
HS_HR (%)	8	88.598	6.745	7.614

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

11:31 Thursday, January 4, 1996

LEVEL=TRT2

Variable Label	N	Mean	Std Dev	CV
EL	12	69.500	17.438	25.091
EC	12	7.000	6.980	99.721
ES	12	58.667	14.575	24.843
VE	12	41.000	20.023	48.836
LE	12	40.833	20.149	49.344
NH	12	28.583	14.139	49.465
HS	8	32.250	17.661	54.764
THICK	12	0.218	0.009	4.338
HATWT	8	6.213	0.275	4.424
SURVWT	8	18.500	2.619	14.155
FOOD	0			
PREWT	12	196.250	7.700	3.924
POSTWT	12	228.833	12.082	5.280
HR	8	35.875	18.909	52.708
ES_EL	12	84.920	7.537	8.875
NH/LE (%)	12	42.084	17.137	40.721
ENC_EL	12	90.709	7.877	8.684
VE/ES (%)	12	71.534	26.775	37.430
NH/ES (%)	12	50.049	19.762	39.485
LE/VE (%)	12	99.405	2.062	2.074
NH/LE (%)	12	72.989	11.851	16.237
HS_HR (%)	8	90.367	6.412	7.095

LEVEL=TRT3

Variable Label	N	Mean	Std Dev	CV
EL	12	69.500	17.438	25.091
EC	12	7.000	6.980	99.721
ES	12	58.667	14.575	24.843
VE	12	41.000	20.023	48.836
LE	12	40.833	20.149	49.344
NH	12	28.583	14.139	49.465
HS	8	32.250	17.661	54.764
THICK	12	0.218	0.009	4.338
HATWT	8	6.213	0.275	4.424
SURVWT	8	18.500	2.619	14.155
FOOD	0			
PREWT	12	196.250	7.700	3.924
POSTWT	12	228.833	12.082	5.280
HR	8	35.875	18.909	52.708
ES_EL	12	84.920	7.537	8.875
NH/LE (%)	12	42.084	17.137	40.721
ENC_EL	12	90.709	7.877	8.684
VE/ES (%)	12	71.534	26.775	37.430
NH/ES (%)	12	50.049	19.762	39.485
LE/VE (%)	12	99.405	2.062	2.074
NH/LE (%)	12	72.989	11.851	16.237
HS_HR (%)	8	90.367	6.412	7.095

EL 12 69.500 13.359 19.221  
 EC 12 4.333 2.902 66.980  
 ES 12 51.167 14.044 22.961  
 VE 12 52.750 13.765 26.095  
 LE 12 51.917 14.074 27.109  
 NH 12 35.750 11.717 32.776  
 HS 8 33.875 0.012 45.225  
 THICK 12 0.215 6.275 5.685  
 HATWT 8 6.213 0.377 6.008  
 SURVWT 8 19.375 1.598 8.248  
 FOOD 0 198.750 5.311 2.672  
 PREWT 12 227.667 13.674 6.006  
 POSTWT 12 40.500 16.266 40.162  
 HR 8 87.511 5.192 5.932  
 ES\_EL 12 51.759 14.982 28.945  
 NH/LE (%) 12 93.467 4.692 5.020  
 ENC\_EL 12 86.453 11.636 13.459  
 VE/ES (%) 12 58.801 15.224 25.891  
 NH/ES (%) 12 98.218 1.964 1.999  
 LE/VE (%) 12 68.559 10.944 15.963  
 NH/LE (%) 12 82.559 10.286 12.458  
 HS\_HR (%) 8

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

1. ANALYSIS OF EGGS LAID

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

1. ANALYSIS OF EGGS LAID

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

1. ANALYSIS OF EGGS LAID

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	59.229167	19.743056	0.06	0.9799

R-Square	C.V.	Root MSE	EL Mean
0.004154	26.25020	17.965	68.438

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	59.229167	19.743056	0.06	0.9799

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

1. ANALYSIS OF EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	LSMEAN	EL	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
			1/j	2 3 4
CONTROL	67.8333333	1	0.9011	0.8213 0.8213
TRT1	66.9166667	2	0.9011	0.7263 0.7263
TRT2	69.5000000	3	0.8213	0.7263 1.0000
TRT3	69.5000000	4	0.8213	0.7263 1.0000

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

1. ANALYSIS OF EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: EL

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 322.7405  
Critical Value of Studentized Range= 3.776  
Minimum Significant Difference= 19.582

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT2 - TRT3	-19.582	0.000	19.582
TRT2 - CONTROL	-17.916	1.667	21.249
TRT2 - TRT1	-16.999	2.583	22.166
TRT3 - TRT2	-19.582	0.000	19.582
TRT3 - CONTROL	-17.916	1.667	21.249
TRT3 - TRT1	-16.999	2.583	22.166
CONTROL - TRT2	-21.249	-1.667	17.916
CONTROL - TRT3	-21.249	-1.667	17.916
CONTROL - TRT1	-18.666	0.917	20.499

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

1. ANALYSIS OF EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: EL

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 322.7405  
Critical Value of Dunnett's T= 2.120  
Minimum Significant Difference= 15.545

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT2 - CONTROL	-13.878	1.667	17.212
TRT3 - CONTROL	-13.878	1.667	17.212
TRT1 - CONTROL	-16.462	-0.917	14.628

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

2. ANALYSIS OF EGGS CRACKED  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

2. ANALYSIS OF EGGS CRACKED  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	CONTROL L2 TRT1 L3 TRT2 L4 TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

2. ANALYSIS OF EGGS CRACKED  
\*\*\*\*\*

23

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	121.22917	40.40972	2.09	0.1147
Error	44	849.25000	19.30114		
Corrected Total	47	970.47917			

R-Square C.V. Root MSE EC Mean  
 0.124917 86.07293 4.3933 5.1042

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	121.22917	40.40972	2.09	0.1147

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

2. ANALYSIS OF EGGS CRACKED  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	LSMEAN	EC	Pr >  T	H0: LSMEAN(I)=LSMEAN(J)
CONTROL	2.91666667	1	0.0768	0.0277 0.4338
TRT1	6.16666667	2	0.0768	0.6445 0.3123
TRT2	7.00000000	3	0.0277	0.6445 0.1442
TRT3	4.33333333	4	0.4338	0.3123 0.1442

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

2. ANALYSIS OF EGGS CRACKED  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: EC

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 19.30114  
 Critical Value of Studentized Range= 3.776  
 Minimum Significant Difference= 4.7888

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT2 - TRT1	-3.955	0.833	5.622
TRT2 - TRT3	-2.122	2.667	7.455

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	121.22917	40.40972	2.09	0.1147
Error	44	849.25000	19.30114		
Corrected Total	47	970.47917			

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 2. ANALYSIS OF EGGS CRACKED  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: EC

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 19.30114  
 Critical Value of Dunnett's T= 2.120  
 Minimum Significant Difference= 3.8015

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT2 - CONTROL	0.282	4.083	7.885
TRT1 - CONTROL	-0.551	3.250	7.051
TRT3 - CONTROL	-2.585	1.417	5.218

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

3. ANALYSIS OF EGGS SET  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

3. ANALYSIS OF EGGS SET  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Coefficients

Effect

LEVEL CONTROL L2  
TRT1 L3  
TRT2 L4  
TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

3. ANALYSIS OF EGGS SET  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: ES

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	150.00000	50.00000	0.18	0.9085
Error	44	12134.00000	275.77273		
Corrected Total	47	12284.00000			

R-Square C.V. Root MSE ES Mean  
0.012211 27.90993 16.606 59.500

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	150.00000	50.00000	0.18	0.9085

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

3. ANALYSIS OF EGGS SET  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Least Squares Means

LEVEL	ES	Pr >  T	HO: LSMEAN(I)=LSMEAN(J)	LSMEAN	I/J	2	3	4
CONTROL	61.1666667	1	0.5420	0.7141	1.0000			
TRT1	57.0000000	2	0.5420	0.8070	0.5420			
TRT2	58.6666667	3	0.7141	0.8070	0.7141			
TRT3	61.1666667	4	1.0000	0.5420	0.7141			

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

3. ANALYSIS OF EGGS SET  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: ES

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 275.7727  
Critical Value of Studentized Range= 3.776  
Minimum Significant Difference= 18.101

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
CONTROL - TRT3	-18.101	0.000	18.101
CONTROL - TRT2	-15.601	2.500	20.601
CONTROL - TRT1	-13.935	4.167	22.268
TRT3 - CONTROL	-18.101	0.000	18.101
TRT3 - TRT2	-15.601	2.500	20.601
TRT3 - TRT1	-13.935	4.167	22.268
TRT2 - CONTROL	-20.601	-2.500	15.601
TRT2 - TRT3	-20.601	-2.500	15.601
TRT2 - TRT1	-16.435	1.667	19.768
TRT1 - CONTROL	-22.268	-4.167	13.935
TRT1 - TRT3	-22.268	-4.167	13.935
TRT1 - TRT2	-19.768	-1.667	16.435

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
3. ANALYSIS OF EGGS SET  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: ES

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 275.7727  
Critical Value of Dunnett's T= 2.120  
Minimum Significant Difference= 14.369

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT3 - CONTROL	-14.369	0.000	14.369
TRT2 - CONTROL	-16.869	-2.500	11.869
TRT1 - CONTROL	-18.536	-4.167	10.203

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
4. ANALYSIS OF VIABLE EMBRYOS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

12



General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect Coefficients

INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 4. ANALYSIS OF VIABLE EMBRYOS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: VE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	1146.2292	382.0764	1.15	0.3393
Error	44	14610.0833	332.0473		
Corrected Total	47	15756.3125			

R-Square C.V. Root MSE VE Mean  
 0.072747 36.95243 18.222 49.313

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	1146.2292	382.0764	1.15	0.3393

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 4. ANALYSIS OF VIABLE EMBRYOS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	VE	LSMEAN	Pr >  T	HO: LSMEAN(i)=LSMEAN(j)
			1/j	2 3 4
CONTROL	52.9166667	1	0.7553	0.1163 0.9822
TRT1	50.5833333	2	0.7553	0.2044 0.7722
TRT2	41.0000000	3	0.1163	0.2044 0.1214
TRT3	52.7500000	4	0.9822	0.7722 0.1214

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 4. ANALYSIS OF VIABLE EMBRYOS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: VE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 332.0473  
 Critical Value of Studentized Range= 3.776  
 Minimum Significant Difference= 19.863

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
CONTROL - TRT3	-19.696	0.167	20.029
CONTROL - TRT1	-17.529	2.333	22.196
CONTROL - TRT2	-7.946	11.917	31.779
TRT3 - CONTROL	-20.029	-0.167	19.696
TRT3 - TRT1	-17.696	2.167	22.029
TRT3 - TRT2	-8.113	11.750	31.613
TRT1 - CONTROL	-22.196	-2.333	17.529
TRT1 - TRT3	-22.029	-2.167	17.696
TRT1 - TRT2	-10.279	9.583	29.446
TRT2 - CONTROL	-31.779	-11.917	7.946
TRT2 - TRT3	-31.613	-11.750	8.113
TRT2 - TRT1	-29.446	-9.583	10.279

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 4. ANALYSIS OF VIABLE EMBRYOS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: VE

NOTE: This test controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 332.0473  
 Critical Value of Dunnett's T= 2.120  
 Minimum Significant Difference= 15.767

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT3 - CONTROL	-15.934	-0.167	15.601
TRT1 - CONTROL	-18.101	-2.333	13.434
TRT2 - CONTROL	-27.684	-11.917	3.851

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 5. ANALYSIS OF LIVE 3-WEEK EMBRYOS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect Coefficients

Effect	INTERCEPT	0
LEVEL	CONTROL	L2
	TRT1	L3
	TRT2	L4
	TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: LE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	988.41667	329.47222	0.97	0.4170
Error	44	14997.50000	340.85227		
Corrected Total	47	15985.91667			

R-Square	C.V.	Root MSE	LE Mean
0.061830	38.03369	18.462	48.542

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	988.41667	329.47222	0.97	0.4170

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	LE	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
	LSMEAN	i/j	2 3 4
CONTROL	51.7500000	1	0.7835 0.1546 0.9825
TRT1	49.6666667	2	0.7835 0.2475 0.7667
TRT2	40.8333333	3	0.1546 0.2475 0.1485

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: LE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 340.8523  
Critical Value of Studentized Range= 3.776  
Minimum Significant Difference= 20.124

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT3 - CONTROL	-19.958	0.167	20.291
TRT3 - TRT1	-17.874	2.250	22.374
TRT3 - TRT2	-9.041	11.083	31.208
CONTROL - TRT3	-20.291	-0.167	19.958
CONTROL - TRT1	-18.041	2.083	22.208
CONTROL - TRT2	-9.208	10.917	31.041
TRT1 - TRT3	-22.374	-2.250	17.874
TRT1 - CONTROL	-22.208	-2.083	18.041
TRT1 - TRT2	-11.291	8.833	28.958
TRT2 - TRT3	-31.208	-11.083	9.041
TRT2 - CONTROL	-31.041	-10.917	9.208
TRT2 - TRT1	-28.958	-8.833	11.291

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: LE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 340.8523  
Critical Value of Dunnett's T= 2.120  
Minimum Significant Difference= 15.975

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT3 - CONTROL	-15.808	0.167	16.142

TRT1 - CONTROL -2.083 13.892  
 TRT2 - CONTROL -26.892 -10.917 5.058

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 6. ANALYSIS OF NORMAL HATCHLINGS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 6. ANALYSIS OF NORMAL HATCHLINGS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect Coefficients

LEVEL	INTERCEPT	0
CONTROL	L2	
TRT1	L3	
TRT2	L4	
TRT3	-L2-L3-L4	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 6. ANALYSIS OF NORMAL HATCHLINGS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	398.41667	132.80556	0.67	0.5762
Error	44	8747.50000	198.80682		
Corrected Total	47	9145.91667			

R-Square	C.V.	Root MSE	NH Mean
0.043562	42.78095	14.100	32.958

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	398.41667	132.80556	0.67	0.5762

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 6. ANALYSIS OF NORMAL HATCHLINGS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	LSMEAN	NH	Pr >  T	H0: LSMEAN(I)=LSMEAN(J)
CONTROL	32.1666667	1	0.5850	0.5368 0.5368
TRT1	35.3333333	2	0.5850	0.2473 0.9426
TRT2	28.5833333	3	0.5368	0.2473 0.2197
TRT3	35.7500000	4	0.5368	0.9426 0.2197

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 6. ANALYSIS OF NORMAL HATCHLINGS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: NH

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 198.8068  
 Critical Value of Studentized Range= 3.776  
 Minimum Significant Difference= 15.369

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL Comparison	Simultaneous Confidence Limit		Difference Between Means	Upper Limit
	Lower Limit	Confidence Limit		
TRT3 - TRT1	-14.953	-11.786	0.417	15.786
TRT3 - CONTROL	-11.786	-8.203	3.583	18.953
TRT3 - TRT2	-8.203	-4.820	7.167	22.536
TRT1 - TRT3	-15.786	-12.203	-0.417	14.953
TRT1 - CONTROL	-12.203	-8.619	3.167	18.536
TRT1 - TRT2	-8.619	-5.036	6.750	22.119
CONTROL - TRT3	-18.953	-15.369	-3.583	11.786
CONTROL - TRT1	-15.369	-11.786	-3.167	12.203
CONTROL - TRT2	-11.786	-8.203	3.583	18.953
TRT2 - TRT3	-22.536	-18.953	-7.167	8.203
TRT2 - TRT1	-18.953	-15.369	-6.750	8.619
TRT2 - CONTROL	-15.369	-11.786	-3.583	11.786

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 6. ANALYSIS OF NORMAL HATCHLINGS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: NH

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 198.8068  
 Critical Value of Dunnnett's T= 2.120

2

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT3 - CONTROL	-8.617	3.583	15.784
TRT1 - CONTROL	-9.034	3.167	15.367
TRT2 - CONTROL	-15.784	-3.583	8.617

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

7. ANALYSIS OF HATCHLINGS REARED  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Class Level Information

Class Levels	Values
LEVEL 4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

NOTE: Due to missing values, only 32 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

7. ANALYSIS OF HATCHLINGS REARED  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	L2 L3 L4 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

7. ANALYSIS OF HATCHLINGS REARED  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: HR	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source	3	112.84375	37.61458	0.14	0.9350
Model	28	7506.37500	268.08482		
Error	31	7619.21875			
Corrected Total					

R-Square C.V. Root MSE HR Mean

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	112.84375	37.61458	0.14	0.9350

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

7. ANALYSIS OF HATCHLINGS REARED  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	LSMEAN	HR	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
CONTROL	38.0000000	1	0.7855	0.7971 0.7623
TRT1	40.2500000	2	0.7855	0.5973 0.9759
TRT2	35.8750000	3	0.7971	0.5973 0.5766
TRT3	40.5000000	4	0.7623	0.9759 0.5766

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

7. ANALYSIS OF HATCHLINGS REARED  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: HR

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 268.0848  
Critical Value of Studentized Range= 3.861  
Minimum Significant Difference= 22.352

