

US EPA ARCHIVE DOCUMENT

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

1. **CHEMICAL:** XDE-105 PC Code No.: 11003

2. **TEST MATERIAL:** Spinosad Purity: 88%

3. **CITATION**

Authors: Beavers, J.B., K. Chafey, L.R. Mitchell
and M. Jaber

Title: XDE-105 Insecticide: A Reproduction Study
With the Mallard (*Anas platyrhynchos*)

Study Completion Date: 1994

Laboratory: Wildlife International Ltd.

Sponsor: DowElanco

Laboratory Report ID: 103-388

MRID No.: 43414532

4. **REVIEWED BY:** Joanne S. Edwards, Entomologist, EEB, EFED

Signature: *Joanne S Edwards*

Date: 4/27/96

5. **APPROVED BY:** Leslie Touart, Head of Section 1, EEB, EFED

Signature: *L. Touart*

Date: 3/25/96

6. **STUDY PARAMETERS**

Scientific Name of Test Organism: Mallard

Age of Test Organisms at Test Initiation: 26 weeks

Definitive Study Duration: 20 weeks

7. **CONCLUSIONS:**

Results Synopsis

Most sensitive endpoints: eggshell thickness, eggs laid,
viable embryos, live-three week embryos, normal hatchlings
and fourteen day old survivors, reduction in terminal female
body weight

NOEC: 550 ppm ai

LOEC: 1100 ppm ai

8. **ADEQUACY OF THE STUDY**

A. **Classification:** Core.

B. **Rationale:** N/A

C. **Repairability:** N/A

9. **GUIDELINE DEVIATIONS**

1. None.

10. SUBMISSION PURPOSE:

11. MATERIALS AND METHODS

A. Test Organisms

Guideline Criteria	Reported Information
Species A wild waterfowl species, preferably the mallard (<i>Anas platyrhynchos</i>), or an upland game species, preferably the northern bobwhite (<i>Colinus virginianus</i>)	Mallard (<i>Anas platyrhynchos</i>)
Age at beginning of test Birds should be approaching their first breeding season.	26 weeks old
Supplier All birds should be from the same source.	Whistling Wings, Inc.
Were birds pen-reared?	Yes
Were birds phenotypically indistinguishable from wild birds?	Yes
Health observation period 2 to 6 weeks.	12 weeks
Were birds healthy and without excessive mortality prior to the test?	Yes; birds not appearing healthy were discarded

B. Test System

Guideline Criteria	Reported Information
Were pens for adult birds of adequate size and designed to conform to good husbandry practices?	Yes (75 X 90 X 45 cm high)

Guideline Criteria	Reported Information
Were pens for chicks of adequate size and designed to conform to good husbandry practices?	Yes (62 X 92 X 25.5 cm high)
Where pens constructed of a nonbinding material such as galvanized or stainless steel?	Brooding pens- vinyl coated wire mesh; adult bird pens- stainless steel sheeting
Was adequate ventilation provided?	Yes
<u>Temperature</u> Approx. 21°C (70°F)	Mean: 16.8 °C SD: 1.4 °C
<u>Relative humidity</u> Approx. 55%	Mean: 45% SD: 16%
<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.	First 9 weeks: 8 h per day or less. Thereafter: 17 h per day. (mean of approx. 790 lux)
<u>Diet</u> A commercial breeder feed (or its equivalent) that is appropriate for the test species.	Wildlife International LTD game-bird ration
<u>Preparation of test diet</u>	Premix containing the test substance was be mechanically mixed with basal diet for about 20 minutes
Was the premix stored under conditions which maintain stability?	Yes (stored in a freezer)
Was the diet analyzed to verify homogeneity and stability of the test substance?	Yes
<u>Replenishment of feed</u>	Presented to birds on Monday of each week and when necessary additional food was prepared and provided.

C. Test Design

Guideline Criteria	Reported Information
<p><u>Nominal concentrations</u> 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: 550, 1100 and 2200 ppm Max. residue level: unknown (label not available)</p>
<p><u>Control</u> Vehicle control.</p>	<p>Acetone</p>
<p><u>Vehicle</u> Corn oil or other appropriate vehicle.</p>	<p>Corn oil</p>
<p><u>Vehicle amount (% of diet by weight)</u> Not more than 2%.</p>	<p><2%</p>
<p><u>Number of birds per pen</u> 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 1 female per pen.</p>
<p><u>Number of pens per group</u> 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>16 pens per group.</p>
<p><u>Pre-laying exposure duration</u> At least 10 weeks prior to the onset of egg-laying.</p>	<p>9 weeks-pre-laying lighting regime- birds began laying eggs during week 12</p>
<p><u>Exposure duration with egg-laying</u> At least 10 weeks.</p>	<p>20 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)	12.9 °C
<u>Egg storage humidity</u> Approximately 65%	59%
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 Days 13-14.
<u>Incubator Temperature and Humidity</u>	37.2 °C 56% relative humidity
<u>Transfer of eggs to hatcher</u> Bobwhite: Day 21 Mallard: Day 23	Eggs were transferred on Day 24.
<u>Hatching temperature</u> 39°C (102°F) is recommended	37.2 °C
<u>Hatching humidity</u> 70% is recommended	76 %
<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 27 or 28.

E. Eggshell Thickness Measurement

Guideline Criteria	Reported Information
Collection Schedule At least once every two weeks (Week 1, 3, 5, 7 and 9).	At weekly intervals
Were shells opened, washed, and air dry for at least 48 hours before measuring?	Yes
Measurement 3-4 measurements per eggs to the nearest 0.01 mm.	5 points to the nearest 0.005

12. REPORTED RESULTS

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
Did diet analysis verify the concentrations of test material?	Yes
Did diet analysis show that the test substance was stable and homogeneous?	Yes
Were body weights of adults reported for test initiation and biweekly up to week 8 or the onset of egg laying?	Yes
Was average food consumption of adults reported at least biweekly?	Yes

Guideline Criteria	Reported Information
<p>Reproductive Endpoints The following endpoints should be reported:</p> <ul style="list-style-type: none"> • Eggs laid • Eggs cracked • Eggs set • Viable embryos • Live 3-week embryos • Normal hatchlings • 14-day-old survivors • Weights of 14-day-old survivors • Egg shell thickness • Total food consumption • Initial and final body weights, by sex 	<p>All listed endpoints were measured. Total food consumption was not provided, rather individual pen data per week and mean consumption per treatment level per week was recorded.</p>
<p>Were data reported by pen for all endpoints?</p>	<p>Yes</p>

Significant Results:

Toxicity/Gross Necropsy:

No treatment related mortalities or overt signs of toxicity were observed in any group during the course of the study. At the 1100 and 2200 ppm treatment levels there appeared to be an increase in the number of hens with regressing or regressed ovaries and drakes with regressing testes.

Adult Body Weight:

There was a treatment related reduction in body weight gain among hens in the 1100 ppm treatment group from week 8 until adult termination that resulted in a statistically significant ($p < 0.01$) reduction in the terminal body weight.

At the 2200 treatment level there was a treatment related reduction in body weight gain among both drakes and hens during the first two weeks, and a reduction in body weight gain for the period from week 8 until adult termination. The differences in mean body weight between hens and the control were statistically significant ($p < 0.05$) for the week 4 body weight interval and at $p < 0.01$ for the week 2 and terminal body weight intervals.

Food Consumption:

Feed consumption was variable among pens due to excessive wastage. There was a slight decrease in feed consumption at the 550 ppm treatment level (statistically significant $p < 0.05$) and slight increases in feed consumption at the 1100

ppm treatment level (statistically significant $p < 0.05$) during weeks 3, 11 and 13. At the 2200 ppm treatment level there was a great decrease in feed consumption (statistically significant $p < 0.01$) during the first week of the study, which was approx. 40% of that measured for the control and other treatment groups (which may have represented transient aversion to treated diet). There was a slight increase in feed consumption during week 3 (statistically significant $p < 0.01$), and a slight decrease in feed consumption during week 17 (statistically significant $p < 0.01$). These were noted to be slight, not concentration responsive, and not dose responsive.

Eggshell Thickness:

At the highest treatment level there was a statistically significant ($p < 0.01$) treatment related reduction in eggshell thickness.

Offspring Body Weights:

At the 2200 ppm treatment level there were reductions in body weights of both hatchlings and the number of 14-day survivors which were statistically significant ($p < .01$).

Reproductive Results:

No apparent treatment related effects were noted at the lowest treatment level. At the 1100 ppm treatment level there was a treatment related reduction in egg production ($p < 0.01$). A slight reduction in viable embryos as a % of the # eggs set, and a slight decrease in the survival of offspring to 14 days of age. There were statistically significant reductions ($p < 0.01$) in hatchlings as percentages of maximum eggs set and 14-day old survivors as percentages of the maximum # eggs set.

A significant effect ($p < 0.01$) on reproductive performance was noted at the highest treatment level for egg production, embryo survival, hatchability, offspring survival and hatchlings and 14-day old survivors as percentages of both the # eggs set and the maximum # of eggs set.

13. VERIFIED STATISTICAL RESULTS

EPA's Birdall Program was used to verify the laboratory findings.

Means of Endpoints

Endpoint	Control	550 ppm	1100 ppm	2200 ppm
Eggs laid (EL)	48.63	40.63	28.37*	4.69*
Eggs cracked (EC)	0.67	0.56	0.94	0.31.

Endpoint	Control	550 ppm	1100 ppm	2200 ppm
Eggs set (ES)	43.13	35.31	23.44*	2.62*
Viable embryos (VE)	37.69	33.50	17.87*	2.00*
Live 3-wk embryos (LE)	37.69	33.00	17.56*	1.62*
Normal hatchlings (NH)	31.56	26.56	15.88*	1.06*
14-day-old survivors (HS)	30.25	25.75	14.94*	0.63*
Egg shell thickness (THICK)	0.39	0.39	0.36*	0.28*
Hatchling weight (HATWT)	36.06	35.21	34.21	31.80*
14-day-old survivor weight (SURVWT)	300.06	288.79	283.85	243.33*
Food consumption (FOOD) ¹	2993.75	2968.75	2831.25	3193.75*
Final weight of males (POSTM)	1269.06	1219.44	1231.88	1160.31*
Final weight of females (POSTF)	1247.94	1185.38	1136.13*	1084.00*

¹ For each pen, weekly values reported (grams/bird/day) were totaled.

