3 (3-3-03)

Data Evaluation Report on the Reproductive Effects of H-18, 053 (Chlorsulfuron) on Avian Species *Colinus virginianus*

PMRA Submission Number {.....} EPA MRID Number 42634001

Data Requirement:

PMRA DATA CODE	{.....}
EPA DP Barcode	D273992
OECD Data Point	{.....}
EPA MRID	42634001
EPA Guideline	71-4(a)

Test material: H-18, 053 (Chlorsulfuron) **Purity:** 97.5% (plant analysis); 98.2% (reanalysis)
Common name: Chlorsulfuron
Chemical name: IUPAC: Benzenesulfonamide,2-chloro-N-[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl) amino] carbonyl]
CAS name: Chlorsulfuron
CAS No.: 64902-72-3
Synonyms: Chlorsulfuron; DPX-W4189-165

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Date: 6/28/01

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Reference/Submission No.: {.....}

Company Code	{.....}	[For PMRA]
Active Code	{.....}	[For PMRA]
EPA PC Code	118601	

Date Evaluation Completed: {dd-mmm-yyyy}

CITATION: Beavers, J.B. *et al.* 1992. H-18, 053 (Chlorsulfuron): A one-generation reproduction study with the northern bobwhite (*Colinus virginianus*). Unpublished study performed by Wildlife International Ltd., Easton, MD and sponsored by E.I. du Pont de Nemours & Company, Newark, Delaware. Wildlife International Ltd. study no. 112-266, sponsor study no. 564-92. Study initiated September 30, 1991 and completed September 1, 1992.

EXECUTIVE SUMMARY:

The one generation reproductive toxicity of H-18, 053 (Chlorsulfuron) to groups (16 pens/treatment level) of 1 male and 1 female of 25-week-old bobwhite quail was assessed over 154 days. H-18, 053 was administered to the birds in the diet at 0, 26.4, 174, and 961 mg ai/kg dw diet. The NOAEC was determined to be 174 mg ai/kg dw diet based on significant reductions in female body weight, 14 day survivors/normal hatchlings, viable embryos/eggs set, and 14 day hatchling survival/eggs set at the highest treatment level when compared to the control. The LOAEC was, therefore, 961 mg ai/kg dw diet.

There were no apparent behavioral abnormalities or other treatment-related signs of toxicity on the parental generation.

This toxicity study is scientifically sound and satisfies the guideline requirement for a bobwhite quail reproductive toxicity study. This study is classified as Core.

Results Synopsis

Test Organism Size/Age (mean Weight): 25 weeks at test initiation (202 g)

NOAEC: 174 mg a.i./L
LOAEC: 961 mg a.i./L

Endpoint(s) Affected: female body weight, 14 day survivors/normal hatchlings, viable embryos/eggs set, and 14 day hatchling survival/eggs set

I. MATERIALS AND METHODS

GUIDELINE FOLLOWED: 71-4(a); Minor deviations included the instability of the a.i. in the 26 ppm diet, a slightly different photoperiod than recommended, a slightly lower egg storage and humidity than recommended, a lower hatching temperature and higher hatching humidity than recommended, and a slightly later removal date from the hatcher. None of these deviations impacted the acceptability or the validity of the study.

COMPLIANCE: A statement of no data confidentiality claims, a certification of good laboratory practices, and a quality assurance statement were provided.

A. MATERIALS:

1. Test Material H-18, 053 (Chlorsulfuron)

Description: A whitish to off-white powder

Lot No./Batch No. : Lot 12-51, Drum 1; Batch 12-51-88

Purity: 97.5% (plant analysis); 98.2% (reanalysis)