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT3 - TRT1	-22.102	0.250	22.602
TRT3 - CONTROL	-19.852	2.500	24.852
TRT3 - TRT2	-17.727	4.625	26.977
TRT1 - TRT3	-22.602	-0.250	22.102
TRT1 - CONTROL	-20.102	2.250	24.602
TRT1 - TRT2	-17.977	4.375	26.727
CONTROL - TRT3	-24.852	-2.500	19.852
CONTROL - TRT1	-24.602	-2.250	20.102
CONTROL - TRT2	-20.227	2.125	24.477
TRT2 - TRT3	-26.977	-4.625	17.727
TRT2 - TRT1	-26.727	-4.375	17.977
TRT2 - CONTROL	-24.477	-2.125	20.227

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

Dependent Variable: HS

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	68.343750	22.781250	0.10	0.9609
Error	28	6561.375000	234.334821		
Corrected Total	31	6629.718750			

R-Square 0.010309  
 C.V. 44.49191  
 Root MSE 15.308  
 HS Mean 34.406

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	68.343750	22.781250	0.10	0.9609

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 8. ANALYSIS OF 14-DAY-OLD SURVIVORS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	LSMEAN	HS Pr >  T	HO: LSMEAN(i)=LSMEAN(j)
CONTROL	35.7500000	1	1.0000 0.6510 0.8083
TRT1	35.7500000	2	1.0000 0.6510 0.8083
TRT2	32.2500000	3	0.6510 0.8083 0.8334
TRT3	33.8750000	4	0.8083 0.8334

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 8. ANALYSIS OF 14-DAY-OLD SURVIVORS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: HS

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 234.3348  
 Critical Value of Studentized Range= 3.861  
 Minimum Significant Difference= 20.898

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
CONTROL - TRT1	-20.898	0.000	20.898
CONTROL - TRT3	-19.023	1.875	22.773
CONTROL - TRT2	-17.398	3.500	24.598
TRT1 - CONTROL	-20.898	0.000	20.898

7. ANALYSIS OF HATCHLINGS REARED  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: HR

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 268.0848  
 Critical Value of Dunnnett's T= 2.154  
 Minimum Significant Difference= 17.631

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT3 - CONTROL	-15.131	2.500	20.131
TRT1 - CONTROL	-15.581	2.250	19.881
TRT2 - CONTROL	-19.756	-2.125	15.506

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 8. ANALYSIS OF 14-DAY-OLD SURVIVORS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

NOTE: Due to missing values, only 32 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 8. ANALYSIS OF 14-DAY-OLD SURVIVORS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect Coefficients

INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 8. ANALYSIS OF 14-DAY-OLD SURVIVORS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

29

TRT1 - TRT3	-19.023	1.875	22.773
TRT1 - TRT2	-17.398	3.500	24.398
TRT3 - CONTROL	-22.773	-1.875	19.023
TRT1 - TRT2	-22.773	-1.875	19.023
TRT1 - TRT3	-19.273	1.625	22.523
TRT2 - CONTROL	-24.398	-3.500	17.398
TRT2 - TRT1	-24.398	-3.500	17.398
TRT2 - TRT3	-22.523	-1.625	19.273

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

8. ANALYSIS OF 14-DAY-OLD SURVIVORS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: HS

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 234.3348  
Critical Value of Dunnnett's T= 2.154  
Minimum Significant Difference= 16.484

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL	Comparison	Simultaneous		Difference		Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit	Between Means	Upper Confidence Limit		
TRT1	- CONTROL	-16.484	0.000	0.000	16.484		
TRT3	- CONTROL	-18.359	-1.875	-1.875	14.609		
TRT2	- CONTROL	-19.984	-3.500	-3.500	12.984		

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

9. ANALYSIS OF EGGS SET/EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

9. ANALYSIS OF EGGS SET/EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	CONTROL L2

TRT1  
TRT2  
TRT3  
-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

9. ANALYSIS OF EGGS SET/EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	12847.382	4282.461	3.00	0.0407
Error	44	62886.707	1429.243		
Corrected Total	47	75734.089			

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	12847.382	4282.461	3.00	0.0407

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

9. ANALYSIS OF EGGS SET/EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	RESPONSE	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
	LSMEAN	1/j	2 3 4
CONTROL	72.0693123	1	0.0187 0.0133 0.2895
TRT1	67.4767481	2	0.0187 0.9096 0.1719
TRT2	67.2633952	3	0.0133 0.9096 0.1364
TRT3	70.0722754	4	0.2895 0.1719 0.1364

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

9. ANALYSIS OF EGGS SET/EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (MSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 1429.243  
Critical Value of Studentized Range= 3.776  
Minimum Significant Difference= 41.209

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Confidence Limit		Difference Between Means	Simultaneous Confidence Limit	
	Lower Limit	Upper Limit		Lower Limit	Upper Limit
CONTROL - TRT3	-39.212	43.206	1.997	39.212	43.206
CONTROL - TRT1	-36.616	45.801	4.593	43.804	45.801
CONTROL - TRT2	-36.403	46.015	4.806	44.018	46.015
TRT3 - CONTROL	-43.206	39.212	-1.997	39.212	39.212
TRT3 - TRT1	-38.613	43.804	2.596	43.804	43.804
TRT3 - TRT2	-38.400	44.018	2.809	44.018	44.018
TRT1 - CONTROL	-45.801	36.616	-4.593	36.616	36.616
TRT1 - TRT3	-43.804	38.613	-2.596	38.613	38.613
TRT1 - TRT2	-40.995	41.422	0.213	41.422	41.422
TRT2 - CONTROL	-46.015	36.403	-4.806	36.403	36.403
TRT2 - TRT3	-44.018	38.400	-2.809	38.400	38.400
TRT2 - TRT1	-41.422	40.995	-0.213	40.995	40.995

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
9. ANALYSIS OF EGGS SET/EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996  
General Linear Models Procedure

Dunnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 1429.243  
Critical Value of Dunnett's T= 2.120  
Minimum Significant Difference= 32.712

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Confidence Limit		Difference Between Means	Simultaneous Confidence Limit	
	Lower Limit	Upper Limit		Lower Limit	Upper Limit
TRT3 - CONTROL	-34.710	30.715	-1.997	30.715	30.715
TRT1 - CONTROL	-37.305	28.120	-4.593	28.120	28.120
TRT2 - CONTROL	-37.518	27.907	-4.806	27.907	27.907

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996  
General Linear Models Procedure  
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	90777.531	30259.177	2.58	0.0654
Error	44	515807.198	11722.891		
Corrected Total	47	606584.728			

R-Square	C.V.	Root MSE	RESPONSE Mean
0.149654	160.9773	108.27	67.259

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	90777.531	30259.177	2.58	0.0654

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	RESPONSE	Pr >  T	HO: LSMEAN(i)=LSMEAN(j)
	LSMEAN	1/ j	2 3 4
CONTROL	69.6483264	1	0.7109 0.0391 0.9506
TRT1	71.7948650	2	0.7109 0.0180 0.7567
TRT2	57.5036954	3	0.0391 0.0180 0.0340
TRT3	70.0007714	4	0.9506 0.7567 0.0340

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

2

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 11722.89  
 Critical Value of Studentized Range= 3.776  
 Minimum Significant Difference= 118.02

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1 - TRT3	-116.23	119.81	1.79	119.81	119.81
TRT1 - CONTROL	-115.87	120.17	2.15	120.17	120.17
TRT1 - TRT2	-103.73	152.31	14.29	152.31	152.31
TRT3 - TRT1	-119.81	116.23	-1.79	116.23	116.23
TRT3 - CONTROL	-117.67	118.37	0.35	118.37	118.37
TRT3 - TRT2	-105.52	130.52	12.50	130.52	130.52
CONTROL - TRT1	-120.17	115.87	-2.15	115.87	115.87
CONTROL - TRT3	-118.37	117.67	-0.35	117.67	117.67
CONTROL - TRT2	-105.87	130.16	12.14	130.16	130.16
TRT2 - TRT1	-132.31	103.73	-14.29	103.73	103.73
TRT2 - TRT3	-130.52	105.52	-12.50	105.52	105.52
TRT2 - CONTROL	-130.16	105.87	-12.14	105.87	105.87

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 11722.89  
 Critical Value of Dunnnett's T= 2.120  
 Minimum Significant Difference= 93.687

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1 - CONTROL	-91.54	95.83	2.15	95.83	95.83
TRT3 - CONTROL	-93.33	94.04	0.35	94.04	94.04
TRT2 - CONTROL	-105.83	81.54	-12.14	81.54	81.54

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	9230.2459	3076.7486	2.16	0.1059
Error	44	62577.5026	1422.2160		
Corrected Total	47	71807.7485			

R-Square	C.V.	Root MSE	RESPONSE Mean
0.128541	44.21515	37.712	85.293

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	9230.2459	3076.7486	2.16	0.1059

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	RESPONSE	Pr >  T	LSMEAN(i)=LSMEAN(j)
CONTROL	84.1453124	1	0.9031 0.0347 0.7410
TRT1	83.8832580	2	0.9031 0.0280 0.6541
TRT2	89.0819534	3	0.0347 0.0280 0.0686

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EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIALE EMBRYOS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 1422.216  
 Critical Value of Studentized Range= 3.776  
 Minimum Significant Difference= 41.107

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT2 - TRT3	-36.875	4.232	45.339
TRT2 - CONTROL	-36.171	4.937	46.044
TRT2 - TRT1	-35.909	5.199	46.306
TRT3 - TRT2	-45.339	-4.232	36.875
TRT3 - CONTROL	-40.403	0.705	41.812
TRT3 - TRT1	-40.141	0.967	42.074
CONTROL - TRT2	-46.044	-4.937	36.171
CONTROL - TRT3	-41.812	-0.705	40.403
CONTROL - TRT1	-40.845	0.262	41.369
TRT1 - TRT2	-46.306	-5.199	35.909
TRT1 - TRT3	-42.074	-0.967	40.141
TRT1 - CONTROL	-41.369	-0.262	40.845

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIALE EMBRYOS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 1422.216  
 Critical Value of Dunnnett's T= 2.120  
 Minimum Significant Difference= 32.632

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT2 - CONTROL	-27.695	4.937	37.569

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE	Sum of Squares	Mean Square	F Value	Pr > F
Source	DF			
Model	3	11777.796	3925.932	1.30
Error	44	133037.639	3023.583	0.2869
Corrected Total	47	144815.435		

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	11777.796	3925.932	1.30	0.2869

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
 \*\*\*\*\*

88

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	RESPONSE	Pr >  T	H0: LSMEAN(I)=LSMEAN(J)
LSMEAN	1/J	1	2 3 4
CONTROL	52.1783500	1	0.0796 0.1490 0.1644
TRT1	57.8366249	2	0.0796 0.8177 0.6936
TRT2	57.0588508	3	0.1490 0.8177 0.8877
TRT3	56.5872946	4	0.1644 0.6936 0.8877

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 3023.583  
Critical Value of Studentized Range= 3.776  
Minimum Significant Difference= 59.937

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT1 - TRT2	-59.160	0.778	60.715
TRT1 - TRT3	-58.688	1.249	61.187
TRT1 - CONTROL	-54.279	5.658	65.596
TRT2 - TRT1	-60.715	-0.778	59.160
TRT2 - TRT3	-59.466	0.472	60.409
TRT2 - CONTROL	-55.057	4.881	64.818
TRT3 - TRT1	-61.187	-1.249	58.688
TRT3 - TRT2	-60.409	-0.472	59.466
TRT3 - CONTROL	-55.528	4.409	64.346
CONTROL - TRT1	-65.596	-5.658	54.279
CONTROL - TRT2	-64.818	-4.881	55.057
CONTROL - TRT3	-64.346	-4.409	55.528

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
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11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: RESPONSE

NOTE: This test controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 3023.583

Critical Value of Dunnett's T= 2.120  
Minimum Significant Difference= 47.58

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT1 - CONTROL	-41.921	5.658	53.238
TRT2 - CONTROL	-42.699	4.881	52.460
TRT3 - CONTROL	-43.171	4.409	51.989

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	CONTROL L2 TRT1 L3 TRT2 L4 TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID  
\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE  
Weight: EL

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	32232.849	10744.283	1.60	0.2039
Error	44	296233.329	6732.576		
Corrected Total	47	328466.178			

R-Square	C.V.	Root MSE	RESPONSE Mean
0.098131	188.2186	82.052	43.594

04

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	32232.849	10744.283	1.60	0.2039

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	RESPONSE	Pr >  T	HO: LSMEAN(i)=LSMEAN(j)
	LSMEAN	i/j	1 2 3 4
CONTROL	43.2987853	1	0.4216 0.2568 0.5203
TRT1	46.6094950	2	0.4216 0.0562 0.8656
TRT2	38.6541515	3	0.2568 0.0562 0.0774
TRT3	45.9191069	4	0.5203 0.8656 0.0774

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 6732.576  
 Critical Value of Studentized Range= 3.776  
 Minimum Significant Difference= 89.439

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL	Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT1	- TRT3	-88.749	0.690	90.129
TRT1	- CONTROL	-86.128	3.311	92.750
TRT1	- TRT2	-81.484	7.955	97.394
TRT3	- TRT1	-90.129	-0.690	88.749
TRT3	- CONTROL	-86.819	2.620	92.059
TRT3	- TRT2	-82.174	7.265	96.704
CONTROL	- TRT1	-92.750	-3.311	86.128
CONTROL	- TRT3	-92.059	-2.620	86.819
CONTROL	- TRT2	-84.794	4.645	94.084
TRT2	- TRT1	-97.394	-7.955	81.484
TRT2	- TRT3	-96.704	-7.265	82.174
TRT2	- CONTROL	-94.084	-4.645	84.794

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID  
 \*\*\*\*\*

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 6732.576  
 Critical Value of Dunnett's T= 2.120  
 Minimum Significant Difference= 70.999

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL	Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT1	- CONTROL	-67.688	3.311	74.310
TRT3	- CONTROL	-68.378	2.620	73.619
TRT2	- CONTROL	-75.643	-4.645	66.354

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

NOTE: Due to missing values, only 32 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	CONTROL L2 TRT1 L3 TRT2 L4 TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	15566.393	5188.798	3.06	0.0444
Error	28	47462.958	1695.106		
Corrected Total	31	63029.351			

R-Square	C.V.	Root MSE	RESPONSE Mean
0.246971	57.38166	41.172	71.751

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	15566.393	5188.798	3.06	0.0444

General Linear Models Procedure  
 Least Squares Means

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

LEVEL	RESPONSE	Pr >  T	H0: LSMEAN(1)=LSMEAN(J)
	LSMEAN	i/j	2 3 4
CONTROL	76.9766291	1	0.0989 0.1514 0.0053
TRT1	71.5558032	2	0.0989 0.8534 0.1933
TRT2	71.9790132	3	0.1514 0.8534 0.1498
TRT3	67.0370223	4	0.0953 0.1933 0.1498

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 1695.106  
 Critical Value of Studentized Range= 3.861  
 Minimum Significant Difference= 56.206

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL Comparison	Simultaneous		
	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
CONTROL - TRT2	-51.208	4.998	61.203
CONTROL - TRT1	-50.585	5.621	61.827
CONTROL - TRT3	-46.266	9.940	66.145
TRT2 - CONTROL	-61.203	-4.998	51.208

TRT2 - TRT1	0.623	56.829
TRT2 - TRT3	4.942	61.148
TRT1 - CONTROL	-5.621	50.585
TRT1 - TRT2	-0.623	55.583
TRT1 - TRT3	4.319	60.525
TRT3 - CONTROL	-9.940	46.266
TRT3 - TRT2	-4.942	51.264
TRT3 - TRT1	-4.319	51.887

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 1695.106  
 Critical Value of Dunnett's T= 2.154  
 Minimum Significant Difference= 44.335

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL Comparison	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit
TRT2 - CONTROL	-49.333	39.338
TRT1 - CONTROL	-49.956	38.714
TRT3 - CONTROL	-54.275	34.396

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL CONTROL	L2

2

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE  
 Weight: EL

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	20769.289	6923.096	2.66	0.0596
Error	44	114402.432	2600.055		
Corrected Total	47	135171.721			

R-Square 0.153651  
 C.V. 67.69254  
 Root MSE 50.991  
 RESPONSE Mean 75.327

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	20769.289	6923.096	2.66	0.0596

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	RESPONSE	Pr >  T	HO: LSMEAN(i)=LSMEAN(j)
	LSMEAN	i/j	2 3 4
CONTROL	78.9606251	1	0.0238 0.0207 0.3134
TRT1	73.0205103	2	0.0238 0.9715 0.1872
TRT2	72.9297842	3	0.0207 0.9715 0.1718
TRT3	76.3983640	4	0.3134 0.1872 0.1718

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 2600.055  
 Critical Value of Studentized Range= 3.776  
 Minimum Significant Difference= 55.581

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

Simultaneous Lower Confidence Limit  
 Difference Between Means  
 Simultaneous Upper Confidence Limit