* Dunnett's and/or Tukey's test

Similar statistical results were obtained, except for the following:

- o for eggshell thickness, Wildlife International reported a statistically significant ($p < 0.01$) treatment related reduction in eggshell thickness at the highest dose level. Applying Dunnett's test we found a statistically significant ($p < 0.05$) reduction in eggshell thickness at both the 1100 ppm and 2200 ppm treatment levels.

- o Wildlife International reported a slight reduction in viable embryos as a % of the # eggs set and a slight decrease in the survival of offspring to 14 days of age, which were not statistically significant. Applying Dunnett's test we found a statistically significant (p

<0.05) reduction in viable embryos and 14 day old survivors.

o Wildlife International reported at the 2200 ppm treatment level there was a great decrease in feed consumption (statistically significant $p < 0.01$) during the first week of the study, a slight increase in feed consumption during week 3 (statistically significant $p < 0.01$), and a slight decrease in feed consumption during week 17 (statistically significant $p < 0.01$). Applying Dunnett's test we found a statistically significant ($p < 0.05$) increase in total food consumption. Wildlife International reported these findings as slight, and not concentration responsive. We agree that these findings are not dose responsive.

14. REVIEWER'S COMMENTS

There were no apparent guideline deviations noted in this mallard study. The findings of Wildlife International are in general agreement with the reviewer's findings.

Based upon: (1) no apparent chronic or reproductive effects noted at the 550 ppm treatment level; (2) statistically significant reductions in eggshell thickness, eggs laid, viable embryos, live-three week embryos, normal hatchlings, fourteen day old survivors, terminal female body weight and increased number of hens with regressing or regressed ovaries and drakes with regressing testes at the 2200 ppm treatment level; and (3) statistically significant reductions in eggshell thickness, eggs laid, viable embryos, live-three week embryos, normal hatchlings, 14 day old survivors, terminal male and female body weight, and an increased number of hens with regressing or regressed ovaries and drakes with regressing testes at the 2200 ppm treatment level, the NOEC for mallards exposed to spinosad in the diet for 20 weeks is 550 ppm.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

14:54 Tuesday, December 12, 1995

Table with columns: L, O, B, S, E, E, L, C, S, E, V, L, N, H, S, K, T, T, T, H, A, R, F, O, R, S, P, O, P, O, P, O, S, R, S, R, S, T, E, T, F, F. Rows 1-58 showing control and treatment results for various parameters like egg count, sex ratio, and survival.

59 TRT3 10 0 7 6 6 5 5 0.289 37 272 2800 1159 1078 1230 1210

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

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Table with columns: L, O, B, S, E, E, L, C, S, E, V, L, N, H, S, K, T, T, T, H, A, R, F, O, R, S, P, O, P, O, S, R, S, T, E, T, F, F. Rows 60-64 showing control and treatment results.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

14:54 Tuesday, December 12, 1995

Summary table with columns: CONTROL, MEAN, TRT1, MEAN, TRT2, MEAN, TRT3, MEAN. Rows: EL, EC, ES, VE, LE, NH, HS, ES/EL, (SL-RC)/EL, VB/BS, LE/VE, NH/BL, NH/BS, NH/LS, HS/BS, HS/NH, THICK, HATWT, SURVWT, FOOD, POSTW.

POSTF 1247.94 1185.38 1136.13 1084.00

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
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LEVEL=CONTROL

N Obs	Variable	Label	N	Mean	Std Dev
16	EL		16	48.625	17.591
	EC		15	0.667	0.816
	ES		16	43.125	16.012
	VE		16	37.688	16.668
	LE		16	37.688	16.668
	NH		16	31.562	14.873
	HS		16	30.250	14.290
	THICK		15	0.392	0.017
	HATWT		16	36.063	2.205
	SURVWT		16	300.062	22.522
	FOOD		16	2993.750	353.023
	PREM		16	1264.813	87.797
	POSTM		16	1269.063	96.377
	PREP		16	1149.938	116.728
	POSTF		16	1247.938	87.761
	ES_EL	(%)	16	85.952	10.317
	NH_EL	(%)	16	63.393	16.950
	ENC_EL	(EL-EC)/EL (%)	15	95.594	12.685
	VE_ES	(%)	16	88.402	21.657
	NH_ES	(%)	16	74.758	20.483
	HS_ES	(%)	16	71.862	20.281
	LE_VE	(%)	16	100.000	0.000
	NH_LE	(%)	16	85.303	10.731
	HS_NH	(%)	16	95.333	5.261

N Obs	Variable	Label	CV
16	EL		36.177
	EC		122.474
	ES		37.129
	VE		44.227
	LE		44.227
	NH		47.121
	HS		47.239
	THICK		4.449
	HATWT		6.115
	SURVWT		7.506
	FOOD		11.792
	PREM		6.941
	POSTM		7.594
	PREP		10.151
	POSTF		7.033
	ES_EL	(%)	12.004
	NH_EL	(%)	26.738
	ENC_EL	(EL-EC)/EL (%)	13.270
	VE_ES	(%)	24.498
	NH_ES	(%)	27.400
	HS_ES	(%)	28.222
	LE_VE	(%)	0.000
	NH_LE	(%)	12.580
	HS_NH	(%)	5.518

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
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LEVEL=TRT1

N Obs	Variable	Label	N	Mean	Std Dev
16	EL		16	40.625	18.132
	EC		16	0.562	1.413
	ES		16	35.313	16.632
	VE		16	33.500	15.744
	LE		16	33.000	15.620
	NH		16	26.562	14.913
	HS		16	25.750	14.645
	THICK		15	0.389	0.021
	HATWT		14	35.214	2.751
	SURVWT		14	288.786	18.938
	FOOD		16	2968.750	636.363
	PREM		16	1240.813	78.436
	POSTM		16	1219.438	96.348
	PREP		16	1146.875	89.771
	POSTF		16	1185.375	111.962
	ES_EL	(%)	15	80.808	23.239
	NH_EL	(%)	15	60.197	23.157
	ENC_EL	(EL-EC)/EL (%)	15	98.753	2.972
	VE_ES	(%)	14	94.951	3.265
	NH_ES	(%)	14	73.995	16.463
	HS_ES	(%)	14	71.526	16.614
	LE_VE	(%)	14	98.498	2.919
	NH_LE	(%)	14	78.924	16.428
	HS_NH	(%)	14	96.382	2.998

N Obs	Variable	Label	CV
16	EL		44.634
	EC		251.154
	ES		47.100
	VE		46.996
	LE		47.335
	NH		56.143
	HS		56.873
	THICK		5.288
	HATWT		7.811
	SURVWT		6.558
	FOOD		21.435
	PREM		6.321
	POSTM		7.901
	PREP		7.827
	POSTF		9.445
	ES_EL	(%)	28.758
	NH_EL	(%)	38.469
	ENC_EL	(EL-EC)/EL (%)	3.009
	VE_ES	(%)	3.439
	NH_ES	(%)	22.249
	HS_ES	(%)	23.227
	LE_VE	(%)	2.564
	NH_LE	(%)	20.816
	HS_NH	(%)	3.111

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
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LEVEL=TRT2

N Obs	Variable	Label	N	Mean	Std Dev
16	EL		16	28.375	15.073
	EC		16	0.937	0.854

N Obs	Variable	Label	CV
16	ES	ES/EL (%)	23.437
16	VE	NH/EL (%)	17.875
16	LE	VE/BS (%)	13.574
16	NH	NH/BS (%)	15.875
16	HS	HS/BS (%)	14.938
14	THICK	POSTF	0.357
14	HATWT	ES_EL	34.214
13	SURVWT	NH_EL	283.846
16	FOOD	ENC_EL	2831.250
16	PREM	VE_BS (%)	1254.813
16	POSTM	HS_BS (%)	1231.875
16	PREF	NH_LE	1130.938
16	POSTF	LE_VE (%)	1136.125
14	ES_EL	ES/EL (%)	81.231
14	NH_EL	NH/EL (%)	54.755
14	ENC_EL	(EL-EC)/EL (%)	96.636
14	VE_BS	VE/BS (%)	79.560
14	NH_BS	NH/BS (%)	67.744
14	HS_BS	HS/BS (%)	63.032
14	LE_VE	LE/VE (%)	98.393
14	NH_LE	NH/LE (%)	88.484
14	HS_NH	HS/NH (%)	87.067

N Obs Variable Label CV

N Obs	Variable	Label	CV
16	EL	EL	53.119
16	EC	EC	91.084
16	ES	ES	55.717
16	VE	VE	76.594
16	LE	LE	77.292
16	NH	NH	83.056
16	HS	HS	87.165
16	THICK	THICK	7.977
16	HATWT	HATWT	6.503
16	SURVWT	SURVWT	7.037
16	FOOD	FOOD	13.874
16	PREM	PREM	8.039
16	POSTM	POSTM	8.569
16	PREF	PREF	6.862
16	POSTF	POSTF	7.854
16	ES_EL	ES/EL (%)	7.119
16	NH_EL	NH/EL (%)	48.697
16	ENC_EL	(EL-EC)/EL (%)	3.010
16	VE_BS	VE/BS (%)	42.401
16	NH_BS	NH/BS (%)	46.858
16	HS_BS	HS/BS (%)	48.921
16	LE_VE	LE/VE (%)	4.331
16	NH_LE	NH/LE (%)	17.110
16	HS_NH	HS/NH (%)	30.031

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

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LEVEL=TRT3

N Obs	Variable	Label	N	Mean	Std Dev
16	EL	EL	16	4.687	3.535
16	EC	EC	16	0.313	0.704
16	ES	ES	16	2.625	2.335
16	VE	VE	16	2.000	1.966
16	LE	LE	16	1.625	2.029
16	NH	NH	16	1.062	1.611
16	HS	HS	16	0.625	1.408
11	THICK	THICK	11	0.281	0.022
5	HATWT	HATWT	5	31.800	4.970

N Obs	Variable	Label	CV
16	EL	EL	75.412
16	EC	EC	225.329
16	ES	ES	88.934
16	VE	VE	98.319
16	LE	LE	124.859
16	NH	NH	151.638
16	HS	HS	225.329
16	THICK	THICK	7.926
16	HATWT	HATWT	15.629
16	SURVWT	SURVWT	16.971
16	FOOD	FOOD	15.944
16	PREM	PREM	8.428
16	POSTM	POSTM	8.279
16	PREF	PREF	12.533
16	POSTF	POSTF	7.725
16	ES_EL	ES/EL (%)	55.106
16	NH_EL	NH/EL (%)	119.488
16	ENC_EL	(EL-EC)/EL (%)	13.388
16	VE_BS	VE/BS (%)	31.776
16	NH_BS	NH/BS (%)	112.007
16	HS_BS	HS/BS (%)	166.113
16	LE_VE	LE/VE (%)	71.061
16	NH_LE	NH/LE (%)	65.071
16	HS_NH	HS/NH (%)	94.985