Stability of Compound Under Test Conditions: Most test concentrations were stable after one week under test conditions, except samples from the 40 ppm treatment group, which also showed poor stability when measured on day 0. Stability samples from the 200 ppm and 1000 ppm treatments averaged 79% and 90% after 7 days, while stability of the 40 ppm treatment averaged 67% on day 0 and 48% on day 7. Verification of the test substance in the diets yielded high recoveries (within 20% of nominal concentrations), except for samples from the 40 ppm treatment. Recovery of test substance from this treatment ranged from 22.4 to 31.1 ppm (56% to 78% of nominal). Reanalysis of the diets from the 40 ppm level confirmed the low stability and recovery of test substance in this treatment. It was suggested that the cause of this was either degradation of the test material or increased sorption of the a.i. to the diet matrix. The pilot study showed that the test material was stable in avian diets at 100 ppm.
(OECD requires water solubility, stability in water and light, pKa, Pow, vapor pressure of test compound)

Storage Conditions of Test Chemicals: The test substance was stored at ambient temperature. Premix containing acetone, corn oil, basal diet, and the test material was maintained frozen, except during weekly preparation of fresh diets.

2. Test organism:

Parameter	Details	Remarks *Criteria*
Species (common and scientific names):	Bobwhite quail (*Colinus virgninianus*)	*EPA requires: a wild waterfowl species, preferably the mallard, Anas platyrhynchos, or an upland game species, preferably the northern bobwhite, Colinus virginianus.*
Age at Study Initiation:	25 weeks	Birds were approaching their first breeding season. *EPA requires Birds should be approaching their first breeding season.*
Body Weight: (mean and range)	Test initiation: Control males: 200 g (180-225 g) females: 203 g (183-231 g) 40 ppm males: 206 g (182-233 g) females: 199 g (186-223 g) 200 ppm males: 203 g (183-237 g) females: 204 g (188-224 g) 1000 ppm males: 205 g (190-229 g) females: 199 g (180-225 g)	Aside from test initiation, weights were recorded at biweekly intervals up to week eight, and at test termination. *EPA requires that body weights should be recorded at test initiation and at biweekly intervals up to week eight or up to the onset of egg laying and at termination.*
Source:	Top Flight Quail Farm Belvidere, New Jersey 07823	*EPA requires that all birds should be from the same source.*

B. STUDY DESIGN:

1. Experimental Conditions

a) Range-finding Study: A pilot reproduction study was conducted with northern bobwhite quail (34 weeks old at test initiation). Birds (5 replicate pens per level; 1 male and 1 female per pen) were exposed to nominal dietary concentrations of H #18, 053 (chlorsulfuron) at 0, 160, 400, and 1000 ppm for 6 weeks (mean measured concentrations were 0, 103, 380, and 907). No treatment-related effects on mortality, clinical toxicity, body weight, feed consumption, or egg production were observed at any of the concentrations tested. As a result, the NOAEC in this pilot study was greater than or equal to 907 ppm, the highest treatment concentration tested.

b) Definitive Study

Table 1 . Experimental Parameters

Parameter	Details	Remarks Criteria
Acclimation period: conditions (same as test or not):	-Birds were subject to an acclimation period for 17 days. -Environmental conditions during acclimation were identical to test conditions.	Offspring (from hatch to 14 days old) were given a water soluble vitamin and electolyte mix in their water.
feeding: health (any mortality observed):	-Water and feed were provided *ad libitum*. -At test initiation, birds were examined for physical injuries and general health. Unhealthy birds were discarded.	*EPA recommends a 2-3 week health observation period prior to selection of birds for treatment. Birds must be generally healthy without excess mortality. Feeding should be ad libitum, and sickness, injuries or mortality be noted.*
Test duration pre-laying exposure: egg-laying exposure: withdrawal period, if used:	 -11 weeks -11 weeks -No withdrawal period	Reduced reproduction was not observed, so a withdrawal period was not necessary. *EPA requires* ***Pre-laying exposure duration*** *At least 10 weeks prior to the onset of egg-laying.* ***Exposure duration with egg-laying*** *At least 10 weeks.* ***Withdrawal period*** *If reduced reproduction is evident, a withdrawal period of up to 3 weeks should be added to the test phase.*