LEVEL Comparison	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
CONTROL - TRT3	-53.019	2.562	58.143
CONTROL - TRT1	-49.641	5.940	61.521
CONTROL - TRT2	-49.550	6.031	61.612
TRT3 - CONTROL	-58.143	-2.562	53.019
TRT3 - TRT1	-52.203	3.378	58.959
TRT3 - TRT2	-52.113	3.469	59.050
TRT1 - CONTROL	-61.521	-5.940	49.641
TRT1 - TRT3	-58.959	-3.378	52.203
TRT1 - TRT2	-55.490	0.091	55.672
TRT2 - CONTROL	-61.612	-6.031	49.550
TRT2 - TRT3	-59.050	-3.469	52.113
TRT2 - TRT1	-55.672	-0.091	55.490

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 2600.055  
 Critical Value of Dunnett's t= 2.120  
 Minimum Significant Differences= 44.122

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

Simultaneous Lower Confidence Limit  
 Difference Between Means  
 Simultaneous Upper Confidence Limit

LEVEL Comparison	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT3 - CONTROL	-46.684	-2.562	41.559
TRT1 - CONTROL	-50.062	-5.940	38.182
TRT2 - CONTROL	-50.152	-6.031	38.091

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET  
 \*\*\*\*\*  
 11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect Coefficients

INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE  
Weight: ES

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	34147.341	11382.447	1.54	0.2165
Error	44	324336.611	7371.287		
Corrected Total	47	358483.951			

R-Square 0.095255  
C.V. 179.2104  
Root MSE 85.856  
RESPONSE Mean 47.908

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	34147.341	11382.447	1.54	0.2165

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	RESPONSE	Pr >  T	LSMEAN(i)=LSMEAN(j)
	LSMEAN	1/j	2 3 4
CONTROL	46.3725876	1	0.2160 0.4679 0.3989
TRT1	52.1005119	2	0.2160 0.0561 0.6775
TRT2	43.0562814	3	0.4679 0.0561 0.1224
TRT3	50.1900797	4	0.3989 0.6775 0.1224

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 7371.287  
Critical Value of Studentized Ranges= 3.776  
Minimum Significant Difference= 93.585

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT1 - TRT3	-91.675	1.910	95.496
TRT1 - CONTROL	-87.858	5.728	99.313
TRT1 - TRT2	-84.541	9.044	102.630
TRT3 - TRT1	-95.496	-1.910	91.675
TRT3 - CONTROL	-89.768	3.817	97.403
TRT3 - TRT2	-86.452	7.134	100.719
CONTROL - TRT1	-99.313	-5.728	87.858
CONTROL - TRT3	-97.403	-3.817	89.768
CONTROL - TRT2	-90.269	3.316	96.902
TRT2 - TRT1	-102.630	-9.044	84.541
TRT2 - TRT3	-100.719	-7.134	86.452
TRT2 - CONTROL	-96.902	-3.316	90.269

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 7371.287  
Critical Value of Dunnett's T= 2.120  
Minimum Significant Difference= 74.29

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT1 - CONTROL	-68.562	5.728	80.018
TRT3 - CONTROL	-70.473	3.817	78.108
TRT2 - CONTROL	-77.607	-3.316	70.974

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

17. ANALYSIS OF EGGSHELL THICKNESS

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Class Level Information

Class Levels Values  
LEVEL 4 CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

17. ANALYSIS OF EGGSHELL THICKNESS

\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect Coefficients

INTERCEPT 0  
LEVEL CONTROL L2  
TRT1 L3  
TRT2 L4  
TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

17. ANALYSIS OF EGGSHELL THICKNESS

\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: THICK

Source DF Sum of Squares Mean Square F Value Pr > F  
Model 3 0.0004315 0.0001438 1.25 0.3029  
Error 44 0.0050602 0.0001150  
Corrected Total 47 0.0054917

R-Square 0.078574  
C.V. 4.962892  
Root MSE 0.0107  
THICK Mean 0.2161

Source DF Type I SS Mean Square F Value Pr > F  
LEVEL 3 0.0004315 0.0001438 1.25 0.3029

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

17. ANALYSIS OF EGGSHELL THICKNESS

\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL THICK Pr > |t| HO: LSMEAN(i)=LSMEAN(j)  
LSMEAN i/j 1 2 3 4  
CONTROL 0.21958333 1 0.0774 0.7053 0.3186  
TRT1 0.21166667 2 0.0774 0.1605 0.4283  
TRT2 0.21791667 3 0.7053 0.1605 0.5332  
TRT3 0.21516667 4 0.3186 0.4283 0.5332

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

17. ANALYSIS OF EGGSHELL THICKNESS

\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: THICK

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 0.000115  
Critical Value of Studentized Range= 3.776  
Minimum Significant Difference= 0.0117

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
CONTROL - TRT2	-0.010023	0.001667	0.013356
CONTROL - TRT3	-0.007273	0.004417	0.016106
CONTROL - TRT1	-0.003773	0.007917	0.019606
TRT2 - CONTROL	-0.013356	-0.001667	0.010023
TRT2 - TRT3	-0.008939	0.002750	0.014439
TRT2 - TRT1	-0.005439	0.006250	0.017939
TRT3 - CONTROL	-0.016106	-0.004417	0.007273
TRT3 - TRT2	-0.014439	-0.002750	0.008939
TRT3 - TRT1	-0.008189	0.003500	0.015189
TRT1 - CONTROL	-0.019606	-0.007917	0.003773
TRT1 - TRT2	-0.017939	-0.006250	0.005439
TRT1 - TRT3	-0.015189	-0.003500	0.008189

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

17. ANALYSIS OF EGGSHELL THICKNESS

\*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: THICK

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 44 MSE= 0.000115  
Critical Value of Dunnett's T= 2.120  
Minimum Significant Difference= 0.0093

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
CONTROL - CONTROL	-0.010946	-0.001667	0.007613
TRT2 - CONTROL	-0.013696	-0.004417	0.004863

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

NOTE: Due to missing values, only 32 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Coefficients

Effect	INTERCEPT	0
LEVEL	L2	
	L3	
	L4	
	-L2-L3-L4	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: HATWT	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source	3	0.4084375	0.1361458	1.40	0.2632
Model	28	2.7212500	0.0971875		
Error	31	3.1296875			
Corrected Total					
R-Square		C.V.	Root MSE	HATWT Mean	
	0.130504	4.950854	0.3117	6.2969	

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	0.4084375	0.1361458	1.40	0.2632

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 18. ANALYSIS OF HATCHLING WEIGHT

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	HATWT	Pr >  T	H0: LSMEAN(1)=LSMEAN(J)
	LSMEAN	i/j	1 2 3 4
CONTROL	6.48750000	1	0.0886 0.0886 0.1837
TRT1	6.21250000	2	0.0886 1.0000 0.6915
TRT2	6.21250000	3	0.0886 1.0000 0.6915
TRT3	6.27500000	4	0.1837 0.6915 0.6915

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: HATWT

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 0.097188  
 Critical Value of Studentized Range= 3.861  
 Minimum Significant Difference= 0.4256

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
CONTROL - TRT3	-0.2131	0.2125	0.6381
CONTROL - TRT2	-0.1506	0.2750	0.7006
CONTROL - TRT1	-0.1506	0.2750	0.7006
TRT3 - CONTROL	-0.6381	-0.2125	0.2131
TRT3 - TRT2	-0.3631	0.0625	0.4881
TRT3 - TRT1	-0.3631	0.0625	0.4881
TRT2 - CONTROL	-0.7006	-0.2750	0.1506
TRT2 - TRT3	-0.4881	-0.0625	0.3631
TRT2 - TRT1	-0.4256	0.0000	0.4256
TRT1 - CONTROL	-0.7006	-0.2750	0.1506
TRT1 - TRT3	-0.4881	-0.0625	0.3631
TRT1 - TRT2	-0.4256	-0.0000	0.4256

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: HATWT

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.



Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT3 - CONTROL	-0.5482	-0.2125	0.1232
TRT2 - CONTROL	-0.6107	-0.2750	0.0607
TRT1 - CONTROL	-0.6107	-0.2750	0.0607

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class Levels	Values
LEVEL 4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

NOTE: Due to missing values, only 32 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect Coefficients

INTERCEPT	0
LEVEL CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dependent Variable: SURVWT	DF	Sum of Squares	Mean Square	F Value	Pr > F
Source	3	7.0937500	2.3645833	0.56	0.6440
Model	28	117.6250000	4.2008929		
Error	31	124.7187500			
Corrected Total					

C.V. Root MSE SURVWT Mean  
 10.84090 2.0496 18.906

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	7.0937500	2.3645833	0.56	0.6440

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	SURVWT LSMEAN	Pr >  T	HO: LSMEAN(i)=LSMEAN(j)
CONTROL	18.3750000	1	0.3375 0.9038 0.3375
TRT1	19.3750000	2	0.3375 0.4004 1.0000
TRT2	18.5000000	3	0.9038 0.4004 0.4004
TRT3	19.3750000	4	0.3375 1.0000 0.4004

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: SURVWT

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidences 0.95 df= 28 MSE= 4.200893  
 Critical Value of Studentized Range= 3.861  
 Minimum Significant Difference= 2.798

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Confidence Limit		Difference Between Means	Simultaneous Confidence Limit	
	Lower	Upper		Lower	Upper
TRT1 - TRT3	-2.798	0.000	0.000	2.798	
TRT1 - TRT2	-1.923	0.875	0.875	3.673	
TRT1 - CONTROL	-1.798	1.000	1.000	3.798	
TRT3 - TRT1	-2.798	0.000	0.000	2.798	
TRT3 - TRT2	-1.923	0.875	0.875	3.673	
TRT3 - CONTROL	-1.798	1.000	1.000	3.798	
TRT2 - TRT1	-3.673	-0.875	-0.875	1.923	
TRT2 - TRT3	-3.673	-0.875	-0.875	1.923	
TRT2 - CONTROL	-2.673	0.125	0.125	2.923	
CONTROL - TRT1	-3.798	-1.000	-1.000	1.798	
CONTROL - TRT3	-3.798	-1.000	-1.000	1.798	
CONTROL - TRT2	-2.923	-0.125	-0.125	2.673	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BORBWHITES  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: SURWT

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 4.200893  
 Critical Value of Dunnnett's T= 2.154  
 Minimum Significant Difference= 2.2071

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit		Difference Between Means		Simultaneous Upper Confidence Limit	
	Lower Limit	Upper Limit	Difference	Means	Upper Limit	Lower Limit
TRT1 - CONTROL	-1.207	3.207	1.000	1.000	3.207	3.207
TRT3 - CONTROL	-1.207	3.207	1.000	1.000	3.207	3.207
TRT2 - CONTROL	-2.082	2.332	0.125	0.125	2.332	2.332

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BORBWHITES  
 21. COVARIATE ANALYSIS OF ADULT BODY WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 48

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BORBWHITES  
 21. COVARIATE ANALYSIS OF ADULT BODY WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	1278.2337	319.5584	2.64	0.0467
Error	43	5205.5788	121.0600		
Corrected Total	47	6483.8125			
R-Square		C.V.	Root MSE	POSTMT Mean	
	0.197142	4.774711	11.003	230.44	
Source	DF	Type I SS	Mean Square	F Value	Pr > F

LEVEL PREMT 3 354.89583 118.29861 0.98 0.4124  
 1 923.33791 923.33791 7.63 0.0084

Source	DF	Type III SS	Mean Square	F Value	Pr > F
LEVEL PREMT	3	381.91075	127.30358	1.05	0.3796
	1	923.33791	923.33791	7.63	0.0084

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BORBWHITES  
 21. COVARIATE ANALYSIS OF ADULT BODY WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	POSTMT LSMEAN	Std Err LSMEAN	Pr >  T  HO: LSMEAN=0	LSMEAN			
				1	2	3	4
CONTROL	234.765261	3.176309	0.0001	0.0001	0.0001	0.0001	0.0001
TRT1	230.403052	3.176217	0.0001	0.0001	0.0001	0.0001	0.0001
TRT2	229.691049	3.191361	0.0001	0.0001	0.0001	0.0001	0.0001
TRT3	226.890638	3.188619	0.0001	0.0001	0.0001	0.0001	0.0001

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BORBWHITES  
 21. COVARIATE ANALYSIS OF ADULT BODY WEIGHT  
 \*\*\*\*\*

11:31 Thursday, January 4, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: POSTMT

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 43 MSE= 121.06  
 Critical Value of Studentized Range= 3.779  
 Minimum Significant Difference= 12.004

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit		Difference Between Means		Simultaneous Upper Confidence Limit	
	Lower Limit	Upper Limit	Difference	Means	Upper Limit	Lower Limit
CONTROL - TRT1	-7.587	16.421	4.417	4.417	16.421	16.421
CONTROL - TRT2	-6.004	18.004	6.000	6.000	18.004	18.004
CONTROL - TRT3	-4.837	19.171	7.167	7.167	19.171	19.171
TRT1 - CONTROL	-16.421	-4.417	-4.417	-4.417	-4.417	-4.417
TRT1 - TRT2	-10.421	1.583	1.583	1.583	1.583	1.583
TRT1 - TRT3	-9.254	2.750	2.750	2.750	2.750	2.750
TRT2 - CONTROL	-18.004	-6.000	-6.000	-6.000	-6.000	-6.000

TRT2 - TRT1	-13.587	-1.583	10.421
TRT2 - TRT3	-10.837	1.167	13.171
TRT3 - CONTROL	-19.171	-7.167	4.837
TRT3 - TRT1	-14.754	-2.750	9.254
TRT3 - TRT2	-13.171	-1.167	10.837

EFFECTS OF METALAXYL ON THE REPRODUCTION OF BOBWHITES

21. COVARIATE ANALYSIS OF ADULT BODY WEIGHT

\*\*\*\*\*

11:51 Thursday, January 4, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: POSTWT

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 43 MSE= 121.06  
 Critical Value of Dunnnett's T= 2.121  
 Minimum Significant Difference= 9.5267

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1 - CONTROL	-13.943	-4.417	-4.417	5.110	
TRT2 - CONTROL	-15.527	-6.000	-6.000	3.527	
TRT3 - CONTROL	-16.693	-7.167	-7.167	2.360	

TOTAL 18 0 18

CRITICAL FISHERS VALUE (9,9,9) (p=0.05) IS 5. b VALUE IS 9.  
 Since b is greater than 5 there is no significant difference  
 between CONTROL and TREATMENT at the 0.05 level.

SUMMARY OF FISHERS EXACT TESTS

GROUP	IDENTIFICATION	NUMBER EXPOSED	NUMBER DEAD	SIG (P=.05)
	CONTROL	9	0	
1	100	9	0	
2	300	9	0	
3	900	9	0	

Metalaxyl Bobwhite Repro-Post Hatchling Weight  
 File: metlxbwq.hwt Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Control	9	6.100	7.100	6.500
2	100 ppm	9	5.900	6.700	6.222
3	300 ppm	9	5.900	6.700	6.222
4	900 ppm	9	5.800	6.800	6.278

Metalaxyl Bobwhite Repro-Post Hatchling Weight  
 File: metlxbwq.hwt Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	Control	0.095	0.308	0.103
2	100 ppm	0.057	0.239	0.080
3	300 ppm	0.067	0.259	0.086
4	900 ppm	0.124	0.353	0.118

Metalaxyl Bobwhite Repro-Post Hatchling Weight  
 File: metlxbwq.hwt Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	0.472	0.157	1.826
Within (Error)	32	2.747	0.086	
Total	35	3.219		

Critical F value = 2.92 (0.05,3,30)  
 Since  $F < \text{Critical } F$  FAIL TO REJECT  $H_0$ :All groups equal

Metalaxyl Bobwhite Repro-Post Hatchling Weight  
 File: metlxbwq.hwt Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2  $H_0$ :Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Control	6.500	6.500		
2	100 ppm	6.222	6.222	2.009	
3	300 ppm	6.222	6.222	2.009	
4	900 ppm	6.278	6.278	1.607	

Dunnett table value = 2.15 (1 Tailed Value,  $P=0.05$ ,  $df=30,3$ )

Metalaxyl Bobwhite Repro-Post Hatchling Weight  
 File: metlxbwq.hwt Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2  $H_0$ :Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Control	9			
2	100 ppm	9	0.297	4.6	0.278
3	300 ppm	9	0.297	4.6	0.278
4	900 ppm	9	0.297	4.6	0.222

Metalaxyl Bobwhite Repro-Post Hatchling Weight  
 File: metlxbwq.hwt Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Control	9	6.500	6.500	6.500

45

2	100 ppm	9	6.222	6.222	6.241
3	300 ppm	9	6.222	6.222	6.241
4	900 ppm	9	6.278	6.278	6.241

Metalaxyl Bobwhite Repro-Post Hatchling Weight  
 File: metlxbwq.hwt Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Control	6.500				
100 ppm	6.241	1.877	*	1.70	k= 1, v=32
300 ppm	6.241	1.877	*	1.78	k= 2, v=32
900 ppm	6.241	1.877	*	1.80	k= 3, v=32

s = 0.293  
 Note: df used for table values are approximate when v > 20.

```

*****
* User name:   GFEENEY (134)           Queue:  DCOPP1/PRINTQ_1004
* File name:   Server:  PRINT_SERVER_1
* Directory:
* Description: LPT1 Catch
*              May 14, 96              9:25am
*****
*
*          GGG  FFFFF  EEEEE  EEEEE  N   N  EEEEE  Y   Y
*         G   G F   E     E   NN  N E   Y   Y
*         G   F   E     E   N N N E   Y Y
*         G GGG FFFF  EEEE  EEEE  N N N EEEE  Y
*         G   G F   E     E   N N N E   Y
*         G   G F   E     E   N  NN E   Y
*         GGGG F   EEEEE  EEEEE  N   N  EEEEE  Y
*
*****
*
*          L      SSS  TTTT
*         L      S   S   T
*         L      S   T   ::
*         L      SSS  T   ::
*         L      S   T
*         L      S   S   T   ::
*         LLLL  SSS  T   ::
*
*****

```

**DATA EVALUATION RECORD**  
**§ 71-4 -- AVIAN REPRODUCTION TEST**

- 1. **CHEMICAL:** Metalaxyl PC Code No.: 113501
- 2. **TEST MATERIAL:** CGA-48988 Technical Purity: Not Reported  
Fungicide FL 791106

3. **CITATION:**

Authors: Fink, R. and J.B. Beavers  
Title: CGA-48988 Technical: One-Generation  
 Reproduction Study -Mallard Duck  
Study Completion Date: October 27, 1980  
Laboratory: Wildlife International Ltd., Easton, MD.  
Sponsor: Ciba-Geigy Corporation, Greensboro, NC  
Laboratory Report ID: 108-176  
MRID No.: 436246-03 and 436246-01  
DP Barcode: D215018

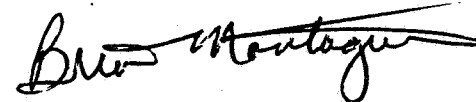
- 4. **REVIEWED BY:** Rosemary Graham Mora, M.S., Associate Scientist  
KBN Engineering and Applied Sciences, Inc.