N Obs Variable Label CV

N Obs	Variable	Label	CV
16	EL	EL	75.412
16	EC	EC	225.329
16	ES	ES	88.934
16	VE	VE	98.319
16	LE	LE	124.859
16	NH	NH	151.638
16	HS	HS	225.329
16	THICK	THICK	7.926
16	HATWT	HATWT	15.629
16	SURVWT	SURVWT	16.971
16	FOOD	FOOD	15.944
16	PREM	PREM	8.428
16	POSTM	POSTM	8.279
16	PREF	PREF	12.533
16	POSTF	POSTF	7.725
16	ES_EL	ES/EL (%)	55.106
16	NH_EL	NH/EL (%)	119.488
16	ENC_EL	(EL-EC)/EL (%)	13.388
16	VE_BS	VE/BS (%)	31.776
16	NH_BS	NH/BS (%)	112.007
16	HS_BS	HS/BS (%)	166.113
16	LE_VE	LE/VE (%)	71.061
16	NH_LE	NH/LE (%)	65.071
16	HS_NH	HS/NH (%)	94.985

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

1. ANALYSIS OF EGGS LAID

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General Linear Models Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

1. ANALYSIS OF EGGS LAID

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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 SPINOSAD ON THE REPRODUCTION OF MALLARDS

1. ANALYSIS OF EGGS LAID

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General Linear Models Procedure

Dependent Variable: EL
 Source DF Sum of Squares Mean Square F Value Pr > F
 Model 3 17628.922 5876.307 26.77 0.0001
 Error 60 13168.688 219.478
 Corrected Total 63 30797.609
 R-Square C.V. Root MSE EL Mean
 0.572412 48.44899 14.815 30.57813
 Source DF Type I SS Mean Square F Value Pr > F
 LEVEL 3 17628.922 5876.307 26.77 0.0001

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

1. ANALYSIS OF EGGS LAID

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General Linear Models Procedure

Least Squares Means

LEVEL	EL	Pr > T	H0: LSMEAN(i)=LSMEAN(j)
	LSMEAN	1/j	2 3 4
CONTROL	48.6250000	1	0.1319 0.0003 0.0001
TRT1	40.6250000	2	0.1319 0.0227 0.0001
TRT2	28.3750000	3	0.0003 0.0227 0.0001
TRT3	4.6875000	4	0.0001 0.0001 0.0001

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

1. ANALYSIS OF EGGS LAID

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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= 60 MSE= 219.4781
 Critical Value of Studentized Range= 3.737
 Minimum Significant Difference= 13.841

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	Mean	SE	Upper Limit	Lower Limit
CONTROL - TRT1	-5.841	8.000	8.000	21.841	21.841	***
CONTROL - TRT2	6.409	20.250	20.250	34.091	34.091	***
CONTROL - TRT3	30.096	43.938	43.938	57.779	57.779	***
TRT1 - CONTROL	-21.841	-8.000	-8.000	5.841	5.841	***
TRT1 - TRT2	-1.591	12.250	12.250	26.091	26.091	***
TRT1 - TRT3	22.096	35.938	35.938	49.779	49.779	***
TRT2 - CONTROL	-34.091	-20.250	-20.250	-6.409	-6.409	***
TRT2 - TRT1	-26.091	-12.250	-12.250	1.591	1.591	***
TRT2 - TRT3	9.846	23.687	23.687	37.529	37.529	***
TRT3 - CONTROL	-57.779	-43.938	-43.938	-30.096	-30.096	***
TRT3 - TRT1	-49.779	-35.938	-35.938	-22.096	-22.096	***
TRT3 - TRT2	-37.529	-23.687	-23.687	-9.846	-9.846	***

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

1. ANALYSIS OF EGGS LAID

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

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

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

Alpha= 0.05 Confidence= 0.95 df= 60 MSE= 219.4781
 Critical Value of Dunnnett's T= 2.104
 Minimum Significant Difference= 11.02

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	Mean	SE	Upper Limit	Lower Limit
CONTROL - TRT1	-19.020	-8.000	-8.000	3.020	3.020	***
CONTROL - TRT2	-31.270	-20.250	-20.250	-9.230	-9.230	***
CONTROL - TRT3	-54.957	-43.938	-43.938	-32.918	-32.918	***

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

2. ANALYSIS OF EGGS CRACKED

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Class Level Information

Class Levels Values

LEVEL 4 CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

NOTE: Due to missing values, only 63 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

2. ANALYSIS OF EGGS CRACKED

14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS

2. ANALYSIS OF EGGS CRACKED

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: EC

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	3.2113095	1.0704365	1.10	0.3592
Error	59	57.6458333	0.9770480		
Corrected Total	62	60.8571429			

R-Square C.V. Root MSE EC Mean
0.052768 159.6739 0.9885 .6190476

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	3.2113095	1.0704365	1.10	0.3592

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

2. ANALYSIS OF EGGS CRACKED

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Least Squares Means
EC Pr > |T| H0: LSMEAN(1)=LSMEAN(J)
LSMEAN 1/J 1 2 3 4

LEVEL	0.66666667	1	0.7704	0.4489	0.3229
CONTROL	0.66666667	1	0.7704	0.4489	0.3229
TRT1	0.56250000	2	0.7704	0.2876	0.4772
TRT2	0.93750000	3	0.4489	0.2876	0.0788
TRT3	0.31250000	4	0.3229	0.4772	0.0788

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

2. ANALYSIS OF EGGS CRACKED

14:54 Tuesday, December 12, 1995

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= 59 MSE= 0.977048
Critical Value of Studentized Range= 3.739

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

LEVEL Comparison	Simultaneous Confidence Limit		Difference Between Means		Simultaneous Upper Limit	
	Lower Limit	Upper Limit	Means	Confidence Limit	Upper Limit	Upper Limit
TRT2 - CONTROL	-0.668	0.271	0.271	1.210	1.210	1.210
TRT2 - TRT1	-0.549	0.375	0.375	1.299	1.299	1.299
TRT2 - TRT3	-0.299	0.625	0.625	1.549	1.549	1.549
CONTROL - TRT2	-1.210	-0.271	-0.271	0.668	0.668	0.668
CONTROL - TRT1	-0.835	0.104	0.104	1.043	1.043	1.043
CONTROL - TRT3	-0.585	0.354	0.354	1.293	1.293	1.293
TRT1 - TRT2	-1.299	-0.375	-0.375	0.549	0.549	0.549
TRT1 - CONTROL	-1.043	-0.104	-0.104	0.835	0.835	0.835
TRT1 - TRT3	-0.674	0.250	0.250	1.174	1.174	1.174
TRT3 - TRT2	-1.549	-0.625	-0.625	0.299	0.299	0.299
TRT3 - CONTROL	-1.293	-0.354	-0.354	0.585	0.585	0.585
TRT3 - TRT1	-1.174	-0.250	-0.250	0.674	0.674	0.674

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

2. ANALYSIS OF EGGS CRACKED

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

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

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

Alpha= 0.05 Confidence= 0.95 df= 59 MSE= 0.977048
Critical Value of Dunnnett's T= 2.101

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

LEVEL	Simultaneous Lower Limit		Difference		Simultaneous Upper Limit	
	Lower Limit	Upper Limit	Difference	Upper Limit	Upper Limit	Upper Limit
CONTROL	-1.174	-0.250	-0.250	0.674	0.674	0.674
TRT1	-1.043	-0.104	-0.104	0.835	0.835	0.835
TRT2	-0.668	0.271	0.271	1.210	1.210	1.210
TRT3	-0.354	0.585	0.585	1.293	1.293	1.293

LEVEL Comparison	Confidence Limit	Between Means	Confidence Limit
TRT2 - CONTROL	-0.475	0.271	1.017
TRT1 - CONTROL	-0.850	-0.104	0.642
TRT3 - CONTROL	-1.100	-0.354	0.392

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

3. ANALYSIS OF EGGS SET

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Class Level Information

Class Levels	Values
LEVEL 4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

3. ANALYSIS OF EGGS SET

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Type I Estimable Functions for: LEVEL

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

3. ANALYSIS OF EGGS SET

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	14926.125	4975.375	28.07	0.0001
Error	60	10634.875	177.248		
Corrected Total	63	25561.000			
R-Square		C.V.	Root MSE	ES Mean	
	0.583941	50.96057	13.313	26.12500	

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	14926.125	4975.375	28.07	0.0001

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

3. ANALYSIS OF EGGS SET

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Least Squares Means

LEVEL	LSMEAN	i/j	1	2	3	4
CONTROL	43.1250000	1	0.1022	0.0001	0.0001	0.0001
TRT1	35.3125000	2	0.1022	0.0143	0.0001	0.0001
TRT2	23.4375000	3	0.0001	0.0143	0.0001	0.0001
TRT3	2.6250000	4	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 SPINOSAD ON THE REPRODUCTION OF MALLARDS

3. ANALYSIS OF EGGS SET

 14:54 Tuesday, December 12, 1995

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= 60 MSE= 177.2479
 Critical Value of Studentized Range= 3.737
 Minimum Significant Difference= 12.438

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

LEVEL Comparison	Simultaneous		Difference		Simultaneous	
	Lower Limit	Confidence	Between Means	Upper Limit	Confidence	Upper Limit
CONTROL - TRT1	-4.626	7.812	7.812	20.251	32.126	***
CONTROL - TRT2	7.249	19.687	19.687	52.938	64.812	***
CONTROL - TRT3	28.062	40.500	40.500	52.938	64.812	***
TRT1 - CONTROL	-20.251	-7.812	-7.812	4.626	11.875	***
TRT1 - TRT2	-0.563	11.875	11.875	24.313	36.251	***
TRT1 - TRT3	20.249	32.688	32.688	45.126	57.000	***
TRT2 - CONTROL	-32.126	-19.687	-19.687	-7.249	0.563	***
TRT2 - TRT1	-24.313	-11.875	-11.875	0.563	11.875	***
TRT2 - TRT3	8.374	20.812	20.812	33.251	45.126	***
TRT3 - CONTROL	-52.938	-40.500	-40.500	-28.062	-15.626	***
TRT3 - TRT1	-45.126	-32.688	-32.688	-20.249	-7.812	***
TRT3 - TRT2	-33.251	-20.812	-20.812	-8.374	0.563	***