Parameter	Details	Remarks Criteria
Pen (for parental and offspring) size:	-Parents were housed in Georgia Quail Farm Breeding Pens (30 x 15 cm^2; Model 206). Offspring were housed in Beacon Steel Company brooding pens (72 x 90 x 23 cm^3; Model B735Q).	A diagram was provided (Appendix XIII, p. 109) of the pen layout, relative to treatment groups.
construction materials: number:	-Pens were constructed of galvanized wire grid and galvanized sheeting. -16 pens/treatment level	*Pens* *Adequate room and arranged to prevent cross contamination* *Materials* *Nontoxic material and nonbinding material, such as galvanized steel.* *Number* *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. Chicks are to be housed according to parental grouping.*
Number of birds per pen (male:female)	2 birds/pen (1 male:1 female)	*EPA requires one male and 1 female per pen. For quail, 1 male and 2 females is acceptable. For ducks, 2 males and 5 females is acceptable.*
Number of pens per group/treatment negative control: solvent control: treated:	-N/A -16 pens -16 pens/treatment	Sixty-four pens were used in the experiment. *EPA requires at least 12 pens, but considerably more if birds are kept in pairs. At least 16 is strongly recommended.*

Parameter	Details	Remarks Criteria
Test concentrations (mg ai/kg diet) nominal: measured:	-0, 40, 200, and 1000 ppm -0, 26.4 ± 2.6, 174 ± 18, and 961 ± 82 ppm	Test concentrations were chosen in consultation with the Sponsor and were based upon known toxicity data, a pilot reproduction study, and Expected Environmental Concentrations. *EPA requires at least two concentrations other than the control are required; three or more are recommended. The highest test concentrations should show a significant effect or be at or above the actual or expected field residue level.*
Maximum labeled field residue anticipated and source of information:	Not reported	*EPA requires The highest test concentrations should show a significant effect or be at or above the actual or expected field residue level. The source [i.e., maximum label rate (in lb ai/A & ppm), label registratin no., label date, and site should be cited]*
Solvent/vehicle, if used type: amount:	-Acetone (solvent) and corn oil (vehicle) - Less than 2% of the diet by weight	*EPA requires corn oil or other appropriate vehicle not more than 2% of diet by weight*
Was detailed description and nutrient analysis of the basal diet provided? (Yes/No)	Yes	Basal diets contained 27% protein, 2.5% fat, and 5% fiber (minimum). Five percent limestone was added to adult diets to provide a source of calcium. *EPA requires a commercial breeder feed (or its equivalent) that is appropriate for the test species.*

Parameter	Details	Remarks Criteria
Preparation of test diet	H-18, 053 (Chlorsulfuron) was added to a pre-mix with corn oil and incorporated into aliquots of basal diet using a Hobart mixer.	*A premixed containing the test substance should be mechanically mixed with basal diet. If an evaporative vehicle is used, it must be completely evaporated prior to feeding.*
Indicate whether stability and homogeneity of test material in diet determined (Yes/No)	Yes	
Were concentrations in diet verified by chemical analysis?	Yes	
Did chemical analysis confirm that diet was stable and homogeneous?	Yes	
Feeding and husbandry	Feeding and husbandry conditions appeared to be adequate, given guideline recommendations.	Housing and husbandry practices adhered to the guidelines established by the National Institutes of Health.
Test conditions (pre-laying) temperature: relative humidity: photoperiod:	-Average temperature was maintained at 18.4 ± 2.2°C. -40 ± 15% -8 h light up to week 7, 17 h light thereafter; 45 footcandles of illumination	Birds were exposed to 8 hours of light for the first 7 weeks, instead of the recommended 7 hours for 8 weeks. *EPA Requires* *Temperature:* *About 21°C (70°F)* *Relative humidity:* *About 55%* *Lighting* *First 8 weeks: 7 h per day.* *Thereafter: 16-17 h per day.* *At least 6 footcandles at bird level.*