Signature:  Date: 1/19/96

**APPROVED BY:** Pim Kosalwat, Ph.D., Senior Scientist  
KBN Engineering and Applied Sciences, Inc.

Signature: P. Kosalwat Date: 1/19/96

- 5. **APPROVED BY:**

Signature:  Date: 6/4/96

- 6. **STUDY PARAMETERS:**

**Scientific Name of Test Organism:** *Anas platyrhynchos*  
**Age of Test Organisms at Test Initiation:** 6 months  
**Definitive Study Duration:** 19 weeks

- 7. **CONCLUSIONS:** This study is scientifically sound but does not meet the guideline requirements for an avian reproduction study using mallard ducks. The NOEC was ~~300~~ ppm, based on significant reduction in ~~eggshell thickness~~ <sup>hatch success</sup> at ~~900~~ <sup>300</sup> ppm.

**Results Synopsis**

Most sensitive endpoints: Eggshell thickness, 70 hatch to viable  
NOEC: ~~300~~ ppm LOEC: ~~900~~ ppm  
100 300

50 (2) (10-70-200-300)

**8. ADEQUACY OF THE STUDY:**

- A. Classification:** Supplemental.
- B. Rationale:** There are several deficiencies with the study, including the lack of adult body weight data (reported by sex), length of the egg collection period, and lack of verification of the test diets. Also, the test was conducted under uncontrolled environmental conditions (i.e., temperature and humidity varied with ambient conditions). In addition, hatchlings were randomly chosen for rearing by hatch group (Groups A to H), not by pen. Consequently, the effects of the test compound on 14-day survivors as a percentage of eggs set could not be evaluated.
- C. Repairability:** No.

**9. GUIDELINE DEVIATIONS:**

- 1. The length of the egg collection period (8 weeks) was shorter than recommended (10 weeks).
- 2. Individual adult body weights were not reported. Adult body weights were presented as mean adult body weight. Weight was not determined by sex.
- 3. The test conditions to which the adult mallards were exposed were not controlled and result of temperature and relative humidity monitoring (if any) were not reported.
- 4. The purity of the test material was not reported.
- 5. Analysis of the test material in the test diets was not reported.
- 6. The amount of vehicle (corn oil) used in the test diets was not reported and the control diet was not described.

**10. SUBMISSION PURPOSE:**

**11. MATERIALS AND METHODS:**

- A. Test Organisms**



Guideline Criteria	Reported Information
<p><b><u>Species</u></b>                      A wild waterfowl species, preferably the mallard (<i>Anas platyrhynchos</i>), or an upland game species, preferably the northern bobwhite (<i>Colinus virginianus</i>)</p>	<p>Mallard (<i>Anas platyrhynchos</i>)</p>
<p><b><u>Age at beginning of test</u></b>                      Birds should be approaching their first breeding season.</p>	<p>6 months old; birds were approaching their first breeding season.</p>
<p><b><u>Supplier</u></b>                      All birds should be from the same source.</p>	<p>Wildlife International Ltd., Easton, MD</p>
<p><b>Were birds pen-reared?</b></p>	<p>Yes.</p>
<p><b>Were birds phenotypically indistinguishable from wild birds?</b></p>	<p>Yes.</p>
<p><b><u>Health observation period</u></b>                      2 to 6 weeks.</p>	<p>Not reported. Gross necropsy and bacteriologic and serologic examination of representative birds by the Maryland Department of Agriculture determined the duck to be healthy.</p>
<p><b>Were birds healthy and without excessive mortality prior to the test?</b></p>	<p>Pre-test mortality was not reported.</p>

**B. Test System**

Guideline Criteria	Reported Information
<p><b>Were pens for adult birds of adequate size and designed to conform to good husbandry practices?</b></p>	<p>Yes.</p>
<p><b>Were pens for chicks of adequate size and designed to conform to good husbandry practices?</b></p>	<p>Not reported. Chicks were housed in Beacon battery brooders (Model B755).</p>

Guideline Criteria	Reported Information
<b>Were pens constructed of a nonbinding material such as galvanized or stainless steel?</b>	Yes.
<b>Was adequate ventilation provided?</b>	Yes.
<p><u>Temperature</u> Approx. 21°C (70°F)</p>	<p>Temperature was allowed to fluctuate with ambient conditions. Temperatures below 2°C and above 32°C were prevented using cooling ventilators, exhaust fans, and ceiling insulation.</p> <p>Mean: Not reported.</p>
<p><u>Relative humidity</u> Approx. 55%</p>	<p>Humidity was allowed to fluctuate with ambient conditions.</p> <p>Mean: Not reported.</p>
<p><u>Lighting</u> <u>First 8 weeks:</u> 7 h per day. <u>Thereafter:</u> 16-17 h per day. At least 6 footcandles at bird level.</p>	<p>First 6 weeks: 8 h per day. Thereafter: 17 h per day.</p>
<p><u>Diet</u> A commercial breeder feed (or its equivalent) that is appropriate for the test species.</p>	<p>19.4% protein 6.7% fat 3.8% fiber 2.7% calcium 0.77% phosphorus</p>
<p><u>Preparation of test diet</u> A premix containing the test substance should be mechanically mixed with basal diet. If an evaporative vehicle is used, it must be completely evaporated prior to feeding.</p>	<p>The test material and vehicle were mixed with basal diet into a premix, and then frozen until used for weekly preparation of the final diet.</p>
<b>Was the premix stored under conditions which maintain stability?</b>	Yes.

Guideline Criteria	Reported Information
<b>Was the diet analyzed to verify homogeneity and stability of the test substance?</b>	Samples of the test diets were shipped to the sponsor for analysis. Results were not reported.
<b><u>Replenishment of feed</u></b>	Adult diets were prepared weekly and presented to the birds <i>ad libitum</i> .

**C. Test Design**

Guideline Criteria	Reported Information
<p><b><u>Nominal concentrations</u></b> At least two concentrations other than the control are required; three or more are strongly recommended. The highest test concentrations should show a significant effect or be at or above the maximum field residue level.</p>	<p>Nominal concentrations: Control, 100, 300, 900 ppm  Max. residue level: 500 ppm</p>
<p><b><u>Control</u></b> Vehicle control.</p>	A description of the control diet was not provided.
<p><b><u>Vehicle</u></b> Corn oil or other appropriate vehicle.</p>	Corn oil.
<p><b><u>Vehicle amount (% of diet by weight)</u></b> Not more than 2%.</p>	Not reported.
<p><b><u>Number of birds per pen</u></b> One male and 1 female per pen is strongly recommended. For quail, 1 male and 2 females may be acceptable. For ducks, 2 males and 5 females may be acceptable.</p>	2 males and 5 females per pen.

Guideline Criteria	Reported Information
<p><b><u>Number of pens per group</u></b>                      At least 5 replicate pens are required for mallards housed in groups of 7. For other arrangements, at least 12 pens are required, but considerably more may be needed if birds are kept in pairs.</p>	5 pens per group.
<p><b><u>Pre-laying exposure duration</u></b>                      At least 10 weeks prior to the onset of egg-laying.</p>	11 weeks.
<p><b><u>Exposure duration with egg-laying</u></b>                      At least 10 weeks.</p>	8 weeks.
<p><b><u>Withdrawal period</u></b>                      If reduced reproduction is evident, a withdrawal period of up to 3 weeks may be added to the test phase.</p>	N/A.

**D. Egg Collection and Incubation**

Guideline Criteria	Reported Information
<p><b>Were eggs collected daily?</b></p>	Yes.
<p><b><u>Egg storage temperature</u></b>                      Approximately 16°C (61°F)</p>	13°C
<p><b><u>Egg storage humidity</u></b>                      Approximately 65%</p>	87%
<p><b>Were eggs set weekly?</b></p>	Yes.
<p><b>Were eggs candled for cracks prior to being set for incubation on Day 0?</b></p>	Yes.
<p><b><u>Candling for fertility</u></b>                      Quail: approx. Day 11                      Ducks: approx. Day 14</p>	Eggs were candled on Day 14.
<p><b><u>Transfer of eggs to hatcher</u></b>                      Bobwhite: Day 21                      Mallard: Day 23</p>	Eggs were transferred on Day 23.

Guideline Criteria	Reported Information
<u>Hatching temperature</u> 39°C (102°F) is recommended	37°C
<u>Hatching humidity</u> 70% is recommended	Not reported.
<u>Day after egg set that chicks were removed and counted</u> Bobwhite: Day 24 Mallard: Day 27	Chicks were removed and counted on Day 28.

**E. Eggshell Thickness Measurement**

Guideline Criteria	Reported Information
<u>Collection Schedule</u> At least once every two weeks (Week 1, 3, 5, 7 and 9).	One egg from each pen was collected daily for measurement.
<u>Were shells opened, washed, and air dry for at least 48 hours before measuring?</u>	Yes; shells air dried for 1 week.
<u>Measurement</u> 3-4 measurements per eggs to the nearest 0.01 mm.	3-5 measurements to the nearest 0.01 mm.

**12. REPORTED RESULTS:**

Guideline Criteria	Reported Information
<u>Quality assurance and GLP compliance statements were included in the report?</u>	Yes; the study was conducted in accordance with GLP standards of 1978.
<u>Did diet analysis verify the concentrations of test material?</u>	Not reported.
<u>Did diet analysis show that the test substance was stable and homogeneous?</u>	Not reported.
<u>Were body weights of adults reported for test initiation and biweekly up to week 8 or the onset of egg laying?</u>	Yes; but only average body weight of adults (male and females combined) per pen was reported every other week.

Guideline Criteria	Reported Information
<p><b>Was average food consumption of adults reported at least biweekly?</b></p>	<p>Yes.</p>
<p><b><u>Reproductive Endpoints</u></b>                      The following endpoints should be reported:</p> <ul style="list-style-type: none"> <li>• Eggs laid</li> <li>• Eggs cracked</li> <li>• Eggs set</li> <li>• Viable embryos</li> <li>• Live 3-week embryos</li> <li>• Normal hatchlings</li> <li>• 14-day-old survivors</li> <li>• Weights of 14-day-old survivors</li> <li>• Egg shell thickness</li> <li>• Total food consumption</li> <li>• Initial and final body weights, by sex</li> </ul>	<p>All endpoints listed at left (excluding initial and final adult body weights by sex) plus number of hatchlings reared, hatchling weight, and mean adult body weights.</p>
<p><b>Were data reported by pen for all endpoints?</b></p>	<p>Yes; with the exception of data for body weights of hatchlings and the number and body weights of 14-day old survivors. These parameters were collected by hatch group.</p>

**Significant Results:** When compared to the controls, there was a slight, but statistically significant decrease in adult body weight at 100 ppm, and in hatchling body weights at 300 and 900 ppm. Statistically significant reductions in eggshell thickness and the percentage of live 3-week embryos were noted at 900 ppm. In the report entitled "Metalaxyl Technical Ecological Risks to Birds" (MRID No. 436246-01) the author analyzed the data with "more typical analysis of variance procedures using Toxstat® V3.4 statistical program." The result of these analytical procedures indicated that the only statistically significant difference was that of eggshell thickness at 900 ppm.

By test termination, there was 9% mortality (1 male and 2 females) in the control, 3% mortality (1 male) in the 100 ppm group, 0% mortality in the 300 ppm group, and 6% mortality in the 900 ppm group.

13. **VERIFIED STATISTICAL RESULTS:** Individual adult body weights by sex were not presented in the report. Adult body weights

54

were presented as mean weights (males and females combined) by pen. Number of hatchlings reared (HR), number of 14-day survivors (HS), and weight of hatchlings (HATWT) and 14-day survivors (SURVWT) were analyzed by hatch group, not by pen.

Means of Endpoints

Endpoint	Control	100 ppm	300 ppm	900 ppm
Eggs laid (EL)	133 (31)	157 (40)	164 (4)	141 (32)
Eggs cracked (EC)	5.4 (3.8)	3.6 (2.5)	7.8 (4.0)	9.4 (6.5)
Eggs set (ES)	118 (29)	144 (38)	146 (6)	123 (36)
Viable embryos (VE)	109 (31)	132 (37)	132 (8)	114 (34)
Live 3-wk embryos (LE)	107 (31)	130 (37)	130 (9)	109 (35)
Normal hatchlings (NH)	76 (30)	95 (37)	77 (17)	64 (35)
Hatchling reared (HR)*	38 (4)	38 (3)	40 (1)	32 (12)
14-day-old survivors (HS)*	37 (3)	38 (3)	39 (1)	32 (12)
Egg shell thick-ness (THICK)	0.365 (0.007)	0.372 (0.013)	0.362 (0.012)	0.347 (0.015)
Hatchling weight (HATWT)*	35 (2)	35 (2)	34 (2)	33 (1)
14-day-old survivor weight (SURVWT)*	213 (13)	215 (18)	211 (6)	206 (23)
Mean food consumption (FOOD)	102 (9)	97 (5)	101 (5)	97 (34)
Final adult weight (POSTWT)	1223 (24)	1207 (48)	1287 (43)	1220 (14)

Statistically Significant Endpoints

Endpoint	Statistical Method	Levels at which Effect Was Observed
Eggshell Thickness	Dunnett's	900 ppm

Hatch Success

300 ppm

14. **REVIEWER'S COMMENTS:** There were several deficiencies with the study, including: 1) the lack of individual adult body weight measurements by sex, 2) the length of the egg collection period (8 weeks) was shorter than required (10 weeks), 3) uncontrolled test conditions (temperature and relative humidity), 4) results of the analysis of test diets, and 5) the purity of the test compound, were not reported. In addition, hatchlings were randomly chosen for rearing by hatch group (Groups A to H), not by pen. Consequently, the effects of the test compound on 14-day survivors as a percentage of eggs set could not be evaluated.

Based on the available data, the LOEC of CGA-48988 for mallard ducks was determined to be 900 ppm due to a significant reduction in eggshell thickness at this level. The NOEC was 300 ppm. This study is scientifically sound but does not meet the guideline requirements for an avian study using mallard ducks. The study is classified as **Supplemental**.

Though not considered to be proven by statistical Analysis there appeared to be a biologically significant reduction in number of hatchlings vs number of total viable embryos at a concentration of 300 ppm.



Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: metlxhat.3wk Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1.	Controls	5	58.800	85.700	69.116
2	100 ppm	5	53.060	79.620	70.788
3	300 ppm	5	42.960	75.200	59.682
4	900 ppm	5	29.030	72.780	54.668

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: metlxhat.3wk Transform: NO TRANSFORM

*70 hatch success*

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	Controls	135.245	11.630	5.201
2	100 ppm	116.059	10.773	4.818
3	300 ppm	152.185	12.336	5.517
4	900 ppm	262.013	16.187	7.239

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: metlxhat.3wk Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	886.098	295.366	1.775
Within (Error)	16	2662.007	166.375	
Total	19	3548.105		

Critical F value = 3.24 (0.05,3,16)  
 Since  $F < \text{Critical } F$  FAIL TO REJECT  $H_0$ :All groups equal

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: metlxhat.3wk Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2  $H_0$ :Control<Treatment

TRANSFORMED MEAN CALCULATED IN

GROUP	IDENTIFICATION	MEAN	ORIGINAL UNITS	T STAT	SIG
1	Controls	69.116	69.116		
2	100 ppm	70.788	70.788	-0.205	
3	300 ppm	59.682	59.682	1.156	
4	900 ppm	54.668	54.668	1.771	

Dunnett table value = 2.23 (1 Tailed Value, P=0.05, df=16,3)

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: metlxhat.3wk Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Controls	5			
2	100 ppm	5	18.192	26.3	-1.672
3	300 ppm	5	18.192	26.3	9.434
4	900 ppm	5	18.192	26.3	14.448

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: metlxhat.3wk Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Controls	5	69.116	69.116	69.952
2	100 ppm	5	70.788	70.788	69.952
3	300 ppm	5	59.682	59.682	59.682
4	900 ppm	5	54.668	54.668	54.668

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: metlxhat.3wk Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Controls	69.952				
100 ppm	69.952	0.102		1.75	k= 1, v=16
300 ppm	59.682	1.156		1.83	k= 2, v=16
900 ppm	54.668	1.771		1.86	k= 3, v=16

s = 12.899

Note: df used for table values are approximate when v > 20.