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

3. ANALYSIS OF EGGS SET

 14:54 Tuesday, December 12, 1995

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= 60 MSR= 177.2479
 Critical Value of Dunnett's T= 2.104
 Minimum Significant Difference= 9.9032

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	Upper Confidence Limit	Upper Confidence Limit
TRT1 - CONTROL	-17.716	-7.812	2.091	2.091	2.091	2.091
TRT2 - CONTROL	-29.591	-19.687	-9.784	-9.784	-9.784	-9.784
TRT3 - CONTROL	-50.403	-40.500	-30.597	-30.597	-30.597	-30.597

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

4. ANALYSIS OF VIABLE EMBRYOS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

4. ANALYSIS OF VIABLE EMBRYOS

14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS

4. ANALYSIS OF VIABLE EMBRYOS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: VE	Sum of	Mean
TRT1	8.321	8.321
TRT2	32.321	32.321
TRT3	48.196	48.196

Source	DF	Squares	Square	F Value	Pr > F
Model	3	12688.297	4229.432	23.59	0.0001
Error	60	10755.188	179.253		
Corrected Total	63	23443.484			

R-Square C.V. Root MSE VE Mean
 0.541229 58.81035 13.389 22.76563

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	12688.297	4229.432	23.59	0.0001

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

4. ANALYSIS OF VIABLE EMBRYOS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Least Squares Means

LEVEL	LSMEAN	VE Pr > T H0: LSMEAN(i)=LSMEAN(j)			
		1	2	3	4
CONTROL	37.6875000	1	0.3799	0.0001	0.0001
TRT1	33.5000000	2	0.3799	0.0016	0.0001
TRT2	17.8750000	3	0.0001	0.0016	0.0014
TRT3	2.0000000	4	0.0001	0.0001	0.0014

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

4. ANALYSIS OF VIABLE EMBRYOS

14:54 Tuesday, December 12, 1995

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= 60 MSR= 179.2531
 Critical Value of Studentized Range= 3.737
 Minimum Significant Difference= 12.509

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	Upper Confidence Limit	Upper Confidence Limit
CONTROL - TRT1	-8.321	7.304	4.187	4.187	4.187	4.187
CONTROL - TRT2	23.179	35.688	19.812	19.812	19.812	19.812
TRT1 - CONTROL	-16.696	-4.187	-4.187	-4.187	-4.187	-4.187
TRT1 - TRT2	3.116	15.625	15.625	15.625	15.625	15.625

TRT1	TRT2	TRT3	18.991	31.500	44.009	***
- CONTROL	-19.812	-7.304	***			
- TRT1	-15.625	-3.116	***			
- TRT2	15.875	28.384	***			
- CONTROL	-48.196	-23.179	***			
- TRT1	-44.009	-18.991	***			
- TRT2	-28.384	-3.366	***			

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

4. ANALYSIS OF VIABLE EMBRYOS

14:54 Tuesday, December 12, 1995

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= 60 MSE= 179.2531
 Critical Value of Dunnett's T= 2.104
 Minimum Significant Difference= 9.959

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

LEVEL Comparison	Simultaneous		Difference		Simultaneous	
	Lower Limit	Confidence Limit	Between Means	Upper Limit	Upper Confidence Limit	Upper Confidence Limit
TRT1 - CONTROL	-14.147	-4.187	-4.187	5.772	5.772	***
TRT2 - CONTROL	-23.772	-19.812	-19.812	-9.853	-9.853	***
TRT3 - CONTROL	-45.647	-35.688	-35.688	-25.728	-25.728	***

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Class Level Information

Class Levels	Values
LEVEL 4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Type I Estimable Functions for: LEVEL

Effect	Coefficients
INTERCEPT	0

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: LE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	12816.812	4272.271	24.06	0.0001
Error	60	10653.125	177.552		
Corrected Total	63	23469.937			

R-Square C.V. Root MSE
 0.546095 59.30400 13.325

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	12816.812	4272.271	24.06	0.0001

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Least Squares Means

LEVEL	LSMEAN	Pr > T H0: LSMEAN(i)=LSMEAN(j)			
		i/j	1	2	3
CONTROL	37.6875000	1	0.3237	0.0001	0.0001
TRT1	33.0000000	2	0.3237	0.0017	0.0001
TRT2	17.5625000	3	0.0001	0.0017	0.0013
TRT3	1.6250000	4	0.0001	0.0001	0.0013

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

14:54 Tuesday, December 12, 1995

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= 60 MSE= 177.5521

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	Upper Confidence Limit	Upper Confidence Limit
CONTROL - TRT1	-7.762	4.687	17.137	***	17.137	***
CONTROL - TRT2	7.676	20.125	32.574	***	32.574	***
CONTROL - TRT3	23.613	36.063	48.512	***	48.512	***
TRT1 - CONTROL	-17.137	-4.687	7.762	***	7.762	***
TRT1 - TRT2	2.988	15.438	27.887	***	27.887	***
TRT1 - TRT3	18.926	31.375	43.824	***	43.824	***
TRT2 - CONTROL	-32.574	-20.125	-7.676	***	-7.676	***
TRT2 - TRT1	-27.887	-15.438	-2.988	***	-2.988	***
TRT2 - TRT3	3.488	15.938	28.387	***	28.387	***
TRT3 - CONTROL	-48.512	-36.063	-23.613	***	-23.613	***
TRT3 - TRT1	-43.824	-31.375	-18.926	***	-18.926	***
TRT3 - TRT2	-28.387	-15.938	-3.488	***	-3.488	***

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

5. ANALYSIS OF LIVE 3-WEEK EMBRYOS

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

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

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

Alpha= 0.05 Confidence= 0.95 df= 60 MSR= 177.5521
 Critical Value of Dunnnett's T= 2.104
 Minimum Significant Difference= 9.9117

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	Upper Confidence Limit	Upper Confidence Limit
TRT1 - CONTROL	-14.599	-4.687	5.224	***	5.224	***
TRT2 - CONTROL	-30.037	-20.125	-10.213	***	-10.213	***
TRT3 - CONTROL	-45.974	-36.063	-26.151	***	-26.151	***

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

6. ANALYSIS OF NORMAL HATCHLINGS

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

6. ANALYSIS OF NORMAL HATCHLINGS

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Type I Estimable Functions for: LEVEL

Coefficients

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

6. ANALYSIS OF NORMAL HATCHLINGS

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: NH

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	8740.9219	2913.6406	18.80	0.0001
Error	60	9300.5625	155.0094		
Corrected Total	63	18041.4844			

R-Square

C.V.	Root MSE	NH Mean
0.484490	66.34618	12.450

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	8740.9219	2913.6406	18.80	0.0001

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

6. ANALYSIS OF NORMAL HATCHLINGS

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Least Squares Means

LEVEL	NH	Pr > T Ho: LSMEAN(i) = LSMEAN(j)			
		1	2	3	4
CONTROL	31.5625000	1	0.2605	0.0007	0.0001
TRT1	26.5625000	2	0.2605	0.0182	0.0001
TRT2	15.8750000	3	0.0007	0.0182	0.0013
TRT3	1.0625000	4	0.0001	0.0001	0.0013

NOTE: To ensure overall protection level, only probabilities associated

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

6. ANALYSIS OF NORMAL HATCHLINGS

14:54 Tuesday, December 12, 1995

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= 60 MSE= 155.0094
Critical Value of Studentized Range= 3.737
Minimum Significant Difference= 11.632

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
CONTROL - TRT1	-6.632	5.000	5.000	16.632	****
CONTROL - TRT2	4.056	15.688	15.688	27.319	****
CONTROL - TRT3	18.868	30.500	30.500	42.132	****
TRT1 - CONTROL	-16.632	-5.000	-5.000	6.632	
TRT1 - TRT2	-0.944	10.688	10.688	22.319	****
TRT1 - TRT3	13.868	25.500	25.500	37.132	****
TRT2 - CONTROL	-27.319	-15.688	-15.688	-4.056	****
TRT2 - TRT1	-22.319	-10.688	-10.688	0.944	
TRT2 - TRT3	3.181	14.813	14.813	26.444	****
TRT3 - CONTROL	-42.132	-30.500	-30.500	-18.868	****
TRT3 - TRT1	-37.132	-25.500	-25.500	-13.868	****
TRT3 - TRT2	-26.444	-14.813	-14.813	-3.181	****

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

6. ANALYSIS OF NORMAL HATCHLINGS

14:54 Tuesday, December 12, 1995

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.

Alpha= 0.05 Confidence= 0.95 df= 60 MSE= 155.0094
Critical Value of Dunnett's T= 2.104
Minimum Significant Difference= 9.2611

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	-14.261	-5.000	-5.000	4.261	****
TRT2 - CONTROL	-24.949	-15.688	-15.688	-6.426	****

-39.761 -30.500 -21.239 ***

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

7. ANALYSIS OF 14-DAY-OLD SURVIVORS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Class Level Information

Class Levels Values

LEVEL 4 CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

7. ANALYSIS OF 14-DAY-OLD SURVIVORS

14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS

7. ANALYSIS OF 14-DAY-OLD SURVIVORS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: HS

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	8341.5469	2780.5156	18.85	0.0001
Error	60	8852.6875	147.5448		
Corrected Total	63	17194.2344			

R-Square 0.485136 C.V. 67.89479 Root MSE 12.147
HS Mean 17.89063

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	8341.5469	2780.5156	18.85	0.0001

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

7. ANALYSIS OF 14-DAY-OLD SURVIVORS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Least Squares Means

LEVEL	LSMEAN	1/1	2	3	4
CONTROL	30.2500000	1	0.2989	0.0007	0.0001
TRT1	25.7500000	2	0.2989	0.0145	0.0001
TRT2	14.9375000	3	0.0007	0.0145	0.0015
TRT3	0.6250000	4	0.0001	0.0001	0.0015

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

7. ANALYSIS OF 14-DAY-OLD SURVIVORS

14:54 Tuesday, December 12, 1995

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= 60 MSB= 147.5448
Critical Value of Studentized Range= 3.737
Minimum Significant Difference= 11.348

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

LEVEL	Comparison	Simultaneous		
		Lower Limit	Difference Between Means	Upper Limit
CONTROL	- TRT1	-6.848	4.500	15.848
CONTROL	- TRT2	3.964	15.313	26.661
CONTROL	- TRT3	18.277	29.625	40.973
TRT1	- CONTROL	-15.848	-4.500	6.848
TRT1	- TRT2	-0.536	10.813	22.161
TRT1	- TRT3	13.777	25.125	36.473
TRT2	- CONTROL	-26.661	-15.313	-3.964
TRT2	- TRT1	-22.161	-10.813	0.536
TRT2	- TRT3	2.964	14.313	25.661
TRT3	- CONTROL	-40.973	-29.625	-18.277
TRT3	- TRT1	-36.473	-25.125	-13.777
TRT3	- TRT2	-25.661	-14.313	-2.964