Parameter	Details	Remarks Criteria
Egg Collection and Incubation		
Egg collection and storage collection interval: storage temperature: storage humidity:	-Eggs were collected daily -13.8 ± 1.0°C -46 ± 9% relative humidity	Eggs were stored at a temperature and humidity that was slightly lower than recommended. *EPA requires eggs to be collected daily; egg storage temperature approximately 16°C (61°F); humidity approximately 65%. Collection interval: daily*
Were eggs candled for cracks prior to setting for incubation?	Eggs were candled prior to incubation (Day 0).	*EPA requires eggs to be candled on day 0*
Were eggs set weekly?	Yes	
When candling was done for fertility?	Day 11 for embryo viability and Day 21 for embryo survival	*EPA requires:* *Quail: approx. day 11* *Ducks: approx. day 14*
When the eggs were transferred to the hatcher?	Day 21	*EPA requires:* *Bobwhite: day 21* *Mallard: day 23*
Hatching conditions temperature: humidity: photoperiod:	-37.2°C -76% -Not reported	Hatching temperature was slightly lower and humidity was higher than recommended.. *EPA requires:* *temperature of 39°C (102°F)* *humidity of 70%*
Day the hatched eggs were removed and counted	Day 25 or Day 26	Hatchlings, unhatched eggs, and egg shells were removed from the hatcher a day or two later than EPA requires for this species. *EPA requires Bobwhite: day 24* *Mallard: day 27*

Parameter	Details	Remarks Criteria
Were egg shells washed and dried for at least 48 hrs before measuring?	Yes, shells were washed and dried for one week at room temperature.	
Egg shell thickness no. of eggs used: intervals: mode of measurement:	-One egg was collected (when available) from alternate pens in each treatment group. -Once weekly throughout the egg laying period. -Dried shell plus membrane at the waist was determined by measuring five points around the shell circumference to the nearest 0.005 mm.	*EPA requires newly hatched eggs be collected at least once every two weeks. Thickness of the shell plus membrane should be measured to the nearest 0.01 mm*; 3 - 4 *measurements per shell.*
Reference chemical, if used	None used	

2. Observations:

Table 2: Observations

Parameter	Details	Remarks/Criteria
Parameters measured		
Parental: (mortality, body weight, mean feed consumption)	-mortality -body weight -food consumption	Data for all parameters were reported on a per pen basis.
Egg collection and subsequent development: (no. of eggs laid, no. of eggs cracked, shell thickness, no. of eggs set, no. of viable embryos, no. of live 3 week embryos, no. hatched, no. of 14-day survivors, average weight of 14-d old survivors, mortality, gross pathology, others)	-eggs laid/pen -eggs cracked/pen -eggs set/pen -viable embryos/pen -live 3-week embryos/pen -normal hatchlings/pen -hatchling body weight/pen -14-day-old survivors/pen -14-day-old survivor body weight/pen -eggshell thickness/pen	*EPA requires:* ● *Eggs laid/pen* ● *Eggs cracked/pen* ● *Eggs set/pen* ● *Viable embryos/pen* ● *Live 3-week embryos/pen* ● *Normal hatchlings/pen* ● *14-day-old survivors/pen* ● *14-day-old survivors/pen* ● *Weights of 14-day-old survivors (mean per pen)* ● *Egg shell thickness* ● *Food consumption (mean per pen)* ● *Initial and final body weight (mean per pen)*
Indicate if the test material was regurgitated	No indications of dietary regurgitation.	
Observation intervals (for various parameters)	Body weight was measured biweekly and food consumption was estimated weekly. Eggs were collected weekly for weight and thickness measurements.	*Body weights and food consumption must be measured at least biweekly.*
were raw data included?	Yes	

II. RESULTS AND DISCUSSION:

A. MORTALITY: Two birds died during the experiment, one in the control group and one in the 26 ppm treatment. One hen in the control group was found dead at the end of week 20. A lesion observed during week 15 appeared to be healing, and the bird was considered normal by the end of week 16. No clinical signs were noted before death. The hen was in moderate condition upon necropsy. The area around the vent was feces-covered and appeared necrotic. The spleen was small and pale and the kidneys appeared pale. Lesions indicative of egg yolk peritonitis were also observed.

One hen in the 26 ppm treatment was found dead during week 14 without exhibiting prior clinical signs. The hen was in good condition upon necropsy. Feather loss from the head was noted, as was a friable liver, evidence of old egg yolk peritonitis, and a regressing ovary. Visceral gout was noted in the abdominal cavity and urinary

tract. The terminal colon was distended with urates and the kidneys were pale.