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: Metlxhat.3wk Transform: NO TRANSFORM

*Differences*

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Controls	5	15.000	41.000	31.600
2	100 ppm	5	26.000	46.000	35.600
3	300 ppm	5	31.000	77.000	54.400
4	900 ppm	5	38.000	52.000	45.400

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: Metlxhat.3wk Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	Controls	108.800	10.431	4.665
2	100 ppm	53.300	7.301	3.265
3	300 ppm	327.800	18.105	8.097
4	900 ppm	31.800	5.639	2.522

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: Metlxhat.3wk Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	1570.950	523.650	4.015
Within (Error)	16	2086.800	130.425	
Total	19	3657.750		

Critical F value = 3.24 (0.05,3,16)  
 Since F > Critical F REJECT Ho:All groups equal

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
 File: Metlxhat.3wk Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG

59

1	Controls	31.600	31.600	
2	100 ppm	35.600	35.600	-0.554
3	300 ppm	54.400	54.400	-3.157
4	900 ppm	45.400	45.400	-1.911

Dunnett table value = 2.23 (1 Tailed Value, P=0.05, df=16,3)

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
File: Metlxhat.3wk Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Controls	5			
2	100 ppm	5	16.107	51.0	-4.000
3	300 ppm	5	16.107	51.0	-22.800
4	900 ppm	5	16.107	51.0	-13.800

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
File: Metlxhat.3wk Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Controls	5	31.600	31.600	31.600
2	100 ppm	5	35.600	35.600	35.600
3	300 ppm	5	54.400	54.400	49.900
4	900 ppm	5	45.400	45.400	49.900

Metalaxyl Mallard Repro-Hatchlings vs. 3 wk embryos  
File: Metlxhat.3wk Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Controls	31.600				
100 ppm	35.600	0.554		1.75	k= 1, v=16
300 ppm	49.900	2.534	*	1.83	k= 2, v=16
900 ppm	49.900	2.534	*	1.86	k= 3, v=16

s = 11.420

Note: df used for table values are approximate when v > 20.

Metalaxyl Mallard Repro-# of Eggs Laid  
 File: metalx.egl Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Controls	5	97.000	181.000	133.200
2	100 ppm	5	110.000	200.000	157.200
3	300 ppm	5	158.000	169.000	163.600
4	900 ppm	5	108.000	189.000	141.000

Metalaxyl Mallard Repro-# of Eggs Laid  
 File: metalx.egl Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	Controls	953.200	30.874	13.807
2	100 ppm	1570.700	39.632	17.724
3	300 ppm	18.300	4.278	1.913
4	900 ppm	1006.500	31.725	14.188

Metalaxyl Mallard Repro-# of Eggs Laid  
 File: metalx.egl Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	2968.950	989.650	1.116
Within (Error)	16	14194.800	887.175	
Total	19	17163.750		

Critical F value = 3.24 (0.05,3,16)  
 Since F < Critical F FAIL TO REJECT Ho:All groups equal

Metalaxyl Mallard Repro-# of Eggs Laid  
 File: metalx.egl Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG

61

1	Controls	133.200	133.200	
2	100 ppm	157.200	157.200	-1.274
3	300 ppm	163.600	163.600	-1.614
4	900 ppm	141.000	141.000	-0.414

Dunnett table value = 2.23 (1 Tailed Value, P=0.05, df=16,3)

Metalaxyl Mallard Repro-# of Eggs Laid  
 File: metalx.egl Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Controls	5			
2	100 ppm	5	42.009	31.5	-24.000
3	300 ppm	5	42.009	31.5	-30.400
4	900 ppm	5	42.009	31.5	-7.800

Metalaxyl Mallard Repro-# of Eggs Laid  
 File: metalx.egl Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Controls	5	133.200	133.200	133.200
2	100 ppm	5	157.200	157.200	153.933
3	300 ppm	5	163.600	163.600	153.933
4	900 ppm	5	141.000	141.000	153.933

Metalaxyl Mallard Repro-# of Eggs Laid  
 File: metalx.egl Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Controls	133.200				
100 ppm	153.933	1.101		1.75	k= 1, v=16
300 ppm	153.933	1.101		1.83	k= 2, v=16
900 ppm	153.933	1.101		1.86	k= 3, v=16

s = 29.785  
 Note: df used for table values are approximate when v > 20.

62

Metalaxyl Mallard Repro-Viable Embryos-3 wk Survivors  
 File: metlxvia.3wk Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Controls	5	1.000	2.000	1.400
2	100 ppm	5	1.000	4.000	2.200
3	300 ppm	5	0.000	6.000	2.400
4	900 ppm	5	3.000	7.000	4.600

Metalaxyl Mallard Repro-Viable Embryos-3 wk Survivors  
 File: metlxvia.3wk Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	Controls	0.300	0.548	0.245
2	100 ppm	1.700	1.304	0.583
3	300 ppm	6.300	2.510	1.122
4	900 ppm	2.800	1.673	0.748

Metalaxyl Mallard Repro-Viable Embryos-3 wk Survivors  
 File: metlxvia.3wk Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	28.150	9.383	3.381
Within (Error)	16	44.400	2.775	
Total	19	72.550		

Critical F value = 3.24 (0.05,3,16)  
 Since  $F > \text{Critical } F$  REJECT  $H_0$ :All groups equal

Metalaxyl Mallard Repro-Viable Embryos-3 wk Survivors  
 File: metlxvia.3wk Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
-------	----------------	------------------	-----------------------------------	--------	-----

63

1	Controls	1.400	1.400	
2	100 ppm	2.200	2.200	-0.759
3	300 ppm	2.400	2.400	-0.949
4	900 ppm	4.600	4.600	-3.037

Dunnett table value = 2.23 (1 Tailed Value, P=0.05, df=16,3)

Metalaxyl Mallard Repro-Viable Embryos-3 wk Survivors  
 File: metlxvia.3wk Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Controls	5			
2	100 ppm	5	2.349	167.8	-0.800
3	300 ppm	5	2.349	167.8	-1.000
4	900 ppm	5	2.349	167.8	-3.200

Metalaxyl Mallard Repro-Viable Embryos-3 wk Survivors  
 File: metlxvia.3wk Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Controls	5	1.400	1.400	1.400
2	100 ppm	5	2.200	2.200	2.200
3	300 ppm	5	2.400	2.400	2.400
4	900 ppm	5	4.600	4.600	4.600

Metalaxyl Mallard Repro-Viable Embryos-3 wk Survivors  
 File: metlxvia.3wk Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Controls	1.400				
100 ppm	2.200	0.759		1.75	k= 1, v=16
300 ppm	2.400	0.949		1.83	k= 2, v=16
900 ppm	4.600	3.037	*	1.86	k= 3, v=16

s = 1.666

Note: df used for table values are approximate when v > 20.



Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit		Difference Between Means	Simultaneous Upper Confidence Limit	
	Lower Limit	Upper Limit		Lower Limit	Upper Limit
CONTROL - TRT2	-10.513	12.913	1.200	10.513	12.913
CONTROL - TRT3	-7.313	16.113	4.400	14.913	16.113
CONTROL - TRT1	-6.513	16.913	5.200	15.713	16.913
TRT2 - CONTROL	-12.913	-1.200	-1.200	10.513	10.513
TRT2 - TRT3	-8.513	3.200	3.200	14.913	14.913
TRT2 - TRT1	-7.713	4.000	4.000	15.713	15.713
TRT3 - CONTROL	-16.113	-4.400	-4.400	7.313	7.313
TRT3 - TRT2	-14.913	8.513	3.200	8.513	8.513
TRT3 - TRT1	-10.913	0.800	0.800	12.513	12.513
TRT1 - CONTROL	-16.913	-5.200	-5.200	6.513	6.513
TRT1 - TRT2	-15.713	-4.000	-4.000	7.713	7.713
TRT1 - TRT3	-12.513	-0.800	-0.800	10.913	10.913

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 20. ANALYSIS OF FOOD CONSUMPTION  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Dunnett's One-tailed T tests for variable: FOOD  
 NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 41.9  
 Critical Value of Dunnett's T= 2.227  
 Minimum Significant Difference= 9.1176

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit		Difference Between Means	Simultaneous Upper Confidence Limit	
	Lower Limit	Upper Limit		Lower Limit	Upper Limit
TRT2 - CONTROL	-10.318	7.918	-1.200	7.918	7.918
TRT3 - CONTROL	-13.518	4.718	-4.400	4.718	4.718
TRT1 - CONTROL	-14.318	3.918	-5.200	3.918	3.918

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 21. COVARIATE ANALYSIS OF ADULT BODY WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Class Level Information  
 Class Levels Values  
 LEVEL 4 CONTROL TRT1 TRT2 TRT3  
 Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 21. COVARIATE ANALYSIS OF ADULT BODY WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Corrected Total	19	38707.800			
R-Square					
C.V.					
Root MSE					
POSTUT Mean					1234.1

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	19405.800	6468.600	5.83	0.0076
PREVT	1	2657.681	2657.681	2.40	0.1426
Source	DF	Type III SS	Mean Square	F Value	Pr > F
LEVEL	3	19723.449	6574.483	5.92	0.0071
PREVT	1	2657.681	2657.681	2.40	0.1426

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 21. COVARIATE ANALYSIS OF ADULT BODY WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	POSTUT LSMEAN	Std Err LSMEAN	Pr >  T  HO:LSMEAN=0	LSMEAN Number
CONTROL	1216.80729	15.39215	0.0001	1
TRT1	1200.54567	15.40221	0.0001	2
TRT2	1284.76621	14.96688	0.0001	3
TRT3	1234.28082	17.52350	0.0001	4

Pr > |t| HO: LSMEAN(i)=LSMEAN(j)  
 i/j 1 2 3 4  
 1 0.4522 0.0059 0.4920  
 2 0.4522 0.0012 0.1943  
 3 0.0059 0.0012 0.0494  
 4 0.4920 0.1943 0.0494

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 21. COVARIATE ANALYSIS OF ADULT BODY WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

19

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: POSTWT

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 15 MSE= 1109.621  
 Critical Value of Studentized Range= 4.076  
 Minimum Significant Difference= 60.72

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TR12 - CONTROL	3.48	64.20	64.20	124.92	****
TR12 - TR13	6.28	67.00	67.00	127.72	****
TR12 - TR11	19.68	80.40	80.40	141.12	****
CONTROL - TR12	-124.92	-64.20	-64.20	-3.48	****
CONTROL - TR13	-57.92	2.80	2.80	63.52	****
CONTROL - TR11	-44.52	16.20	16.20	76.92	****
TR13 - TR12	-127.72	-67.00	-67.00	-6.28	****
TR13 - CONTROL	-63.52	-2.80	-2.80	57.92	****
TR13 - TR11	-47.32	13.40	13.40	74.12	****
TR11 - TR12	-141.12	-80.40	-80.40	-19.68	****
TR11 - CONTROL	-76.92	-16.20	-16.20	44.52	****
TR11 - TR13	-74.12	-13.40	-13.40	47.32	****

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

21. COVARIATE ANALYSIS OF ADULT BODY WEIGHT

\*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: POSTWT

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 15 MSE= 1109.621  
 Critical Value of Dunnnett's T= 2.239  
 Minimum Significant Difference= 47.169

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TR12 - CONTROL	17.05	64.20	64.20	111.37	****
TR13 - CONTROL	-49.97	-2.80	-2.80	44.37	****
TR11 - CONTROL	-63.37	-16.20	-16.20	30.97	****

LEVEL	CONTROL	TRT1	TRT2	TRT3
1 CONTROL	125	2	114	105
2 CONTROL	97	4	84	70
3 CONTROL	181	5	165	157
4 CONTROL	123	4	110	102
5 CONTROL	140	12	118	109
6 CONTROL				
7 CONTROL				
8 CONTROL				
9 TRT1	200	6	183	171
10 TRT1	122	4	108	101
11 TRT1	110	1	101	88
12 TRT1	167	6	153	139
13 TRT1	187	1	177	163
14 TRT1				
15 TRT1				
16 TRT1				
17 TRT2	164	7	145	125
18 TRT2	158	3	146	134
19 TRT2	169	8	152	141
20 TRT2	166	7	151	138
21 TRT2	161	14	137	122
22 TRT2				
23 TRT2				
24 TRT2				
25 TRT3	121	6	105	104
26 TRT3	189	6	175	161
27 TRT3	108	21	78	66
28 TRT3	154	8	137	125
29 TRT3	133	6	121	114
30 TRT3				
31 TRT3				
32 TRT3				

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 11:45 Friday, January 5, 1996

LEVEL	CONTROL	TRT1	TRT2	TRT3
MEAN	133.20	157.20	163.60	141.00
ES	5.40	3.60	7.80	9.40
EC	118.20	144.40	146.20	123.20
VE	108.80	132.40	132.00	114.00
LE	107.40	130.20	129.80	109.20
NH	75.80	94.60	77.40	63.80
HS	36.50	37.50	39.13	31.88
ES/EL (%)	88.53	91.62	89.36	86.31
(EL-EC)/EL (%)	95.94	97.74	95.24	92.54

Variable Label	N	Mean	Std Dev	CV
VE/ES (%)	91.31	91.41	30.874	23.179
LE/VE (%)	98.55	98.22	3.847	71.242
NH/EL (%)	55.55	58.41	29.346	24.828
NH/ES (%)	62.51	63.59	31.156	28.636
NH/LE (%)	69.13	70.79	31.449	29.301
HS/HR (%)	97.50	98.13	50.136	59.738
THICK	0.37	0.37	2.828	7.749
HAWT	34.75	34.88	0.007	1.810
SURWMT	212.75	215.38	1.581	4.550
FOOD	101.80	96.60	34.750	4.550
POSTWT	1222.80	1206.60	12.729	5.927
HR	37.50	38.25	101.800	9.199

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 11:45 Friday, January 5, 1996

Variable Label	N	Mean	Std Dev	CV
ES/EL (%)	88.53	91.62	89.36	86.31
(EL-EC)/EL (%)	95.94	97.74	95.24	92.54
ES/EL (%)	88.53	91.62	89.36	86.31
ENC/EL (%)	95.938	91.313	91.313	5.028
VE/ES (%)	91.313	63.511	98.549	0.917
NH/ES (%)	62.511	69.129	11.627	16.819
LE/VE (%)	98.549	97.500	2.988	3.065
NH/LE (%)	69.129	70.79	5.927	8.385
HS/HR (%)	97.500	98.13	9.199	9.374

Variable Label	N	Mean	Std Dev	CV
EL	5	157.200	39.632	25.211
EC	5	3.600	2.510	69.722
ES	5	144.400	38.194	26.450
VE	5	132.400	36.835	27.821
LE	5	130.200	36.799	28.264
NH	5	94.600	37.494	39.634
HS	5	37.500	3.071	8.188

Variable	Label	N	Mean	Std Dev	CV
THICK		5	0.372	0.013	3.369
HATWT		8	34.875	1.642	4.708
SURWWT		8	215.375	18.158	8.431
FOOD		5	96.600	4.722	4.888
PREWT		5	1185.000	37.477	3.163
POSTWT		5	1206.600	47.553	3.941
HR		8	38.250	3.412	8.921
ES_EL	ES/EL (%)	5	91.622	2.170	2.368
NH_EL	NH/EL (%)	5	56.407	10.437	17.870
ENC_EL	(EL-EC)/EL (%)	5	97.737	1.429	1.462
VE_ES	VE/ES (%)	5	91.406	2.631	2.878
NH_ES	NH/ES (%)	5	63.585	10.227	16.084
LE_VE	LE/VE (%)	5	98.217	1.056	1.075
NH_LE	NH/LE (%)	5	70.793	10.775	15.220
HS_HR	HS/HR (%)	8	98.125	2.216	2.258

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
11:45 Friday, January 5, 1996