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

7. ANALYSIS OF 14-DAY-OLD SURVIVORS

14:54 Tuesday, December 12, 1995

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= 60 MSB= 147.5448
Critical Value of Dunnett's T= 2.104
Minimum Significant Difference= 9.0354

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

LEVEL	Comparison	Simultaneous		
		Lower Limit	Difference Between Means	Upper Limit
TRT1	- CONTROL	-13.535	-4.500	4.535
TRT2	- CONTROL	-24.348	-15.313	-6.277
TRT3	- CONTROL	-38.660	-29.625	-20.590

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

8. ANALYSIS OF EGGS SET/EGGS LAID

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

NOTE: Due to missing values, only 59 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

8. ANALYSIS OF EGGS SET/EGGS LAID

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Type I Estimable Functions for: LEVEL

Coefficients

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

8. ANALYSIS OF EGGS SET/EGGS LAID

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: RESPONSE
Weight: EL

Source	DF	Squares	Mean Square	F Value	Pr > F
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Model	3	34157.733	11385.911	11.36	0.0001
Error	55	55126.234	1002.295		
Corrected Total	58	89283.967			
R-square	C.V.	Root MSR	RESPONSE Mean		
0.382574	46.48566	31.659	68.10497		
Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	34157.733	11385.911	11.36	0.0001

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

8. ANALYSIS OF EGGS SET/EGGS LAID

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Least Squares Means

LEVEL	RESPONSE	Pr > T H0: LSMEAN(i) = LSMEAN(j)	1	2	3	4
CONTROL	70.4750264	1	0.4633	0.0102	0.0001	
TRT1	69.2324397	2	0.4633	0.0589	0.0001	
TRT2	65.4977251	3	0.0102	0.0589	0.0002	
TRT3	49.5307451	4	0.0001	0.0001	0.0002	

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

8. ANALYSIS OF EGGS SET/EGGS LAID

14:54 Tuesday, December 12, 1995

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 Confidences= 0.95 df= 55 MSE= 1002.295
Critical Value of Studentized Range= 3.747

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

LEVEL	Comparison	Simultaneous		
		Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
CONTROL - TRT1		-28.90	1.24	31.39
CONTROL - TRT2		-25.72	4.98	35.67
CONTROL - TRT3		-9.75	20.94	51.64
TRT1 - CONTROL		-31.39	-1.24	28.90
TRT1 - TRT2		-27.43	3.73	34.90
TRT1 - TRT3		-11.47	19.70	50.87

TRT2 - CONTROL	-35.67	-4.98	25.72
TRT2 - TRT1	-34.90	-3.73	27.43
TRT2 - TRT3	-15.74	15.97	47.67
TRT3 - CONTROL	-51.64	-20.94	9.75
TRT3 - TRT1	-50.87	-19.70	11.47
TRT3 - TRT2	-47.67	-15.97	15.74

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

8. ANALYSIS OF EGGS SET/EGGS LAID

14:54 Tuesday, December 12, 1995

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= 55 MSE= 1002.295
Critical Value of Dunnett's T= 2.114

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		-25.30	-1.24	22.81	
TRT2 - CONTROL		-29.47	-4.98	19.52	
TRT3 - CONTROL		-45.44	-20.94	3.55	

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

NOTE: Due to missing values, only 57 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS

9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: RESPONSE

Weight:

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	39479.581	13059.860	1.44	0.2427
Error	53	482099.863	9096.224		
Corrected Total	56	521279.444			
R-Square		C.V.	Root MSE	RESPONSE Mean	
	0.075160	131.6647	95.374	72.43714	

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	39479.581	13059.860	1.44	0.2427

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Least Squares Means

LEVEL	RESPONSE	Pr > T	H0: LSMEAN(i) = LSMEAN(j)	1	2	3	4
CONTROL	72.6494437	1	0.3539	0.2129	0.6158		
TRT1	77.7107575	2	0.3539	0.0494	0.4083		
TRT2	64.9341403	3	0.2129	0.0494	0.9968		
TRT3	64.9975173	4	0.6158	0.4083	0.9968		

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

14:54 Tuesday, December 12, 1995

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 Confidences= 0.95 df= 53 MSE= 9096.224
Critical Value of Studentized Range= 3.751

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

Simultaneous Lower Confidence Limit

Difference Between Means

Upper Confidence Limit

LEVEL Comparison	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT1 - CONTROL	-87.52	5.06	97.64
TRT1 - TRT3	-84.72	12.71	110.15
TRT1 - TRT2	-82.84	12.78	108.39
CONTROL - TRT1	-97.64	-5.06	87.52
CONTROL - TRT3	-86.81	7.65	102.11
CONTROL - TRT2	-84.86	7.72	100.30
TRT3 - TRT1	-110.15	-12.71	84.72
TRT3 - CONTROL	-102.11	-7.65	86.81
TRT3 - TRT2	-97.37	0.06	97.50
TRT2 - TRT1	-108.39	-12.78	82.84
TRT2 - CONTROL	-100.30	-7.72	84.86
TRT2 - TRT3	-97.50	-0.06	97.37

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS

14:54 Tuesday, December 12, 1995

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 Confidences= 0.95 df= 53 MSE= 9096.224
Critical Value of Dunnett's T= 2.119

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

Simultaneous Lower Confidence Limit

Difference Between Means

Upper Confidence Limit

LEVEL Comparison	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT1 - CONTROL	-68.89	5.06	79.01
TRT3 - CONTROL	-83.11	-7.65	67.80
TRT2 - CONTROL	-81.67	-7.72	66.24

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIALE EMBRYOS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

NOTE: Due to missing values, only 57 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIALE EMBRYOS

 14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS
 10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIALE EMBRYOS

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: RESPONSE

Weight:

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	13250.126	4416.709	3.81	0.0151
Error	53	61429.771	1159.052		
Corrected Total	56	74679.896			
R-Square	C.V.	Root MSE	RESPONSE Mean		
0.177426	38.90998	34.045	87.49646		

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	13250.126	4416.709	3.81	0.0151

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIALE EMBRYOS

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Least Squares Means

LEVEL	RESPONSE	LSMEAN	Pr > T	H0: LSMEAN(i) = LSMEAN(j)		
		i/j	1	2	3	4
CONTROL	89.9637896	1	0.0825	0.1286	0.0038	
TRT1	86.3864548	2	0.0825	0.9377	0.0180	
TRT2	86.1907937	3	0.1286	0.9377	0.0224	

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIALE EMBRYOS

 14:54 Tuesday, December 12, 1995

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= 53 MSE= 1159.052
 Critical Value of Studentized Range= 3.751

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

LEVEL Comparison	Simultaneous Lower Confidence Limit		Difference Between Means		Simultaneous Upper Confidence Limit	
	Limit	Confidence	Mean	Between	Confidence	Limit
CONTROL - TRT1	-29.47		3.58		36.62	
CONTROL - TRT2	-29.27		3.77		36.82	
CONTROL - TRT3	-15.02		18.70		52.42	
TRT1 - CONTROL	-36.62		-3.58		29.47	
TRT1 - TRT2	-33.94		0.20		34.33	
TRT1 - TRT3	-19.66		15.12		49.90	
TRT2 - CONTROL	-36.82		-3.77		29.27	
TRT2 - TRT1	-34.33		-0.20		33.94	
TRT2 - TRT3	-19.86		14.93		49.71	
TRT3 - CONTROL	-52.42		-18.70		15.02	
TRT3 - TRT1	-49.90		-15.12		19.66	
TRT3 - TRT2	-49.71		-14.93		19.86	

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIALE EMBRYOS

 14:54 Tuesday, December 12, 1995

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= 53 MSE= 1159.052
 Critical Value of Dunnnett's T= 2.119

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

LEVEL Comparison	Simultaneous Lower Confidence Limit		Difference Between Means		Simultaneous Upper Confidence Limit	
	Limit	Confidence	Mean	Between	Confidence	Limit
TRT1 - CONTROL	-29.98		-3.58		22.82	

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 TRT2 - CONTROL -30.17 -3.77 22.63
 TRT3 - CONTROL -45.63 -18.70 8.24

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS

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EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS

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General Linear Models Procedure
 Least Squares Means

General Linear Models Procedure
 Class Level Information

LEVEL	RESPONSE	Pr > T	H0: LSMEAN(i) = LSMEAN(j)
	LSMEAN	i/j	1 2 3 4
CONTROL	67.1492760	1	0.5666 0.0439 0.2310
TRT1	65.2774327	2	0.5666 0.0163 0.3043
TRT2	75.2832565	3	0.0439 0.0163 0.0615
TRT3	53.9246680	4	0.2310 0.3043 0.0615

Class Levels Values
 LEVEL 4 CONTROL TRT1 TRT2 TRT3
 Number of observations in data set = 64

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

NOTE: Due to missing values, only 53 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS

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EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS

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General Linear Models Procedure
 Type I Estimable Functions for: LEVEL

General Linear Models Procedure
 Type I Estimable Functions for: LEVEL

Effect
 INTERCEPT 0

Effect
 INTERCEPT 0

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

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

Dependent Variable: RESPONSE
 Weight: LE

Dependent Variable: RESPONSE
 Weight: LE

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	24356.364	8118.788	2.74	0.0533
Error	49	145214.707	2963.565		
Corrected Total	52	169571.071			

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	24356.364	8118.788	2.74	0.0533
Error	49	145214.707	2963.565		
Corrected Total	52	169571.071			

R-Square
 0.143635 80.27838 54.439 67.81233

R-Square
 0.143635 80.27838 54.439 67.81233

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Model	3	24356.364	8118.788	2.74	0.0533
Error	49	145214.707	2963.565		
Corrected Total	52	169571.071			

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Model	3	24356.364	8118.788	2.74	0.0533
Error	49	145214.707	2963.565		
Corrected Total	52	169571.071			

LEVEL Comparison	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT2 - CONTROL	-44.85	8.13	61.11
TRT2 - TRT1	-44.71	10.01	64.72
TRT2 - TRT3	-40.49	21.36	83.21
CONTROL - TRT2	-61.11	-8.13	44.85
CONTROL - TRT1	-51.11	1.87	54.85
CONTROL - TRT3	-47.10	13.22	73.55
TRT1 - TRT2	-64.72	-10.01	44.71
TRT1 - CONTROL	-54.85	-1.87	51.11
TRT1 - TRT3	-50.50	11.35	73.21
TRT3 - TRT2	-83.21	-21.36	40.49
TRT3 - CONTROL	-73.55	-13.22	47.10
TRT3 - TRT1	-73.21	-11.35	50.50

LEVEL Comparison	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT2 - CONTROL	-44.85	8.13	61.11
TRT2 - TRT1	-44.71	10.01	64.72
TRT2 - TRT3	-40.49	21.36	83.21
CONTROL - TRT2	-61.11	-8.13	44.85
CONTROL - TRT1	-51.11	1.87	54.85
CONTROL - TRT3	-47.10	13.22	73.55
TRT1 - TRT2	-64.72	-10.01	44.71
TRT1 - CONTROL	-54.85	-1.87	51.11
TRT1 - TRT3	-50.50	11.35	73.21
TRT3 - TRT2	-83.21	-21.36	40.49
TRT3 - CONTROL	-73.55	-13.22	47.10
TRT3 - TRT1	-73.21	-11.35	50.50

NOTE: This test controls the type I experimentwise error rate.
 Alpha= 0.05 Confidence= 0.95 df= 49 MSE= 2963.565
 Critical Value of Studentized Range= 3.761
 Comparisons significant at the 0.05 level are indicated by '****'.