Because no other mortalities were noted, these deaths were considered to be incidental and not treatment-related.

Table 3: Effect of H-18, 053 (Chlorsulfuron) on mortality of *Colinus virginianus*.

Treatment (mg a.i./kg diet) measured and (nominal conc.)		Observation Period					
		Day 51		Day 102		Day 154	
		No. Dead		No. Dead		No. Dead	
		Male	Female	Male	Female	Male	Female
Control		0	0	0	0	0	1
26.4 (40)		0	0	0	1	0	1
174 (200)		0	0	0	0	0	0
961 (1000)		0	0	0	0	0	0
LD_{50}		>961ppm	>961ppm	>961ppm	>961ppm	>961ppm	>961ppm
Reference chemical	mortality	N/A	N/A	N/A	N/A	N/A	N/A
	LD_{50}						

B. REPRODUCTIVE AND OTHER ENDPOINTS: Pathological observations were noted for some birds that survived the experiment, but none appeared to be treatment-related. Common clinical observations included foot, head, and eye lesions and feather loss normally associated with penwear and/or penmate aggression. These lesions were sometimes associated with a ruffled appearance, lethargy, depression or lower limb weakness. Similarly, gross necropsies revealed no treatment-related patterns.

The study authors detected a significant reduction in adult hen body weights at the 1000 ppm treatment level during the week 4 interval. Hens in this treatment apparently lost weight during week 2 and never gained enough weight to compensate for the loss. There were significant decreases in food consumption in the 26 ppm treatment during weeks 4, 20, and 21 in the 174 ppm treatment during week 21. Significant increases in food consumption were also noted during some weeks in the 174 ppm and 961 ppm treatment groups.

The study authors reported that there were no apparent treatment-related effects upon reproductive parameters at the 26, 174, and 961 ppm treatment levels. They detected a significant reduction in the percentage of viable embryos/eggs set at the 961 ppm level, but attributed the reduction to damaged eggs from a mechanical accident that occurred during egg rotation in the incubator.

Table 4. Reproductive and other parameters.

Parameter	Control	26.4 ppm	174 ppm	961 ppm	NOAEC/ LOAEC
Eggs laid/pen	48	51	52	44	≥961ppm >961ppm
Eggs laid/hen/day	0.65	0.68	0.70	0.59	≥961ppm >961ppm
Eggs cracked	36	15	16	11	≥961ppm >961ppm
Eggs set	599	665	727	614	≥961ppm >961ppm
Shell thickness (mm ± SD)	0.210	0.217	0.214	0.210	≥961ppm >961ppm
Viable embryos	563	592	638	520	≥961ppm >961ppm
Live 3-week embryos	560	584	630	512	≥961ppm >961ppm
No. of hatchling/hen	34.7	36.1	37.3	30.8	≥961ppm >961ppm
No. of normal hatchlings	521	542	597	492	≥961ppm >961ppm
Hatchling weight (g)	6.1	6.3	6.3	5.9	≥961ppm >961ppm
14-day old survivors	496	504	572	440	≥961ppm >961ppm
14-day old survivors weight (g)	24	23	24	22	≥961ppm >961ppm
Mean food consumption (g)	29.5	27.9	29.8	31.3	≥961ppm >961ppm
Weight of females and males (parent) at test initiation: at onset of egg laying: at test termination:	 males: 200g females: 203g males: 216g females: 219g males: 216g females: 250g	 males: 206g females: 199g males: 224g females: 214g males: 216g females: 248g	 males: 203g females: 204g males: 216g females: 216g males: 218g females: 246g	 males: 205g females: 199g males: 218g females: 207g males: 224g females: 231g	 174ppm 961ppm

Parameter	Control	26.4 ppm	174 ppm	961 ppm	NOAEC/ LOAEC
Gross pathology (proportion of birds with pathological incidents)	7/30	7/30	11/32	11/32	≥961ppm >961ppm

C. REPORTED STATISTICS: Significant differences between the treatment groups and the control group for eggs laid, eggs cracked, eggs set, viable embryos, live three-week embryos, hatchlings, hatchling body weight, 14-day-old survivors, 14-day-old survivor body weight, egg weight, and eggshell thickness were determined using Dunnett's method. Percentage data were arcsin transformed and pens with mortality were excluded from statistical comparisons of reproductive data.