Variable	Label	N	Mean	Std Dev	CV
EL		5	163.600	4.278	2.615
EC		5	7.800	3.962	50.799
ES		5	146.200	5.975	4.087
VE		5	132.000	8.216	6.224
LE		5	129.800	9.257	7.132
NH		5	77.400	16.637	21.495
HS		8	39.125	0.835	2.133
THICK		5	0.362	0.012	3.348
HATWT		8	33.875	1.642	4.847
SURWWT		8	211.250	5.994	2.837
FOOD		5	100.600	4.827	4.798
PREWT		5	1172.600	31.926	2.723
POSTWT		5	1287.000	42.667	3.315
HR		8	39.750	0.707	1.779
ES_EL	ES/EL (%)	5	89.364	2.796	3.129
NH_EL	NH/EL (%)	5	47.273	9.765	20.656
ENC_EL	(EL-EC)/EL (%)	5	95.237	2.460	2.583
VE_ES	VE/ES (%)	5	90.239	2.634	2.919
NH_ES	NH/ES (%)	5	52.907	10.845	20.498
LE_VE	LE/VE (%)	5	98.298	2.027	2.062
NH_LE	NH/LE (%)	5	59.685	12.336	20.668
HS_HR	HS/HR (%)	8	98.438	1.860	1.890

LEVEL=TR13

Variable	Label	N	Mean	Std Dev	CV
EL		5	141.000	31.725	22.500
EC		5	9.400	6.542	69.598
ES		5	123.200	36.238	29.414
VE		5	114.000	34.402	30.177
NH		5	109.200	34.608	31.692
LE		5	63.800	34.608	54.244
HS		8	31.875	12.112	37.998
THICK		5	0.347	0.015	4.379
HATWT		8	33.250	1.488	4.475
SURWWT		8	206.125	23.455	11.379
FOOD		5	97.400	5.857	6.013
PREWT		5	1119.000	33.890	3.029
POSTWT		5	1220.000	13.583	1.113
HR		8	32.375	12.070	37.283
ES_EL	ES/EL (%)	5	85.306	8.170	9.466
NH_EL	NH/EL (%)	5	42.988	16.342	38.016

Variable	Label	N	Mean	Std Dev	CV
ENC_EL	(EL-EC)/EL (%)	5	92.543	6.747	7.290
VE_ES	VE/ES (%)	5	92.224	5.231	5.672
NH_ES	NH/ES (%)	5	48.726	16.107	33.056
LE_VE	LE/VE (%)	5	95.456	1.635	1.713
NH_LE	NH/LE (%)	5	54.671	16.187	29.608
HS_HR	HS/HR (%)	8	98.353	2.418	2.458

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
11:45 Friday, January 5, 1996

General Linear Models Procedure  
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TR11 TR12 TR13

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
1. ANALYSIS OF EGGS LAID  
\*\*\*\*\*  
11:45 Friday, January 5, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL  
Coefficients

Effect	Intercept
LEVEL	0
CONTROL	L2
TR11	L3
TR12	L4
TR13	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
1. ANALYSIS OF EGGS LAID  
\*\*\*\*\*  
11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: EL

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	2968.9500	989.6500	1.12	0.3720
Error	16	14194.8000	887.1750		
Corrected Total	19	17163.7500			

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	2968.9500	989.6500	1.12	0.3720

Source	DF	R-Square	C.V.	Root MSE	EL Mean
Source	DF	0.172978	20.02385	29.785	148.75

79

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 1. ANALYSIS OF EGGS LAID  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	EL	Pr >  T	H0: LSMEAN(1)=LSMEAN(j)
	LSMEAN	i/j	2 3 4
CONTROL	133.200000	1	0.2209 0.1261 0.6843
TRT1	157.200000	2	0.2209 0.7385 0.4025
TRT2	163.600000	3	0.1261 0.7385 0.2477
TRT3	141.000000	4	0.6843 0.4025 0.2477

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 1. ANALYSIS OF EGGS LAID  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: EL

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 887.175  
 Critical Value of Studentized Range= 4.046  
 Minimum Significant Difference= 53.896

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL	Comparison	Simultaneous		Difference Between Means	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT2	- TRT1	-47.50	6.40	6.40	60.30	
TRT2	- TRT3	-31.30	22.60	22.60	76.50	
TRT2	- CONTROL	-23.50	30.40	30.40	84.30	
TRT1	- TRT2	-60.30	-6.40	-6.40	47.50	
TRT1	- TRT3	-37.70	16.20	16.20	70.10	
TRT1	- CONTROL	-29.90	24.00	24.00	77.90	
TRT3	- TRT2	-76.50	-22.60	-22.60	31.30	
TRT3	- TRT1	-70.10	-16.20	-16.20	37.70	
TRT3	- CONTROL	-46.10	7.80	7.80	61.70	
CONTROL	- TRT2	-84.30	-30.40	-30.40	23.50	
CONTROL	- TRT1	-77.90	-24.00	-24.00	29.90	
CONTROL	- TRT3	-61.70	-7.80	-7.80	46.10	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 1. ANALYSIS OF EGGS LAID  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: EL

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.  
 Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 887.175  
 Critical Value of Dunnnett's T= 2.227  
 Minimum Significant Difference= 41.954

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL	Comparison	Simultaneous		Difference Between Means	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT2	- CONTROL	-11.55	30.40	30.40	72.35	
TRT1	- CONTROL	-17.95	24.00	24.00	65.95	
TRT3	- CONTROL	-34.15	7.80	7.80	49.75	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 2. ANALYSIS OF EGGS CRACKED  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 2. ANALYSIS OF EGGS CRACKED  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	CONTROL L2 TRT1 L3 TRT2 L4 TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 2. ANALYSIS OF EGGS CRACKED  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: EC

Source	Model	DF	Sum of Squares	Mean Square	F Value	Pr > F
		3	98.550000	32.850000	1.65	0.2174

Error	16	318.400000	19.900000
Corrected Total	19	416.950000	

R-Square	C.V.	Root MSE	EC Mean
0.236359	68.10598	4.4609	6.5500

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	98.550000	32.850000	1.65	0.2174

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

2. ANALYSIS OF EGGS CRACKED

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	EC	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
	LSMEAN	1/j	2
CONTROL	5.40000000	1	0.5325
TRT1	3.60000000	2	0.5325
TRT2	7.80000000	3	0.4075
TRT3	9.40000000	4	0.1754

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

2. ANALYSIS OF EGGS CRACKED

11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for Variable: EC

NOTE: This test controls the type I experimentwise error rate.  
Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 19.9  
Critical Value of Studentized Range= 4.046  
Minimum Significant Difference= 8.0719

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT3 - TRT2	-6.472	1.600	1.600	9.672	9.672
TRT3 - CONTROL	-4.072	4.000	4.000	12.072	12.072
TRT3 - TRT1	-2.272	5.800	5.800	13.872	13.872
TRT2 - TRT3	-9.672	-1.600	-1.600	6.472	6.472
TRT2 - CONTROL	-5.672	2.400	2.400	10.472	10.472
TRT2 - TRT1	-3.872	4.200	4.200	12.272	12.272
CONTROL - TRT3	-12.072	-4.000	-4.000	4.072	4.072
CONTROL - TRT2	-10.472	-2.400	-2.400	5.672	5.672
CONTROL - TRT1	-6.272	1.800	1.800	9.872	9.872

TRT1	-13.872	-5.800	2.272
TRT2	-12.272	-4.200	3.872
TRT3	-9.872	-1.800	6.272

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

2. ANALYSIS OF EGGS CRACKED

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Dunnnett's One-tailed T tests for variable: EC

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 19.9  
Critical Value of Dunnnett's T= 2.227  
Minimum Significant Difference= 6.2835

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT3 - CONTROL	-2.283	4.000	4.000	10.283	10.283
TRT2 - CONTROL	-5.883	2.400	2.400	8.683	8.683
TRT1 - CONTROL	-8.083	-1.800	-1.800	4.483	4.483

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

3. ANALYSIS OF EGGS SET

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

3. ANALYSIS OF EGGS SET

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	L2 L3 L4 -L2-L3-L4

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	3096.4000	1032.1333	1.13	0.3684
Error	16	14675.6000	917.2250		
Corrected Total	19	17772.0000			
R-Square		C.V.	Root MSE	ES Mean	
	0.174229	22.77122	30.286	133.00	

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	3096.4000	1032.1333	1.13	0.3684

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 3. ANALYSIS OF EGGS SET  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	ES	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
	LSMEAN	1/ j	2
CONTROL	118.200000	1	0.1903
TRT1	144.400000	2	0.1632
TRT2	146.200000	3	0.9263
TRT3	123.200000	4	0.2847

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 3. ANALYSIS OF EGGS SET  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for Variable: ES  
 NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 917.225  
 Critical Value of Studentized Range= 4.046  
 Minimum Significant Difference= 54.801  
 Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
Comparison			

TRT2	- TRT1	-53.00	1.80	56.60
TRT2	- TRT3	-31.80	23.00	77.80
TRT2	- CONTROL	-26.80	28.00	82.80
TRT1	- TRT2	-56.60	-1.80	53.00
TRT1	- TRT3	-33.60	21.20	76.00
TRT1	- CONTROL	-28.60	26.20	81.00
TRT3	- TRT2	-77.80	-23.00	31.80
TRT3	- TRT1	-76.00	-21.20	33.60
TRT3	- CONTROL	-49.80	5.00	59.80
CONTROL	- TRT2	-82.80	-28.00	26.80
CONTROL	- TRT1	-81.00	-26.20	28.60
CONTROL	- TRT3	-59.80	-5.00	49.80

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 3. ANALYSIS OF EGGS SET  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for Variable: ES

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 917.225  
 Critical Value of Dunnett's T= 2.227  
 Minimum Significant Difference= 42.659

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL	Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT2	- CONTROL	-14.66	28.00	70.66
TRT1	- CONTROL	-16.46	26.20	68.86
TRT3	- CONTROL	-37.66	5.00	47.66

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 4. ANALYSIS OF VIABLE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 4. ANALYSIS OF VIABLE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL  
Coefficients

INTERCEPT 0  
LEVEL CONTROL L2  
TRT1 L3  
TRT2 L4  
TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
4. ANALYSIS OF VIABLE EMBRYOS  
\*\*\*\*\*  
11:45 Friday, January 5, 1996

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	2231.2000	743.7333	0.83	0.4960
Error	16	14314.0000	894.6250		
Corrected Total	19	16545.2000			

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	2231.2000	743.7333	0.83	0.4960

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
4. ANALYSIS OF VIABLE EMBRYOS  
\*\*\*\*\*  
11:45 Friday, January 5, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	VE	Pr >  T	H0: LSMEAN(i)=SMEAN(j)
	LSMEAN	1/j	1 2 3 4
CONTROL	108.800000	1	0.2301 0.2378 0.7869
TRT1	132.600000	2	0.2301 0.9834 0.3452
TRT2	132.000000	3	0.2378 0.9834 0.3555
TRT3	114.000000	4	0.7869 0.3452 0.3555

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
4. ANALYSIS OF VIABLE EMBRYOS  
\*\*\*\*\*  
11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: VE

NOTE: This test controls the type I experimentwise error rate.  
Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 894.625  
Critical Value of Studentized Range= 4.046  
Minimum Significant Difference= 54.122

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL	Comparison	Simultaneous		Difference Between Means	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1	- TRT2	-53.72	54.52	0.40	53.72	
TRT1	- TRT3	-35.72	72.52	18.40	72.52	
TRT1	- CONTROL	-30.52	77.72	23.60	77.72	
TRT2	- TRT1	-54.52	53.72	-0.40	53.72	
TRT2	- TRT3	-36.12	72.12	18.00	72.12	
TRT2	- CONTROL	-30.92	77.32	23.20	77.32	
TRT3	- TRT1	-72.52	35.72	-18.40	35.72	
TRT3	- TRT2	-72.12	36.12	-18.00	36.12	
TRT3	- CONTROL	-48.92	59.32	5.20	59.32	
CONTROL	- TRT1	-77.72	30.52	-23.60	30.52	
CONTROL	- TRT2	-77.32	30.92	-23.20	30.92	
CONTROL	- TRT3	-59.32	48.92	-5.20	48.92	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
4. ANALYSIS OF VIABLE EMBRYOS  
\*\*\*\*\*  
11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: VE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 894.625  
Critical Value of Dunnett's T= 2.227  
Minimum Significant Difference= 42.13

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL	Comparison	Simultaneous		Difference Between Means	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1	- CONTROL	-18.53	65.73	23.60	65.73	
TRT2	- CONTROL	-18.93	65.33	23.20	65.33	
TRT3	- CONTROL	-36.93	47.33	5.20	47.33	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS  
\*\*\*\*\*  
11:45 Friday, January 5, 1996

General Linear Models Procedure  
Class Level Information

Class Levels Values



Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect Coefficients

INTERCEPT 0  
LEVEL CONTROL L2  
TRT1 L3  
TRT2 L4  
TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: LE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	2362.9500	787.6500	0.87	0.4778
Error	16	14511.6000	906.9750		
Corrected Total	19	16874.5500			

R-Square C.V. Root MSE LE Mean  
0.140030 25.27572 30.116 119.15

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	LE	Pr >  T	HO: LSMEAN(i)=LSMEAN(j)
	LSMEAN	1/j	1 2 3 4
CONTROL	107.400000	1	0.2487 0.2568 0.9259
TRT1	130.200000	2	0.2487 0.9835 0.2865
TRT2	129.800000	3	0.2568 0.9835 0.2955
TRT3	109.200000	4	0.9259 0.2865 0.2955

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: LE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 906.975  
Critical Value of Studentized Range= 4.046  
Minimum Significant Difference= 54.494

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL	Comparison	Simultaneous		Difference Between Means	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1	- TRT2	-54.09	0.40	0.40	54.89	
TRT1	- TRT3	-33.49	21.00	21.00	75.49	
TRT1	- CONTROL	-31.69	22.80	22.80	77.29	
TRT2	- TRT1	-54.89	-0.40	-0.40	54.09	
TRT2	- TRT3	-33.89	20.60	20.60	75.09	
TRT2	- CONTROL	-32.09	22.40	22.40	76.89	
TRT3	- TRT1	-75.49	-21.00	-21.00	33.49	
TRT3	- TRT2	-75.09	-20.60	-20.60	33.89	
TRT3	- CONTROL	-52.69	1.80	1.80	56.29	
CONTROL	- TRT1	-77.29	-22.80	-22.80	31.69	
CONTROL	- TRT2	-76.89	-22.40	-22.40	32.09	
CONTROL	- TRT3	-56.29	-1.80	-1.80	52.69	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: LE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 906.975  
Critical Value of Dunnnett's T= 2.227  
Minimum Significant Difference= 42.42

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL	Comparison	Simultaneous		Difference Between Means	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1	- CONTROL	-19.62	22.80	22.80	65.22	
TRT2	- CONTROL	-20.02	22.40	22.40	64.82	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
6. ANALYSIS OF NORMAL HATCHLINGS

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
6. ANALYSIS OF NORMAL HATCHLINGS

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect Coefficients

INTERCEPT	0
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
6. ANALYSIS OF NORMAL HATCHLINGS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: NH

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	2411.8000	803.9333	0.85	0.4873
Error	16	15154.0000	947.1250		
Corrected Total	19	17565.8000			

R-Square	C.V.	Root MSE	NH Mean
0.137301	39.50629	30.775	77.900

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	2411.8000	803.9333	0.85	0.4873

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
6. ANALYSIS OF NORMAL HATCHLINGS

General Linear Models Procedure  
Least Squares Means

LEVEL	NH	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
	LSMEAN	i/j	1 2 3 4
CONTROL	75.80000000	1	0.3485 0.9355 0.5462
TRT1	94.60000000	2	0.3485 0.3900 0.1331
TRT2	77.40000000	3	0.9355 0.3900 0.4948
TRT3	63.80000000	4	0.5462 0.1331 0.4948

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
6. ANALYSIS OF NORMAL HATCHLINGS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: NH

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 947.125

Critical Value of Studentized Range= 4.046

Minimum Significant Difference= 55.687

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL	Comparison	Simultaneous		Difference Between Means	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1	- TRT2	-38.49	17.20	18.80	72.89	
TRT1	- CONTROL	-36.89	18.80	18.80	74.49	
TRT1	- TRT3	-24.89	30.80	30.80	86.49	
TRT2	- TRT1	-72.89	-17.20	-17.20	38.49	
TRT2	- CONTROL	-54.09	1.60	1.60	57.29	
TRT2	- TRT3	-42.09	13.60	13.60	69.29	
CONTROL	- TRT1	-74.49	-18.80	-18.80	36.89	
CONTROL	- TRT2	-57.29	-1.60	-1.60	54.09	
CONTROL	- TRT3	-43.69	12.00	12.00	67.69	
TRT3	- TRT1	-86.49	-30.80	-30.80	24.89	
TRT3	- TRT2	-69.29	-13.60	-13.60	42.09	
TRT3	- CONTROL	-67.69	-12.00	-12.00	43.69	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
6. ANALYSIS OF NORMAL HATCHLINGS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnett's One-tailed T tests for variable: NH

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL	Comparison	Simultaneous		Simultaneous	
		Lower Confidence Limit	Difference Between Means	Upper Confidence Limit	
TRT1	- CONTROL	-24.55	18.80	62.15	
TRT2	- CONTROL	-41.75	1.60	44.95	
TRT3	- CONTROL	-55.35	-12.00	31.35	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 7. ANALYSIS OF HATCHLINGS REARED  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 7. ANALYSIS OF HATCHLINGS REARED  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Coefficients

INTERCEPT	0
LEVEL	CONTROL
	L2
	L3
	L4
	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 7. ANALYSIS OF HATCHLINGS REARED  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: HR

Source	Model	DF	Sum of Squares	Mean Square	F Value	Pr > F
Error		28	1190.87500	42.53125		
Corrected Total		31	1436.96875			
	R-Square				C.V.	Root MSE
			0.171259		17.64084	6.5216
						HR Mean
						36.969

Source	LEVEL	DF	Type I SS	Mean Square	F Value	Pr > F
		3	246.09375	82.03125	1.93	0.1478

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 7. ANALYSIS OF HATCHLINGS REARED  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	HR	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
CONTROL	37.500000	1	0.8198
TRT1	38.250000	2	0.8198
TRT2	39.750000	3	0.4959
TRT3	32.375000	4	0.1275

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 7. ANALYSIS OF HATCHLINGS REARED  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for Variable: HR

NOTE: This test controls the type I experimentwise error rate.  
 Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 42.53125  
 Critical Value of Studentized Range= 3.861  
 Minimum Significant Difference= 8.903

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL	Comparison	Simultaneous		Simultaneous	
		Lower Confidence Limit	Difference Between Means	Upper Confidence Limit	
TRT2	- TRT1	-7.403	1.500	10.403	
TRT2	- CONTROL	-6.653	2.250	11.153	
TRT2	- TRT3	-1.528	7.375	16.278	
TRT1	- TRT2	-10.403	-1.500	7.403	
TRT1	- CONTROL	-8.153	0.750	9.653	
TRT1	- TRT3	-3.028	5.875	14.778	
CONTROL	- TRT2	-11.153	-2.250	6.653	
CONTROL	- TRT1	-9.653	-0.750	8.153	
CONTROL	- TRT3	-3.778	5.125	14.028	
TRT3	- TRT2	-16.278	-7.375	1.528	
TRT3	- TRT1	-14.778	-5.875	3.028	
TRT3	- CONTROL	-14.028	-5.125	3.778	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 7. ANALYSIS OF HATCHLINGS REARED

Handwritten mark resembling a stylized 'R' or 'L'.