NOTE: This test controls the type I experimentwise error rate.
 Alpha= 0.05 Confidence= 0.95 df= 49 MSE= 2963.565
 Critical Value of Studentized Range= 3.761
 Comparisons significant at the 0.05 level are indicated by '****'.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS

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EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS

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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= 49 MSE= 2963.565
Critical Value of Dunnnett's T= 2.130

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

LEVEL Comparison	Simultaneous		Difference		Simultaneous	
	Lower Limit	Confidence Limit	Between Means	Upper Limit	Upper Limit	Upper Limit
TRT2 - CONTROL	-34.31		8.13		50.58	
TRT1 - CONTROL	-44.31		-1.87		40.57	
TRT3 - CONTROL	-61.55		-13.22		35.10	

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID

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General Linear Models Procedure
Class Level Information

Class Levels Values

LEVEL 4 CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

NOTE: Due to missing values, only 59 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID

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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 SPINOSAD ON THE REPRODUCTION OF MALLARDS

12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: RESPONSE

EL

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	74659.470	24886.490	4.03	0.0115
Error	55	339241.737	6168.032		
Corrected Total	58	413901.207			

R-Square C.V. Root MSE RESPONSE Mean
0.180380 153.0349 78.537 51.31956

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	74659.470	24886.490	4.03	0.0115

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Least Squares Means

LEVEL RESPONSE Pr > |T| HO: LSMEAN(i)=LSMEAN(j)
LSMEAN i/j 1 2 3 4

CONTROL	53.7485690	1	0.8835	0.1733	0.0026
TRT1	54.3630490	2	0.8835	0.1500	0.0023
TRT2	47.3495945	3	0.1733	0.1500	0.0194
TRT3	23.7773396	4	0.0026	0.0023	0.0194

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID

14:54 Tuesday, December 12, 1995

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= 55 MSE= 6168.032
Critical Value of Studentized Range= 3.747

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

LEVEL Comparison	Simultaneous		Difference		Simultaneous	
	Lower Limit	Confidence Limit	Between Means	Upper Limit	Upper Limit	Upper Limit
TRT1 - CONTROL	-74.17		0.61		75.40	
TRT1 - TRT2	-70.31		-7.01		84.34	
TRT1 - TRT3	-46.74		30.59		107.91	
CONTROL - TRT1	-75.40		-0.61		74.17	

Effect	Control	TRT1	TRT2	TRT3	6.40	82.55
INTERCEPT					29.97	106.12
LEVEL						
CONTROL						
TRT1	-84.34	-7.01			70.31	
TRT2	-82.55	-6.40			69.75	
TRT3	-55.07	23.57			102.22	
LEVEL						
CONTROL						
TRT1	-107.91	-30.59			46.74	
TRT2	-106.12	-29.97			46.18	
TRT3	-102.22	-23.57			55.07	

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID

14:54 Tuesday, December 12, 1995

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= 55 MSB= 6168.032

Critical Value of Dunnett's T= 2.114

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

LIVEL	Comparison	Simultaneous		Difference		Upper	
		Lower Limit	Confidence Limit	Between Means	Confidence Limit	Simultaneous	Upper Limit
TRT1	- CONTROL	-59.06		0.61		60.29	
TRT2	- CONTROL	-67.17		-6.40		54.37	
TRT3	- CONTROL	-90.74		-29.97		30.80	

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3
Number of observations in data set = 64		

NOTE: Due to missing values, only 51 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Type I Estimable Functions for: LEVEL

Effect Coefficients

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: RESPONSE

Weight: NH

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	15983.026	5327.675	2.93	0.0432
Error	47	85457.757	1818.250		
Corrected Total	50	101440.783			

R-Square C.V. Root MSE RESPONSE Mean

0.157560 53.35192 42.641 79.92391

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	15983.026	5327.675	2.93	0.0432

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Least Squares Means

LEVEL	RESPONSE Pr > T H0: LSMEAN(i) = LSMEAN(j)					
	LSMEAN	i/j	1	2	3	4
CONTROL	79.7569817	1	0.4522	0.7952	0.0091	0.0091
TRT1	81.8845707	2	0.4522	0.3821	0.0055	0.0055
TRT2	78.9005964	3	0.7952	0.3821	0.0125	0.0125
TRT3	51.1558804	4	0.0091	0.0055	0.0125	0.0125

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS

14:54 Tuesday, December 12, 1995

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= 47 MSE= 1818.25
 Critical Value of Studentized Range= 3.766

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	-39.43	43.69	2.13	43.69	
TRT1 - TRT2	-39.94	45.91	2.98	45.91	
TRT1 - TRT3	-21.84	83.30	30.73	83.30	
CONTROL - TRT1	-43.69	39.43	-2.13	39.43	
CONTROL - TRT2	-40.70	42.42	0.86	42.42	
CONTROL - TRT3	-22.86	80.07	28.60	80.07	
TRT2 - TRT1	-45.91	39.94	-2.98	39.94	
TRT2 - CONTROL	-42.42	40.70	-0.86	40.70	
TRT2 - TRT3	-24.83	80.32	27.74	80.32	
TRT3 - TRT1	-83.30	21.84	-30.73	21.84	
TRT3 - CONTROL	-80.07	22.86	-28.60	22.86	
TRT3 - TRT2	-80.32	24.83	-27.74	24.83	

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS

 14:54 Tuesday, December 12, 1995

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= 47 MSE= 1818.25
 Critical Value of Dunnett's T= 2.138

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	-31.24	35.50	2.13	35.50	
TRT2 - CONTROL	-34.22	32.51	-0.86	32.51	
TRT3 - CONTROL	-69.92	12.72	-28.60	12.72	

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Class Level Information

Class Levels Values

Number of observations in data set = 64

NOTE: Due to missing values, only 58 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

 14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS

14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: RESPONSE

Weight: EL

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	9942.7248	3314.2416	2.58	0.0626
Error	54	69242.4060	1282.2668		
Corrected Total	57	79185.1308			

R-Square C.V. Root MSE RESPONSE Mean

0.125563 42.29549 35.809 84.66329

Source DF Type I SS Mean Square F Value Pr > F

LEVEL 3 9942.7248 3314.2416 2.58 0.0626

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Least Squares Means

RESPONSE Pr > |T| H0: LSMEAN(i)=LSMEAN(j)
 LSMEAN i/j 1 2 3 4

Comparison	Limit	Means	Limit
TRT1 - CONTROL	-25.920	1.689	29.297
TRT2 - CONTROL	-31.255	-3.157	24.940
TRT3 - CONTROL	-32.270	-4.172	23.925

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

NOTE: Due to missing values, only 57 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS
15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	27060.612	9020.204	1.13	0.3471
Error	53	424738.827	8013.940		
Corrected Total	56	451799.440			

R-Square 0.059895
C.V. 0.059895
Root MSE 89.521
RESPONSE Mean 58.86116

Comparison	Limit	Means	Limit
TRT1 - CONTROL	-25.920	1.689	29.297
TRT2 - CONTROL	-31.255	-3.157	24.940
TRT3 - CONTROL	-32.270	-4.172	23.925

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

NOTE: Due to missing values, only 57 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS
14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
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Error	53	424738.827	8013.940		
Corrected Total	56	451799.440			

R-Square 0.059895
C.V. 0.059895
Root MSE 89.521
RESPONSE Mean 58.86116

Comparison	Limit	Means	Limit
TRT1 - CONTROL	-25.920	1.689	29.297
TRT2 - CONTROL	-31.255	-3.157	24.940
TRT3 - CONTROL	-32.270	-4.172	23.925

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

NOTE: Due to missing values, only 57 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS
14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	27060.612	9020.204	1.13	0.3471
Error	53	424738.827	8013.940		
Corrected Total	56	451799.440			

R-Square 0.059895
C.V. 0.059895
Root MSE 89.521
RESPONSE Mean 58.86116

File:bird.out Page 39
 Source DF Type I SS Mean Square F Value Pr > F
 LEVEL 3 27060.612 9020.204 1.13 0.3471

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Least Squares Means

LEVEL	RESPONSE	Pr > T H0: LSMEAN(i)=LSMEAN(j)	1	2	3	4
	LSMEAN	i/j				
CONTROL	59.4750722	1	0.7547	0.6696	0.0990	
TRT1	61.0699918	2	0.7547	0.4990	0.0808	
TRT2	57.0107985	3	0.6696	0.4990	0.1472	
TRT3	35.5823016	4	0.0990	0.0808	0.1472	

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

 14:54 Tuesday, December 12, 1995

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= 53 MSE= 8013.94
 Critical Value of Studentized Range= 3.751

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

LEVEL	Comparison	Simultaneous		
		Lower Limit	Difference Between Means	Upper Confidence Limit
TRT1	- CONTROL	-85.30	1.59	88.49
TRT1	- TRT2	-85.69	4.06	93.81
TRT1	- TRT3	-65.97	25.49	116.94
CONTROL	- TRT1	-88.49	-1.59	85.30
CONTROL	- TRT2	-84.43	2.46	89.36
CONTROL	- TRT3	-64.77	23.89	112.56
TRT2	- TRT1	-93.81	-4.06	85.69
TRT2	- CONTROL	-89.36	-2.46	84.43
TRT2	- TRT3	-70.03	21.43	112.89
TRT3	- TRT1	-116.94	-25.49	65.97
TRT3	- CONTROL	-112.56	-23.89	64.77
TRT3	- TRT2	-112.89	-21.43	70.03