D. VERIFICATION OF STATISTICAL RESULTS:

Statistical Method: Analyses were conducted using "chicks.sas" (Ver. 2; Jan.1998), a SAS program provided by EFED/OPP/USEPA. For most endpoints, ANOVA was followed by Dunnett's multiple comparison test to determine whether statistically significant treatment effects were present. For male and female body weight, ANCOVA was substituted for ANOVA prior to performing Dunnett's test. For percent data, ANOVA and Dunnett's test were conducted on the arcsin transformed data. See Appendix I for output of reviewer's statistical verification.

NOAEC: 174 ppm
LOAEC: 961 ppm
Most Sensitive endpoint(s): female body weight, 14 day survivors/normal hatchlings, viable embryos/eggs set, and 14 day hatchling survival/eggs set

E. STUDY DEFICIENCIES:

1. Environmental conditions during the adult and offspring phases slightly deviated from US EPA guideline recommendations. Photoperiod was 8 hours for the first 7 weeks, rather than 7 hours for the first 8 weeks. During the offspring phase, egg storage temperature and humidity were slightly lower (13.8 ± 1.0 °C and 46 ± 9%) than recommended (16°C and 65%). Hatching temperature was slightly lower (37.2°C) than recommended (39°C) and humidity was higher (76%) than recommended (70%). None of these deviations impacted the acceptability or the validity of the study.

2. Hatchlings, unhatched eggs, and egg shells were removed from the hatcher a day or two later (Day 25 or 26) than EPA requires for this species (Day 24). This deviation did not impact the validity of the study.

3. Chemical analysis of the test diets revealed that the test substance was unstable at the 26.4 ppm level. Recovery of the test material from stability samples averaged 67% and 48% of nominal at day 0 and 7, respectively. Verification of the test substance at this dietary concentration yielded recoveries averaging 56% to 78% of nominal. However, recovery of test material at the two higher dietary concentrations (174 ppm and 961 ppm) yielded values >20% of nominal concentrations. Because the a.i. was shown to be stable

in the higher test concentrations (where treatment effects were shown), the low recovery of the a.i. in the lowest treatment level was not considered to have impacted acceptability or validity of the study.

F. REVIEWER'S COMMENTS:

Results of the reviewer's statistical analysis differed slightly from those of the study authors, however, conclusions reached regarding NOAEC and LOAEC values were identical. Similar to the study authors, the reviewer detected significant reductions in the number of viable embryos/eggs set (10%) and female body weights (33%) at the highest treatment level. Unlike the study authors, the reviewer also detected significant reductions in the number of 14 day survivors/normal hatchlings (7%) and the number of 14 day hatchlings/eggs set (15%). The reviewer detected treatment-related reductions in the number of viable embryos/eggs set, 14 day hatchlings/eggs set, and female body weights. The study author attributed reductions in the number of viable embryos/eggs set to a mechanical accident that damaged incubated eggs in the 174ppm and (to a greater extent) in the 961 pp treatment group. They claimed that when data from eggs set during week 9 were excluded from the statistical analysis, significant differences between control and treatment groups disappeared. Given the dose-dependent nature of the response for several of these reproductive endpoints and the inability of the reviewer to independently verify statistical analysis with the exclusion of these data, the reviewer did not accept this as a plausible explanation.

The a.i. in the 26 ppm diet was shown to be unstable under test conditions and, thus, yielded low recovery. The study authors attributed this to either degradation or sorption of the a.i. to the basal diet. Because adverse effects were only detected at the highest treatment concentration (in which the a.i. was stable), this was not considered to have impacted the acceptability or the validity of the study.

G. CONCLUSIONS: This study is scientifically sound and the deviations were not considered to have impacted the acceptability or validity of the study. This study is classified as Core.