11:45 Friday, January 5, 1996

General Linear Models Procedure

Durnett's One-tailed T tests for Variable: HR

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 42.53125  
 Critical Value of Durnett's T= 2.154  
 Minimum Significant Difference= 7.0227

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT2 - CONTROL	-4.773	2.250	2.250	9.273	7.773
TRT1 - CONTROL	-6.273	0.750	0.750	7.773	7.773
TRT3 - CONTROL	-12.148	-5.125	-5.125	1.898	1.898

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

8. ANALYSIS OF 14-DAY-OLD SURVIVORS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

8. ANALYSIS OF 14-DAY-OLD SURVIVORS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Type I Estimable Functions for: LEVEL

Coefficients

INTERCEPT	0
LEVEL	CONTROL L2
	TRT1 L3
	TRT2 L4
	TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

8. ANALYSIS OF 14-DAY-OLD SURVIVORS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Source	Df	Sum of Squares	Mean Square	F Value	Pr > F
Dependent Variable: HS					

11:45 Friday, January 5, 1996

General Linear Models Procedure

Least Squares Means

Model	3	232.25000	77.41667	1.88	0.1561
Error	28	1153.75000	41.20536		
Corrected Total	31	1386.00000			
R-Square					
C.V.					
Root MSE					
DF	3	232.25000	77.41667	1.88	0.1561

Source	Df	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	232.25000	77.41667	1.88	0.1561

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

8. ANALYSIS OF 14-DAY-OLD SURVIVORS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Least Squares Means

LEVEL	HS	Pr >  T	H0: LSMEAN(1)=LSMEAN(1)
CONTROL	36.5000000	1	0.7577
TRT1	37.5000000	2	0.7577
TRT2	39.1250000	3	0.4205
TRT3	31.8750000	4	0.1607

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

8. ANALYSIS OF 14-DAY-OLD SURVIVORS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: HS

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 41.20536  
 Critical Value of Studentized Range= 3.861  
 Minimum Significant Difference= 8.7631

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT2 - TRT1	-7.138	1.625	1.625	10.388	10.388
TRT2 - CONTROL	-6.138	2.625	2.625	11.388	11.388
TRT2 - TRT3	-1.513	7.250	7.250	16.013	16.013
TRT1 - TRT2	-10.388	-1.625	-1.625	7.138	7.138
TRT1 - CONTROL	-7.763	1.000	1.000	9.763	9.763
TRT1 - TRT3	-3.138	5.625	5.625	14.388	14.388
CONTROL - TRT2	-11.388	-2.625	-2.625	6.138	6.138

2

CONTROL - TRT1	-9.763	-1.000	7.763
CONTROL - TRT3	-4.138	4.625	13.388
TRT3 - TRT2	-16.013	-7.250	1.513
TRT3 - TRT1	-14.388	-5.625	3.138
TRT3 - CONTROL	-13.388	-4.625	4.138

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

8. ANALYSIS OF 14-DAY-OLD SURVIVORS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: HS

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 41.20536  
 Critical Value of Dunnnett's T= 2.154  
 Minimum Significant Difference= 6.9124

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL	Simultaneous		Simultaneous	
	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit	
TRT2 - CONTROL	-4.287	2.625	9.537	
TRT1 - CONTROL	-5.912	1.000	7.912	
TRT3 - CONTROL	-11.537	-4.625	2.287	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

9. ANALYSIS OF EGGS SET/EGGS LAID  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

9. ANALYSIS OF EGGS SET/EGGS LAID  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Type I Estimable Functions for: LEVEL

Coefficients

EFFECT	INTERCEPT	0
LEVEL	CONTROL	L2
	TRT1	L3

TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

9. ANALYSIS OF EGGS SET/EGGS LAID  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE  
 Height: EL

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	6159.2067	2053.0689	1.07	0.3914
Error	16	30830.5973	1926.9123		
Corrected Total	19	36989.8040			

R-Square	0.166511	C.V.	61.61309	Root MSE	43.897	RESPONSE Mean	71.246
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Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	6159.2067	2053.0689	1.07	0.3914

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

9. ANALYSIS OF EGGS SET/EGGS LAID  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Least Squares Means

LEVEL	RESPONSE	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
	LSMEAN	i/j	1 2 3 4
CONTROL	70.4913629	1	0.2114 0.8100 0.7334
TRT1	73.5008089	2	0.2114 0.2804 0.1118
TRT2	71.0512786	3	0.8100 0.2804 0.5487
TRT3	69.6692328	4	0.7334 0.1118 0.5487

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

9. ANALYSIS OF EGGS SET/EGGS LAID  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 1926.912  
 Critical Value of Studentized Range= 4.046  
 Minimum Significant Difference= 79.43

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

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LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT1 - TRT2	-76.980	2.450	81.879
TRT1 - CONTROL	-76.420	3.009	82.439
TRT1 - TRT3	-75.598	3.832	83.261
TRT2 - TRT1	-81.879	-2.450	76.980
TRT2 - CONTROL	-78.870	0.560	79.989
TRT2 - TRT3	-78.048	1.382	80.812
CONTROL - TRT1	-82.439	-3.009	76.420
CONTROL - TRT2	-79.989	-0.560	78.870
CONTROL - TRT3	-78.607	0.822	80.252
TRT3 - TRT1	-85.261	-3.832	75.598
TRT3 - TRT2	-80.812	-1.382	78.048
TRT3 - CONTROL	-80.252	-0.822	78.607

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

9. ANALYSIS OF EGGS SET/EGGS LAID

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 1926.912  
 Critical Value of Dunnnett's T= 2.227  
 Minimum Significant Difference= 61.831

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT1 - CONTROL	-58.821	3.009	64.840
TRT2 - CONTROL	-61.271	0.560	62.391
TRT3 - CONTROL	-62.653	-0.822	61.009

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Class Level Information

Class Levels Values  
 LEVEL 4 CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	L2 L3 L4 L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	3058.6372	1019.5457	0.55	0.6540
Error	16	29547.1367	1846.6960		
Corrected Total	19	32605.7739			
R-Square		58.52334	42.973		73.429
Corrected R-Square		0.093807			

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	3058.6372	1019.5457	0.55	0.6540

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Least Squares Means

LEVEL	RESPONSE	Pr >  t	HO: LSMEAN(I)=LSMEAN(J)
CONTROL	73.9181969	1	0.8072 0.4149 0.7082
TRT1	73.3268622	2	0.8072 0.5438 0.5244
TRT2	71.9282462	3	0.4149 0.5438 0.2301
TRT3	74.8610470	4	0.7082 0.5244 0.2301

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 1846.696  
 Critical Value of Studentized Range= 4.046  
 Minimum Significant Difference= 77.759

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT3 - CONTROL	-76.816	78.702	0.943	76.816	78.702
TRT3 - TRT1	-76.225	79.293	1.534	77.167	79.293
TRT3 - TRT2	-74.826	80.692	2.933	79.749	80.692
CONTROL - TRT3	-78.702	76.816	-0.943	76.816	78.702
CONTROL - TRT1	-77.167	78.350	0.591	77.167	78.350
CONTROL - TRT2	-75.769	79.749	1.990	79.749	79.749
TRT1 - CONTROL	-79.293	76.225	-1.534	76.225	79.293
TRT1 - TRT2	-78.350	77.167	-0.591	77.167	78.350
TRT1 - TRT3	-76.350	79.157	1.399	79.157	79.157
TRT2 - CONTROL	-80.692	74.826	-2.933	74.826	80.692
TRT2 - TRT1	-79.749	75.769	-1.990	75.769	79.749
TRT2 - TRT3	-79.157	76.350	-1.399	76.350	79.157

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

10. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 1846.696  
 Critical Value of Dunnnett's T= 2.227  
 Minimum Significant Difference= 60.53

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT3 - CONTROL	-59.587	61.473	0.943	61.473	61.473
TRT1 - CONTROL	-61.121	59.939	-0.591	59.939	59.939
TRT2 - CONTROL	-62.520	58.540	-1.990	58.540	58.540

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	12852.878	4284.293	2.84	0.0712
Error	16	24176.400	1511.025		
Corrected Total	19	37029.278			
		R-Square	C.V.	Root MSE	RESPONSE Mean
		0.347100	47.16813	38.872	82.411

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Least Squares Means

LEVEL	RESPONSE	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
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6

LSMEAN	i/j	1	2	3	4	
CONTROL		83.6815964	1	0.7327	0.7658	0.0367
TRT1		82.8996744	2	0.7327	0.5034	0.0584
TRT2		84.3635084	3	0.7658	0.5034	0.0159
TRT3		78.3716240	4	0.0367	0.0584	0.0159

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIALE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE  
 NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 1511.025  
 Critical Value of Studentized Range= 4.046  
 Minimum Significant Difference= 70.338

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Upper Confidence Limit	Lower Confidence Limit
TRT2 - CONTROL	-69.656	71.019	0.682	71.019	
TRT2 - TRT1	-68.874	1.464	5.992	76.329	
TRT2 - TRT3	-64.346	5.992			
CONTROL - TRT2	-71.019	-0.682			
CONTROL - TRT1	-69.556	0.782			
CONTROL - TRT3	-65.028	5.310			
TRT1 - TRT2	-71.801	-1.464			
TRT1 - CONTROL	-71.119	-0.782			
TRT1 - TRT3	-65.809	4.528			
TRT3 - TRT2	-76.329	-5.992			
TRT3 - CONTROL	-75.648	-4.528			
TRT3 - TRT1	-74.866	64.346			

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 11. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIALE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: RESPONSE  
 NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 1511.025  
 Critical Value of Dunnnett's T= 2.227  
 Minimum Significant Difference= 54.753

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

Simultaneous Simultaneous

LEVEL Comparison	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT2 - CONTROL	-54.071	0.682	55.435
TRT1 - CONTROL	-55.535	-0.782	53.971
TRT3 - CONTROL	-60.063	-5.310	49.443

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	CONTROL L2 TRT1 L3 TRT2 L4 TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE  
 Weight: LE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	36941.835	12313.945	1.90	0.1696
Error	16	103453.899	6465.869		
Corrected Total	19	140395.734			

	R-Square	C.V.	Root MSE	RESPONSE Mean
Corrected Total	0.263126	148.2811	80.411	54.229

Source	DF	Type I SS	Mean Square	F Value	Pr > F
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8



LEVEL	3	36941.835	12313.945	1.90	0.1696
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EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	RESPONSE	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
	LSMEAN	i/j	1 2 3 4
CONTROL	57.4924845	1	0.8025 0.1657 0.1410
TRT1	58.6847623	2	0.0916 0.0788
TRT2	50.6799311	3	0.1657 0.0916
TRT3	49.9231475	4	0.1410 0.0788 0.8733

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.  
 Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 6465.869  
 Critical Value of Studentized Range= 4.046  
 Minimum Significant Difference= 145.5

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL	Comparison	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit
CONTROL	CONTROL	-144.308	146.693
TRT1	CONTROL	-137.496	153.505
TRT1	TRT3	-136.739	154.262
CONTROL	TRT1	-146.693	144.308
CONTROL	TRT2	-138.688	152.313
CONTROL	TRT3	-137.931	153.070
TRT2	TRT1	-153.505	137.496
TRT2	CONTROL	-152.313	138.688
TRT2	TRT3	-144.744	146.257
TRT3	TRT1	-154.262	136.739
TRT3	CONTROL	-153.070	137.931
TRT3	TRT2	-146.257	144.744

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 12. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Dunnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.  
 Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 6465.869  
 Critical Value of Dunnett's T= 2.227  
 Minimum Significant Difference= 113.26

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL	Comparison	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit
CONTROL	CONTROL	-112.070	114.455
TRT1	CONTROL	-120.075	106.450
TRT2	CONTROL	-120.832	105.693
CONTROL	TRT1	-1192	1192
CONTROL	TRT2	-6.813	6.813
CONTROL	TRT3	-7.569	7.569

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	L2
	L3
	L4
	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE  
 Weight: EL  
 Sum of Mean



Source	Df	Squares	Square	F Value	Pr > F
Model	3	41799.636	13933.212	1.82	0.1843
Error	16	122560.329	7660.021		
Corrected Total	19	164359.965			
R-Square		C.V.	Root MSE	RESPONSE Mean	
	0.254318	188.9307	87.522	46.325	

Source	Df	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	41799.636	13933.212	1.82	0.1843

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID

11:45 Friday, January 5, 1996  
General Linear Models Procedure  
Least Squares Means

LEVEL	RESPONSE	Pr >  T	H0: LSMEAN(I)=LSMEAN(J)
	LSMEAN	1/J	2
CONTROL	49.0601316	1	0.6911
TRT1	50.9255594	2	0.1049
TRT2	43.4101190	3	0.2340
TRT3	41.9928083	4	0.0667

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID

11:45 Friday, January 5, 1996  
General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE  
NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 7660.021  
Critical Value of Studentized Range= 4.046  
Minimum Significant Difference= 158.37

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL	Comparison	Simultaneous Lower Confidence Limit	Simultaneous Difference Between Means	Simultaneous Upper Confidence Limit
TRT1	- CONTROL	-156.502	1.865	160.233
TRT1	- TRT2	-150.852	7.515	165.883
TRT1	- TRT3	-149.433	8.933	167.300
CONTROL	- TRT1	-160.233	-1.865	156.502
CONTROL	- TRT2	-152.718	5.650	164.018
CONTROL	- TRT3	-151.300	7.067	165.433

LEVEL	Comparison	Simultaneous Lower Confidence Limit	Simultaneous Difference Between Means	Simultaneous Upper Confidence Limit
TRT2	- TRT1	-165.883	-7.515	150.852
TRT2	- CONTROL	-164.018	-5.650	152.718
TRT2	- TRT3	-156.950	1.417	159.785
TRT3	- TRT1	-167.300	-8.933	149.433
TRT3	- CONTROL	-165.433	-7.067	151.300
TRT3	- TRT2	-159.785	-1.417	156.950

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
13. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID

11:45 Friday, January 5, 1996  
General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: RESPONSE  
NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 7660.021  
Critical Value of Dunnnett's T= 2.227  
Minimum Significant Difference= 123.28

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL	Comparison	Simultaneous Lower Confidence Limit	Simultaneous Difference Between Means	Simultaneous Upper Confidence Limit
TRT1	- CONTROL	-121.413	1.865	125.144
TRT2	- CONTROL	-128.929	-5.650	117.629
TRT3	- CONTROL	-130.346	-7.067	116.212

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED

11:45 Friday, January 5, 1996  
General Linear Models Procedure  
Class Level Information

Class Levels Values  
LEVEL 4 CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED

11:45 Friday, January 5, 1996  
General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	L2 L3 L4 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE  
 HR

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	980.63961	326.87987	0.23	0.8753
Error	28	39950.11538	1426.78983		
Corrected Total	31	40930.75499			

Source	DF	Type I SS	Mean Square	F Value	Pr > F
R-Square		0.023959	44.71769	37.773	84.470
C.V.					
Root MSE					