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET

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 14:54 Tuesday, December 12, 1995

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= 53 MSE= 8013.94
 Critical Value of Dunnett's T= 2.119

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

LEVEL	Comparison	Simultaneous		
		Lower Confidence Limit	Difference Between Means	Upper Confidence Limit
TRT1	- CONTROL	-67.82	1.59	71.01
TRT2	- CONTROL	-71.88	-2.46	66.95
TRT3	- CONTROL	-94.72	-23.89	46.93

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

NOTE: Due to missing values, only 57 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET

 14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS
 16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: RESPONSE
Weight: ES

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	64931.853	21643.951	2.71	0.0544
Error	53	423714.231	7994.608		
Corrected Total	56	488646.084			

R-Square 0.132881
C.V. 159.6182
Root MSE 89.413
RESPONSE Mean 56.01652

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	64931.853	21643.951	2.71	0.0544

General Linear Models Procedure
Least Squares Means

LEVEL	RESPONSE	Pr > T	H0: LSMEAN(i) = LSMEAN(j)
	LSMEAN	i/j	1 2 3 4
CONTROL	57.2792173	1	0.6879 0.4284 0.0120
TRT1	59.3280088	2	0.2709 0.0086
TRT2	52.7017631	3	0.4284 0.2709 0.0303
TRT3	20.3208510	4	0.0120 0.0086 0.0303

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET

14:54 Tuesday, December 12, 1995

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= 53 MSB= 7994.608
Critical Value of Studentized Range= 3.751

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

LEVEL Comparison	Simultaneous		
	Lower Limit	Difference Between Means	Upper Limit
CONTROL - CONTROL	-84.74	2.05	88.84
TRT1 - TRT2	-83.01	6.63	96.27

General Linear Models Procedure

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET

Alpha= 0.05 Confidence= 0.95 df= 53 MSB= 7994.608
Critical Value of Dunnett's T= 2.119

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
17. ANALYSIS OF EGG SHELL THICKNESS

Alpha= 0.05 Confidence= 0.95 df= 53 MSB= 7994.608
Critical Value of Dunnett's T= 2.119

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
17. ANALYSIS OF EGG SHELL THICKNESS

Alpha= 0.05 Confidence= 0.95 df= 53 MSB= 7994.608
Critical Value of Dunnett's T= 2.119

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
17. ANALYSIS OF EGG SHELL THICKNESS

Alpha= 0.05 Confidence= 0.95 df= 53 MSB= 7994.608
Critical Value of Dunnett's T= 2.119

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
17. ANALYSIS OF EGG SHELL THICKNESS

Alpha= 0.05 Confidence= 0.95 df= 53 MSB= 7994.608
Critical Value of Dunnett's T= 2.119

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
17. ANALYSIS OF EGG SHELL THICKNESS

Alpha= 0.05 Confidence= 0.95 df= 53 MSB= 7994.608
Critical Value of Dunnett's T= 2.119

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
17. ANALYSIS OF EGG SHELL THICKNESS

Alpha= 0.05 Confidence= 0.95 df= 53 MSB= 7994.608
Critical Value of Dunnett's T= 2.119

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
17. ANALYSIS OF EGG SHELL THICKNESS

Alpha= 0.05 Confidence= 0.95 df= 53 MSB= 7994.608
Critical Value of Dunnett's T= 2.119

General Linear Models Procedure
Type I Estimable Functions for: LEVEL

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
17. ANALYSIS OF EGGSHELL THICKNESS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	0.0963182	0.0321061	63.79	0.0001
Error	51	0.0256695	0.0005033		
Corrected Total	54	0.1219877			

R-Square 0.789573
C.V. 6.233164
Root MSE 0.0224
THICK Mean .3599273

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	0.0963182	0.0321061	63.79	0.0001

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

17. ANALYSIS OF EGGSHELL THICKNESS

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Least Squares Means

LEVEL	THICK	Pr > T	HO: LSMEAN(i)=LSMEAN(j)
LSMEAN	i/j	1	2 3 4
CONTROL	0.39160000	1	0.7461 0.0001 0.0001
TRT1	0.38893333	2	0.7461 0.0003 0.0001
TRT2	0.35692857	3	0.0001 0.0003 0.0001
TRT3	0.28100000	4	0.0001 0.0001 0.0001

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

17. ANALYSIS OF EGGSHELL THICKNESS

14:54 Tuesday, December 12, 1995

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= 51 MSE= 0.000503
Critical Value of Studentized Range= 3.756

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	-0.01909	0.00267	0.02442
CONTROL	- TRT2	0.01253	0.03467	0.05681
CONTROL	- TRT3	0.08695	0.11060	0.13425
TRT1	- CONTROL	-0.02442	-0.00267	0.01909
TRT1	- TRT2	0.00986	0.03200	0.05415
TRT1	- TRT3	0.08428	0.10793	0.13159
TRT2	- CONTROL	-0.05681	-0.03467	-0.01253
TRT2	- TRT1	-0.05415	-0.03200	-0.00986
TRT2	- TRT3	0.05192	0.07593	0.09994
TRT3	- CONTROL	-0.13425	-0.11060	-0.08695
TRT3	- TRT1	-0.13159	-0.10793	-0.08428
TRT3	- TRT2	-0.09994	-0.07593	-0.05192

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

17. ANALYSIS OF EGGSHELL THICKNESS

14:54 Tuesday, December 12, 1995

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= 51 MSE= 0.000503
Critical Value of Dunnnett's T= 2.119

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	-0.02003	-0.00267	0.01470
TRT2	- CONTROL	-0.05234	-0.03467	-0.01700
TRT3	- CONTROL	-0.12947	-0.11060	-0.09173

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

18. ANALYSIS OF HATCHING WEIGHT

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Class Level Information

Class Levels Values
 LEVEL 4 CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

NOTE: Due to missing values, only 49 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

18. ANALYSIS OF HATCHLING WEIGHT

14:54 Tuesday, December 12, 1995

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 SPINOSAD ON THE REPRODUCTION OF MALLARDS

18. ANALYSIS OF HATCHLING WEIGHT

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: HATWT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	77.548214	25.849405	3.48	0.0235
Error	45	334.451786	7.432262		
Corrected Total	48	412.000000			

R-Square	C.V.	Root MSE	HATWT Mean
0.188224	7.821116	2.7262	34.85714

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	77.548214	25.849405	3.48	0.0235

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

18. ANALYSIS OF HATCHLING WEIGHT

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Least Squares Means

LEVEL	HATWT	Pr > T	H0: LSMEAN(i) = LSMEAN(j)
			i/j 1 2 3 4
	LSMEAN		

CONTROL	36.0625000	1	0.3997	0.0705	0.0038
TRT1	35.2142857	2	0.3997	0.3370	0.0204
TRT2	34.2142857	3	0.0705	0.3370	0.0961
TRT3	31.8000000	4	0.0038	0.0204	0.0961

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

18. ANALYSIS OF HATCHLING WEIGHT

14:54 Tuesday, December 12, 1995

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= 45 MSE= 7.432262

Critical Value of Studentized Range= 3.773

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	Upper	Lower	Upper
CONTROL - TRT1	-1.813	3.510	0.848	0.848	3.510	3.510
CONTROL - TRT2	-0.813	4.510	1.848	1.848	4.510	4.510
CONTROL - TRT3	0.536	7.989	4.262	4.262	7.989	7.989
TRT1 - CONTROL	-3.510	1.813	-0.848	-0.848	1.813	1.813
TRT1 - TRT2	-1.749	3.749	1.000	1.000	3.749	3.749
TRT1 - TRT3	-0.375	7.203	3.414	3.414	7.203	7.203
TRT2 - CONTROL	-4.510	0.813	-1.848	-1.848	0.813	0.813
TRT2 - TRT1	-3.749	1.749	-1.000	-1.000	1.749	1.749
TRT2 - TRT3	-1.375	6.203	2.414	2.414	6.203	6.203
TRT3 - CONTROL	-7.989	-0.536	-4.262	-4.262	-0.536	-0.536
TRT3 - TRT1	-7.203	0.375	-3.414	-3.414	0.375	0.375
TRT3 - TRT2	-6.203	1.375	-2.414	-2.414	1.375	1.375

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

18. ANALYSIS OF HATCHLING WEIGHT

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

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

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

Alpha= 0.05 Confidence= 0.95 df= 45 MSE= 7.432262

Critical Value of Dunnett's T= 2.149

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

LEVEL	Simultaneous Lower Confidence Limit		Difference		Simultaneous Upper	
	Lower	Upper	Lower	Upper	Lower	Upper

LEVEL	Comparison	Confidence Limit	Between Means	Confidence Limit
TRT1	- CONTROL	-2.992	-0.848	1.295
TRT2	- CONTROL	-3.992	-1.848	0.295
TRT3	- CONTROL	-7.264	-4.262	-1.261 ***

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

NOTE: Due to missing values, only 46 observations can be used in this analysis.