NOAEC: 174 mg a.i./L
LOAEC: 961 mg a.i./L

Endpoint(s) Affected: female body weight, 14 day survivors/normal hatchlings, viable embryos/eggs set, and 14 day hatchling survival/eggs set

III. REFERENCES:

American Society for Testic and Materials. 1986. Standard Practice for Conducting Reproductive Studies with Avian Species. E1062-86. Philadelphia, PA. 15 pp.

Anonymous, Pesticide Assessment Guidelines. FIFRA Subdivision E. Hazard Evaluation: Wildlife and Aquatic Organisms. subsection 71-4, Environmental Protection Agency, Office of Pesticide Programs, October, 1982.

National Institute of Health. 1985. Guide for the Care and Use of Laboratory Animals. Pub No 85-23. 83 pp.

Dunnett, C.W., "A Multiple Comparison Procedure for Comparing Several Treatments with a Control," Jour. Amer. Statis. Assoc. 50: 1096-1121, 1955.

Dunnett, C.W., "New Tables for Multiple Comparisons with a Control," Biometrics 20: 482-491, 1964.

APPENDIX I. OUTPUT OF REVIEWER'S STATISTICAL VERIFICATION:

42634001 18:17 Monday, June 25, 2001

Obs	LEVEL	EL	EC	ES	VE	LE	NH	HS	THICK	HAT	SURVT	FOOD	PREM	POSTM	PREF	POSTF
1	CONTROL	53	0	49	48	48	44	44	0.212	6	26	25.9091	194	207	220	303
2	CONTROL	42	1	37	32	32	30	28	0.212	6	21	30.6364	198	221	202	226
3	CONTROL	45	0	42	42	42	38	35	0.208	6	20	27.1364	189	200	196	255
4	CONTROL	57	0	52	51	51	50	50	0.224	6	25	22.9091	212	235	210	260
5	CONTROL	43	0	38	38	38	35	35	0.215	6	23	29.0455	202	214	197	243
6	CONTROL	.	.	.	.	.	.	.	.	.	.	31.4737	199	.	223	.
7	CONTROL	53	0	48	47	47	47	41	0.215	6	19	27.5455	225	241	183	228
8	CONTROL	59	5	48	43	43	40	40	0.219	7	25	32.0000	201	224	212	256
9	CONTROL	41	0	36	34	34	33	30	0.202	6	23	26.4546	194	209	184	227
10	CONTROL	42	2	35	34	34	29	26	0.206	6	24	27.9546	207	213	193	241
11	CONTROL	53	2	46	44	44	36	34	0.212	6	28	28.7727	204	226	207	255
12	CONTROL	42	7	30	30	30	27	27	0.242	6	24	34.1364	223	233	231	281
13	CONTROL	31	9	19	19	18	17	15	0.195	6	20	27.9091	180	214	185	231
14	CONTROL	34	1	29	27	27	27	27	0.215	7	23	33.6818	181	197	190	227
15	CONTROL	65	5	55	55	54	53	50	0.184	6	26	29.5455	196	205	210	270
16	CONTROL	58	4	35	19	18	15	14	0.180	6	23	32.2727	189	207	197	252
17	TRT1	37	1	29	25	25	23	23	0.196	6	23	25.5909	194	239	212	270
18	TRT1	52	0	47	45	45	45	41	0.219	6	22	24.0455	182	200	192	244
19	TRT1	59	2	52	48	48	47	44	0.220	7	27	32.3636	206	225	217	276
20	TRT1	55	1	48	42	42	37	36	0.208	6	21	29.1818	233	258	187	247
21	TRT1	47	0	42	37	37	34	28	0.214	6	22	26.2727	224	230	191	248
22	TRT1	.	.	.	.	.	.	.	.	.	.	21.9231	226	.	187	.
23	TRT1	48	0	42	27	27	24	23	0.217	6	24	29.3182	210	226	192	234
24	TRT1	0	0	0	0	0	0	0	.	.	.	26.0000	214	229	186	152
25	TRT1	61	1	55	53	52	51	47	0.224	6	21	26.9546	225	272	198	258
26	TRT1	59	3	47	43	43	36	33	0.213	7	26	26.4091	201	219	211	276
27	TRT1	42	0	38	38	38	35	34	0.223	6	21	28.6818	186	215	196	236
28	TRT1	55	4	45	33	28	24	22	0.226	7	24	29.7273	193	204	192	249
29	TRT1	63	0	58	50	50	49	45	0.218	6	27	27.3182	200	218	195	249
30	TRT1	57	2	50	43	43	39	36	0.223	7	21	28.7273	206	225	206	266
31	TRT1	66	1	59	55	55	50	48	0.226	7	25	27.4546	189	204	223	273
32	TRT1	58	0	53	53	51	48	44	0.210	6	20	30.0000	205	255	204	249
33	TRT2	35	2	29	27	26	26	24	0.223	7	26	21.2273	210	241	202	172
34	TRT2	67	2	58	57	56	56	51	0.228	5	23	34.3636	206	191	212	259
35	TRT2	54	1	47	45	44	42	42	0.194	6	25	33.4091	222	242	206	254
36	TRT2	55	0	50	46	46	43	39	0.199	6	21	30.3636	212	227	224	258
37	TRT2	66	1	58	56	56	49	49	0.213	7	23	29.6364	204	223	205	276
38	TRT2	46	1	40	40	40	36	34	0.211	6	27	30.2273	193	208	221	248
39	TRT2	37	0	33	33	33	31	29	0.212	6	22	28.6364	208	220	195	237
40	TRT2	55	0	49	49	49	45	42	0.199	7	23	31.1818	200	218	212	255
41	TRT2	41	0	36	34	34	33	33	0.226	7	24	25.9091	205	231	202	254
42	TRT2	43	0	38	31	31	31	31	0.208	6	24	26.1818	201	215	213	232
43	TRT2	70	1	63	57	57	56	55	0.227	6	25	33.1818	184	190	188	258
44	TRT2	43	0	38	0	0	0	0	0.240	.	.	27.0909	237	249	193	231
45	TRT2	41	0	37	33	33	30	30	0.218	6	26	33.3636	202	224	201	238