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	RESPONSE	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
	LSMEAN	1/1	2
CONTROL	83.1887120	1	0.7419 0.5763 0.4356
TRT1	84.2096605	2	0.7419 0.8192 0.6389
TRT2	84.9075512	3	0.5763 0.8192 0.7984
TRT3	85.7228100	4	0.4356 0.6389 0.7984

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE  
 NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 1426.79  
 Critical Value of Studentized Range= 3.861  
 Minimum Significant Differences= 51.566

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.  
 Simultaneous Lower Difference Simultaneous Upper

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

LEVEL	Comparison	Confidence Limit	Between Means	Confidence Limit
TRT3	- TRT2	-50.751	0.815	52.381
TRT3	- TRT1	-50.053	1.513	53.079
TRT3	- CONTROL	-49.032	2.534	54.100
TRT2	- TRT3	-52.381	-0.815	50.751
TRT2	- TRT1	-50.868	0.698	52.264
TRT2	- CONTROL	-49.847	1.719	53.285
TRT1	- TRT3	-53.079	-1.513	50.053
TRT1	- TRT2	-52.264	-0.698	52.587
TRT1	- CONTROL	-50.545	1.021	52.587
CONTROL	- TRT3	-54.100	-2.534	49.032
CONTROL	- TRT2	-53.285	-1.719	49.847
CONTROL	- TRT1	-52.587	-1.021	50.545

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 14. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/HATCHLINGS REARED  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 1426.79  
 Critical Value of Dunnnett's T= 2.154  
 Minimum Significant Difference= 40.675

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL	Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT3	- CONTROL	-38.141	2.534	43.209
TRT2	- CONTROL	-38.956	1.719	42.394
TRT1	- CONTROL	-39.654	1.021	41.696

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID



General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect Coefficients

INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dependent Variable: RESPONSE  
 Weight:

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	13888.067	4629.356	1.87	0.1760
Error	16	39689.773	2480.611		
Corrected Total	19	53577.840			

R-Square 0.259213 C.V. 49.806 Root MSE 78.554  
 63.40303

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	13888.067	4629.356	1.87	0.1760

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL	RESPONSE	Pr >  t	HO: LSMEAN(i)=LSMEAN(j)
	LSMEAN	i/j	1 2 3 4
CONTROL	78.8004885	1	0.2814 0.6700 0.2829
TRT1	81.7249712	2	0.2814 0.1228 0.0360
TRT2	77.6718504	3	0.6700 0.1228 0.4775
TRT3	75.8101430	4	0.2829 0.0360 0.4775

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

Tukey's Studentized Range (HSD) Test for variable: RESPONSE  
 NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 2480.611  
 Critical Value of Studentized Range= 4.046  
 Minimum Significant Difference= 90.122

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL	Comparison	Simultaneous		Difference Between Means	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1	- CONTROL	-87.197	93.046	2.924	87.197	
TRT1	- TRT2	-86.069	94.175	4.053	94.175	
TRT1	- TRT3	-84.207	96.037	5.915	96.037	
CONTROL	- TRT1	-93.046	87.197	-2.924	87.197	
CONTROL	- TRT2	-88.993	91.251	1.129	91.251	
CONTROL	- TRT3	-87.132	93.112	2.990	93.112	
TRT2	- TRT1	-94.175	86.069	-4.053	86.069	
TRT2	- CONTROL	-91.251	88.993	-1.129	88.993	
TRT2	- TRT3	-88.260	91.984	1.862	91.984	
TRT3	- TRT1	-96.037	84.207	-5.915	84.207	
TRT3	- CONTROL	-93.112	87.132	-2.990	87.132	
TRT3	- TRT2	-91.984	88.260	-1.862	88.260	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 15. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 2480.611  
 Critical Value of Dunnnett's T= 2.227  
 Minimum Significant Difference= 70.154

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL	Comparison	Simultaneous		Difference Between Means	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1	- CONTROL	-67.230	73.079	2.924	73.079	
TRT2	- CONTROL	-71.283	69.025	-1.129	69.025	
TRT3	- CONTROL	-73.144	67.164	-2.990	67.164	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 16. ANALYSIS OF NORMAL HATCHINGS/EGGS SET  
 \*\*\*\*\*

11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect Coefficients  
 INTERCEPT 0

LEVEL CONTROL L2  
 TRT1 L3  
 TRT2 L4  
 TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

Dependent Variable: RESPONSE  
 Height: ES

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	37425.943	12475.314	1.88	0.1736
Error	16	106160.868	6635.054		
Corrected Total	19	143586.811			

R-Square	C.V.	Root MSE	RESPONSE Mean
0.260650	162.7961	81.456	50.035

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	37425.943	12475.314	1.88	0.1736

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Least Squares Means

LEVEL RESPONSE Pr > |T| HO: LSMEAN(i)=LSMEAN(j)  
 LSMEAN i/j 1 2 3 4

LEVEL	CONTROL	TRT1	TRT2	TRT3
CONTROL	53.4201321	1	0.8752	0.1549
TRT1	54.1410638	2	0.1006	0.0852
TRT2	46.6929563	3	0.1549	0.1549
TRT3	45.9426943	4	0.1304	0.0852

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: RESPONSE

NOTE: This test controls the type I experimentwise error rate.  
 Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 6635.054  
 Critical Value of Studentized Range= 4.046  
 Minimum Significant Difference= 147.39

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL	Comparison	Simultaneous		Difference Between Means	Simultaneous	
		Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1	- CONTROL	-146.671	148.113	0.721	148.113	
TRT1	- TRT2	-139.944	154.840	7.448	154.840	
TRT1	- TRT3	-139.193	155.590	8.198	155.590	
CONTROL	- TRT1	-148.113	146.671	-0.721	146.671	
CONTROL	- TRT2	-140.665	154.119	6.727	154.119	
CONTROL	- TRT3	-139.914	154.869	7.477	154.869	
TRT2	- TRT1	-154.840	139.944	-7.448	139.944	
TRT2	- CONTROL	-154.119	140.665	-6.727	140.665	
TRT2	- TRT3	-146.642	148.142	0.750	148.142	
TRT3	- TRT1	-155.590	139.193	-8.198	139.193	
TRT3	- CONTROL	-154.869	139.914	-7.477	139.914	
TRT3	- TRT2	-148.142	146.642	-0.750	146.642	

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK

16. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: RESPONSE

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.  
 Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 6635.054  
 Critical Value of Dunnnett's T= 2.227  
 Minimum Significant Difference= 114.73

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL	Simultaneous		Difference Between	Simultaneous	
	Lower Confidence	Upper Confidence		Lower Confidence	Upper Confidence

Comparison	Limit	Means	Limit
TRT1 - CONTROL	-114.014	0.721	115.456
TRT2 - CONTROL	-121.462	-6.727	108.008
TRT3 - CONTROL	-122.212	-7.477	107.258

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
17. ANALYSIS OF EGGSHELL THICKNESS

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
17. ANALYSIS OF EGGSHELL THICKNESS

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	CONTROL L2 TRT1 L3 TRT2 L4 TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
17. ANALYSIS OF EGGSHELL THICKNESS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	0.0016636	0.0005545	3.83	0.0304
Error	16	0.0023152	0.0001447		
Corrected Total	19	0.0039788			

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Model	3	0.0016636	0.0005545	3.83	0.0304
Error	16	0.0023152	0.0001447		
Corrected Total	19	0.0039788			

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Model	3	0.0016636	0.0005545	3.83	0.0304
Error	16	0.0023152	0.0001447		
Corrected Total	19	0.0039788			

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
17. ANALYSIS OF EGGSHELL THICKNESS

11:45 Friday, January 5, 1996

General Linear Models Procedure  
Least Squares Means

LEVEL	THICK	Pr >  T	NO: LSMEAN(I)=LSMEAN(J)
CONTROL	0.36520000	1	0.3712 0.6609 0.0309
TRT1	0.37220000	2	0.3712 0.1905 0.0047
TRT2	0.36180000	3	0.6609 0.1905 0.0730
TRT3	0.34720000	4	0.0309 0.0047 0.0730

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
17. ANALYSIS OF EGGSHELL THICKNESS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: THICK

NOTE: This test controls the type I experimentwise error rate.  
Alpha=0.05 Confidence=0.95 df= 16 MSE= 0.000145  
Critical Value of Studentized Range= 4.046  
Minimum Significant Difference= 0.0218

Comparisons significant at the 0.05 level are indicated by \*\*\*\*.

LEVEL Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT1 - CONTROL	-0.014766	0.007000	0.028766
TRT1 - TRT2	-0.011366	0.010400	0.032166
TRT1 - TRT3	0.003234	0.025000	0.046766
CONTROL - TRT1	-0.028766	-0.007000	0.014766
CONTROL - TRT2	-0.018366	0.003400	0.025166
CONTROL - TRT3	-0.003766	0.018000	0.039766
TRT2 - TRT1	-0.032166	-0.010400	0.011366
TRT2 - CONTROL	-0.025166	-0.003400	0.018366
TRT2 - TRT3	-0.007166	0.014600	0.035366
TRT3 - TRT1	-0.046766	-0.025000	-0.003234
TRT3 - CONTROL	-0.039766	-0.018000	0.003766
TRT3 - TRT2	-0.036366	-0.014600	0.007166

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
17. ANALYSIS OF EGGSHELL THICKNESS

11:45 Friday, January 5, 1996

General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: THICK

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.  
 Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 0.000145  
 Critical Value of Dunnett's T= 2.227  
 Minimum Significant Difference= 0.0169  
 Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL	Simultaneous		Simultaneous	
	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit	
TRT1 - CONTROL	-0.009944	0.007000	0.023944	
TRT2 - CONTROL	-0.020344	-0.003400	0.013544	
TRT3 - CONTROL	-0.034944	-0.018000	-0.001056	****

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Class Level Information  
 Class Levels Values  
 LEVEL 4 CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure  
 Dependent Variable: HATWT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	14.125000	4.708333	1.86	0.1587
Error	28	70.750000	2.526786		
Corrected Total	31	84.875000			

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	14.125000	4.708333	1.86	0.1587

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996  
 General Linear Models Procedure  
 Least Squares Means

LEVEL	HATWT	Pr >  T	HO: LSMEAN(i)=LSMEAN(j)
CONTROL	34.7500000	1	0.8762 0.2803 0.0695
TRT1	34.8750000	2	0.8762 0.2187 0.0504
TRT2	33.8750000	3	0.2803 0.2187 0.4383
TRT3	33.2500000	4	0.0695 0.0504 0.4383

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996

General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: HATWT

NOTE: This test controls the type I experimentwise error rate.  
 Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 2.526786  
 Critical Value of Studentized Range= 3.861  
 Minimum Significant Difference= 2.17

Comparisons significant at the 0.05 level are indicated by '\*\*\*\*'.

LEVEL	Comparison	Simultaneous		Simultaneous	
		Lower Confidence Limit	Difference Between Means	Upper Confidence Limit	
TRT1 - CONTROL	-2.0450	0.1250	2.2950		
TRT1 - TRT2	-1.1700	1.0000	3.1700		
TRT1 - TRT3	-0.5450	1.6250	3.7950		
CONTROL - TRT1	-2.2950	-0.1250	2.0450		
CONTROL - TRT2	-1.2950	0.8750	3.0450		
CONTROL - TRT3	-0.6700	1.5000	3.6700		
TRT2 - TRT1	-3.1700	-1.0000	1.1700		
TRT2 - CONTROL	-3.0450	-0.8750	1.2950		
TRT2 - TRT3	-1.5450	0.6250	2.7950		
TRT3 - TRT1	-3.7950	-1.6250	0.5450		
TRT3 - CONTROL	-3.6700	-1.5000	0.6700		
TRT3 - TRT2	-2.7950	-0.6250	1.5450		

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 18. ANALYSIS OF HATCHLING WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996  
 General Linear Models Procedure

Dunnnett's One-tailed T tests for variable: HATWT  
 NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.  
 Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 2.526786  
 Critical Value of Dunnnett's T= 2.154  
 Minimum Significant Difference= 1.7117

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1 - CONTROL	-1.5867	0.1250	1.8367	0.8367	0.2117
TRT2 - CONTROL	-2.5867	-0.8750	0.8367	0.8367	0.2117
TRT3 - CONTROL	-3.2117	-1.5000	0.2117	0.2117	0.2117

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996  
 General Linear Models Procedure  
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996  
 General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0
LEVEL	CONTROL L2 TRT1 L3 TRT2 L4 TRT3 -L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996  
 General Linear Models Procedure

Dependent Variable: SURVWT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	363.75000	121.25000	0.45	0.7195
Error	28	7549.75000	269.63393		
Corrected Total	31	7913.50000			
R-Square		C.V.	Root MSE		
	0.045966	7.768437	16.421		211.38

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	363.75000	121.25000	0.45	0.7195

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996  
 General Linear Models Procedure  
 Least Squares Means

LEVEL	SURVWT	Pr >  t	H0: LSMEAN(i)=LSMEAN(j)
	LSMEAN	i/j	1 2 3 4
CONTROL	212.750000	1	0.7516 0.8564 0.4265
TRT1	215.375000	2	0.7516 0.6193 0.2695
TRT2	211.250000	3	0.8564 0.6193 0.5375
TRT3	206.125000	4	0.4265 0.2695 0.5375

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*  
 11:45 Friday, January 5, 1996  
 General Linear Models Procedure

Tukey's Studentized Range (HSD) Test for variable: SURVWT  
 NOTE: This test controls the type I experimentwise error rate.  
 Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 269.6339  
 Critical Value of Studentized Range= 3.861  
 Minimum Significant Difference= 22.417  
 Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL	Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit
TRT1 - CONTROL		-19.792	2.625	25.042
TRT1 - TRT2		-18.292	4.125	26.542
TRT1 - TRT3		-13.167	9.250	31.667
CONTROL - TRT1		-25.042	-2.625	19.792



CONTROL - TRT2	-20.917	1.500	23.917
CONTROL - TRT3	-15.792	6.625	29.042
TRT1 - CONTROL	-26.542	-4.125	18.292
TRT2 - CONTROL	-23.917	-1.500	20.917
TRT3 - CONTROL	-17.292	5.125	27.542
TRT1 - TRT2	-31.667	-9.250	13.167
TRT2 - TRT3	-29.042	-6.625	15.792
TRT3 - TRT1	-27.542	-5.125	17.292

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT  
 \*\*\*\*\*  
 General Linear Models Procedure  
 11:45 Friday, January 5, 1996

NOTE: This tests controls the type I experimentwise error for comparisons of all treatments against a control.

Alpha= 0.05 Confidence= 0.95 df= 28 MSE= 269.6339  
 Critical Value of Dunnett's T= 2.154  
 Minimum Significant Difference= 17.682

Comparisons significant at the 0.05 level are indicated by \*\*\*\*\*.

LEVEL	Comparison	Simultaneous		Upper Confidence Limit
		Lower Confidence Limit	Difference Between Means	
TRT1	- CONTROL	-15.057	2.625	20.307
TRT2	- CONTROL	-19.182	-1.500	16.182
TRT3	- CONTROL	-24.307	-6.625	11.057

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 20. ANALYSIS OF FOOD CONSUMPTION  
 \*\*\*\*\*

General Linear Models Procedure  
 Class Level Information  
 11:45 Friday, January 5, 1996

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 32

NOTE: Due to missing values, only 20 observations can be used in this analysis.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 20. ANALYSIS OF FOOD CONSUMPTION  
 \*\*\*\*\*  
 General Linear Models Procedure  
 Type I Estimable Functions for: LEVEL  
 Coefficients  
 11:45 Friday, January 5, 1996

INTERCEPT	0
LEVEL	
CONTROL	L2
TRT1	L3
TRT2	L4
TRT3	-L2-L3-L4

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 20. ANALYSIS OF FOOD CONSUMPTION  
 \*\*\*\*\*  
 General Linear Models Procedure  
 11:45 Friday, January 5, 1996

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	93.400000	31.133333	0.74	0.5419
Error	16	670.400000	41.900000		
Corrected Total	19	763.800000			
R-Square		C.V.	Root MSE		FOOD Mean
	0.122283	6.531807	6.4730		99.100

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	93.400000	31.133333	0.74	0.5419

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 20. ANALYSIS OF FOOD CONSUMPTION  
 \*\*\*\*\*  
 General Linear Models Procedure  
 Least Squares Means  
 11:45 Friday, January 5, 1996

LEVEL	FOOD LSMEAN	Pr >  T	H0: LSMEAN(i)=LSMEAN(j)
CONTROL	101.800000	1	0.2222
TRT1	96.600000	2	0.2222
TRT2	100.600000	3	0.7732
TRT3	97.400000	4	0.2984

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

EFFECTS OF METALAXYL ON THE REPRODUCTION OF MALLARD DUCK  
 20. ANALYSIS OF FOOD CONSUMPTION  
 \*\*\*\*\*  
 General Linear Models Procedure  
 Tukey's Studentized Range (HSD) Test for variable: FOOD  
 NOTE: This test controls the type I experimentwise error rate.

Alpha= 0.05 Confidence= 0.95 df= 16 MSE= 41.9  
 Critical Value of Studentized Range= 4.046  
 Minimum Significant Difference= 11.713

8