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Type I Estimable Functions for: LEVEL

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	8540.7812	2846.9271	5.84	0.0020
Error	42	20469.6536	487.3727		
Corrected Total	45	29010.4348			
R-Square		C.V.	Root MSE	SURVWT Mean	
	0.294404	7.656211	22.077	288.3478	

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	8540.7812	2846.9271	5.84	0.0020

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Least Squares Means

LEVEL	SURVWT	Pr > T H0: LSMEAN(i) = LSMEAN(j)	1	2	3	4
CONTROL	300.062500	1	0.1701	0.0558	0.0002	
TRT1	288.785714	2	0.1701	0.5644	0.0024	
TRT2	283.846154	3	0.0558	0.5644	0.0065	
TRT3	243.333333	4	0.0002	0.0024	0.0065	

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT

14:54 Tuesday, December 12, 1995

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= 42 MSE= 487.3727
Critical Value of Studentized Range= 3.783

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

LEVEL	Comparison	Simultaneous Lower Confidence Limit		Simultaneous Upper Confidence Limit	
		Lower Limit	Upper Limit	Lower Limit	Upper Limit
CONTROL	- TRT1	-10.334	11.277	32.888	
CONTROL	- TRT2	-5.834	16.216	38.266	
CONTROL	- TRT3	19.576	56.729	93.883	***
TRT1	- CONTROL	-32.888	-11.277	10.334	
TRT1	- TRT2	-17.806	4.940	27.685	***
TRT1	- TRT3	7.882	45.452	83.022	***
TRT2	- CONTROL	-38.266	-16.216	5.834	
TRT2	- TRT1	-27.685	-4.940	17.806	
TRT2	- TRT3	2.689	40.513	78.337	***
TRT3	- CONTROL	-93.883	-56.729	-19.576	***
TRT3	- TRT1	-83.022	-45.452	-7.882	***
TRT3	- TRT2	-78.337	-40.513	-2.689	***

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

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

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

Alpha= 0.05 Confidence= 0.95 df= 42. MSE= 487.3727
Critical Value of Dunnett's T= 2.164

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

LEVEL Comparison	Simultaneous		Difference		Simultaneous	
	Lower Limit	Confidence Mean	Upper Limit	Upper Confidence Limit	Upper Confidence Limit	Upper Confidence Limit
- CONTROL	-28.761	-11.277	6.207			
TRT1	-34.055	-16.216	1.623			
TRT2	-86.787	-56.729	-26.671	***		
TRT3						

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

20. ANALYSIS OF FOOD CONSUMPTION

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

20. ANALYSIS OF FOOD CONSUMPTION

14:54 Tuesday, December 12, 1995

General Linear Models Procedure
Type I Estimable Functions for: LEVEL

Effect

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

20. ANALYSIS OF FOOD CONSUMPTION

14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: FOOD

Sum of Mean
Squares Square F Value Pr > F

Source DF 3 1071875.0 357291.7 1.52 0.2197

Model 60 14144500.0 235791.7

Error 63 15219375.0

Corrected Total R-Square C.V. Root MSE FOOD Mean

0.070428 16.20301 485.58 2996.875

General Linear Models Procedure
Least Squares Means

14:54 Tuesday, December 12, 1995

Pr > |T| H0: LSMEAN(i) = LSMEAN(j)

LEVEL	LSMEAN	i/j	1	2	3	4
CONTROL	2993.75000	1	0.8847	0.3477	0.2486	
TRT1	2968.75000	2	0.8847	0.4263	0.1950	
TRT2	2831.25000	3	0.3477	0.4263	0.0389	
TRT3	3193.75000	4	0.2486	0.1950	0.0389	

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS

20. ANALYSIS OF FOOD CONSUMPTION

14:54 Tuesday, December 12, 1995

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= 60. MSE= 235791.7
Critical Value of Studentized Range= 3.737
Minimum Significant Difference= 453.67

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

LEVEL Comparison	Simultaneous		Difference		Simultaneous	
	Lower Limit	Confidence Mean	Upper Limit	Upper Confidence Limit	Upper Confidence Limit	Upper Confidence Limit
TRT3 - CONTROL	-253.7	200.0	653.7			
TRT1 - TRT1	-228.7	225.0	678.7			
TRT3 - TRT2	-91.2	362.5	816.2			
CONTROL - TRT3	-653.7	-200.0	253.7			

CONTROL - TRT1	-428.7	25.0	478.7
CONTROL - TRT2	-291.2	162.5	616.2
TRT1 - TRT2	-678.7	-225.0	228.7
TRT1 - CONTROL	-478.7	-25.0	428.7
TRT1	-316.2	137.5	591.2
TRT2 - TRT1	-816.2	-362.5	91.2
TRT2 - CONTROL	-616.2	-162.5	291.2
TRT2	-591.2	-137.5	316.2

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 20. ANALYSIS OF FOOD CONSUMPTION

 14:54 Tuesday, December 12, 1995

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 = 60 MSE = 235791.7
 Critical Value of Dunnett's T = 2.104
 Minimum Significant Difference = 361.2

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

LEVEL Comparison	Simultaneous		Upper Limit
	Lower Confidence Limit	Difference Between Means	
TRT3 - CONTROL	-161.2	200.0	561.2
TRT1 - CONTROL	-386.2	-25.0	336.2
TRT2 - CONTROL	-523.7	-162.5	198.7

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 21. COVARIATE ANALYSIS OF MALE BODY WEIGHT

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 21. COVARIATE ANALYSIS OF MALE BODY WEIGHT

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Dependent Variable: POSTM					

Model	4	178703.78	44675.95	5.24	0.0011
Error	59	503189.33	8528.63		
Corrected Total	63	681893.11			

R-Square / C.V. Root MSE POSTM Mean
 0.262070 7.568655 92.351 1220.172

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	97775.047	32591.682	3.82	0.0143
PREM	1	80928.736	80928.736	9.49	0.0031

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 21. COVARIATE ANALYSIS OF MALE BODY WEIGHT

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure
 Least Squares Means

LEVEL	POSTM LSMEAN	Std Err LSMEAN	Pr > T HO:LSMEAN=0	LSMEAN Number
TRT1	1224.84517	23.15429	0.0001	2
TRT2	1231.80779	23.08766	0.0001	3
TRT3	1158.94989	23.09189	0.0001	4

Pr > |T| HO: LSMEAN(i)=LSMEAN(j)

i/j	1	2	3	4
1		0.2247	0.3126	0.0019
2	0.2247		0.8321	0.0486
3	0.3126	0.8321		0.0295
4	0.0019	0.0486	0.0295	

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 21. COVARIATE ANALYSIS OF MALE BODY WEIGHT

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

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

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

Alpha = 0.05 Confidence = 0.95 df = 59 MSE = 8528.633
 Critical Value of Studentized Range = 3.739
 Minimum Significant Difference = 86.322

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

LEVEL Comparison	Simultaneous		Simultaneous	
	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit	
CONTROL - TRT2	-49.13	37.19	123.51	
CONTROL - TRT1	-36.70	49.63	135.95	
CONTROL - TRT3	22.43	108.75	195.07	***
TRT2 - CONTROL	-123.51	-37.19	49.13	
TRT2 - TRT1	-73.88	12.44	98.76	
TRT2 - TRT3	-14.76	71.56	157.88	
TRT1 - CONTROL	-135.95	-49.63	36.70	
TRT1 - TRT2	-98.76	-12.44	73.88	
TRT1 - TRT3	-27.20	59.13	145.45	
TRT3 - CONTROL	-195.07	-108.75	-22.43	***
TRT3 - TRT2	-157.88	-71.56	14.76	
TRT3 - TRT1	-145.45	-59.13	27.20	

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 21. COVARIATE ANALYSIS OF MALE BODY WEIGHT

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

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

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

Alpha= 0.05 Confidences 0.95 df= 59 MSE= 8528.633
 Critical Value of Dunnnett's T= 2.105
 Minimum Significant Difference= 68.718

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

LEVEL Comparison	Simultaneous		Simultaneous	
	Lower Confidence Limit	Difference Between Means	Upper Confidence Limit	
TRT2 - CONTROL	-105.91	-37.19	31.53	
TRT1 - CONTROL	-118.34	-49.63	19.09	
TRT3 - CONTROL	-177.47	-108.75	-40.03	***

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 22. COVARIATE ANALYSIS OF FEMALE BODY WEIGHT

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations in data set = 64

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 22. COVARIATE ANALYSIS OF FEMALE BODY WEIGHT

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Dependent Variable: POSTF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	315291.41	78822.85	10.39	0.0001
Error	59	447731.33	7588.67		
Corrected Total	63	763022.73			

R-Square	C.V.	Root MSE	POSTF Mean
0.413214	7.488052	87.113	1163.359

Source	DF	Type I SS	Mean Square	F Value	Pr > F
LEVEL	3	234844.30	78281.43	10.32	0.0001
PRF	1	80447.11	80447.11	10.60	0.0019

Source	DF	Type III SS	Mean Square	F Value	Pr > F
LEVEL	3	205026.91	68342.30	9.01	0.0001
PRF	1	80447.11	80447.11	10.60	0.0019

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 22. COVARIATE ANALYSIS OF FEMALE BODY WEIGHT

 14:54 Tuesday, December 12, 1995

General Linear Models Procedure

Least Squares Means

LEVEL	POSTF LSMEAN	Std Err LSMEAN	Pr > T		LSMEAN Number
			HO:LSMEAN=0		
CONTROL	1243.74243	21.81632	0.0001		1
TRT1	1182.21289	21.79988	0.0001		2
TRT2	1138.33848	21.78885	0.0001		3
TRT3	1089.14370	21.83546	0.0001		4

Pr > |T| HO: LSMEAN(i)=LSMEAN(j)

i/j	1	2	3	4
1		0.0504	0.0012	0.0001
2	0.0504		0.1601	0.0038
3	0.0012	0.1601		0.1157
4	0.0001	0.0038	0.1157	

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

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 22. COVARIATE ANALYSIS OF FEMALE BODY WEIGHT

General Linear Models Procedure

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

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

Alpha= 0.05 Confidence= 0.95 df= 59 MSE= 7588.667
 Critical Value of Studentized Range= 3.739
 Minimum Significant Difference= 81.426

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

LEVE Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
CONTROL - TRT1	-18.86	62.56	143.99	143.99	***
CONTROL - TRT2	30.39	111.81	193.24	193.24	***
CONTROL - TRT3	82.51	163.94	245.36	245.36	***
TRT1 - CONTROL	-143.99	-62.56	18.86	18.86	
TRT1 - TRT2	-32.18	49.25	130.68	130.68	***
TRT1 - TRT3	19.95	101.37	182.80	182.80	***
TRT2 - CONTROL	-193.24	-111.81	-30.39	-30.39	***
TRT2 - TRT1	-130.68	-49.25	32.18	32.18	
TRT2 - TRT3	-29.30	52.13	133.55	133.55	
TRT3 - CONTROL	-245.36	-163.94	-82.51	-82.51	***
TRT3 - TRT1	-182.80	-101.37	-19.95	-19.95	***
TRT3 - TRT2	-133.55	-52.13	29.30	29.30	

EFFECTS OF SPINOSAD ON THE REPRODUCTION OF MALLARDS
 22. COVARIATE ANALYSIS OF FEMALE BODY WEIGHT

General Linear Models Procedure

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

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

Alpha= 0.05 Confidence= 0.95 df= 59 MSE= 7588.667
 Critical Value of Dunnnett's T= 2.105
 Minimum Significant Difference= 64.821

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

LEVE Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit	Upper Confidence Limit		Lower Confidence Limit	Upper Confidence Limit
TRT1 - CONTROL	-127.38	-62.56	2.26	2.26	***
TRT2 - CONTROL	-176.63	-111.81	-46.99	-46.99	***
TRT3 - CONTROL	-228.76	-163.94	-99.12	-99.12	***

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