46	TRT2	51	2	43	34	33	33	33	0.213	6	24	29.8636	191	201	193	242
47	TRT2	67	5	57	52	50	49	45	0.198	6	22	30.0000	193	207	191	257
48	TRT2	57	1	51	44	42	37	35	0.212	6	21	30.5000	185	202	211	267
49	TRT3	35	0	31	25	25	22	19	0.209	5	22	27.4546	206	235	190	224
50	TRT3	34	0	30	25	24	23	20	0.229	6	24	26.4546	190	205	188	225

42634001 18:17 Monday, June 25, 2001

Obs	LEVEL	EL	EC	ES	VE	LE	NH	HS	THICK	HATW	SURVWT	FOOD	PREM	POSTM	PREF	POSTF
51	TRT3	63	0	58	49	49	45	36	0.218	6	20	35.4091	204	230	222	263
52	TRT3	42	1	36	28	26	25	19	0.196	5	20	33.3636	198	215	201	237
53	TRT3	17	0	14	13	13	12	7	0.192	6	24	34.2273	202	225	182	141
54	TRT3	58	0	53	46	45	44	42	0.225	7	22	31.0455	200	216	208	250
55	TRT3	27	0	24	21	21	21	20	0.220	6	25	26.9546	207	244	200	186
56	TRT3	54	1	48	40	40	40	37	0.205	6	23	30.0455	208	233	200	237
57	TRT3	44	1	39	33	33	29	21	0.204	5	17	37.7727	211	226	196	243
58	TRT3	56	3	47	35	35	35	33	0.203	6	22	33.9091	207	209	196	233
59	TRT3	56	1	50	43	43	43	42	0.207	6	21	37.5909	229	243	211	244
60	TRT3	9	0	7	6	6	4	4	0.224	6	21	22.6818	206	221	194	234
61	TRT3	56	2	48	42	41	41	38	0.202	6	23	31.4546	193	209	180	243
62	TRT3	60	0	55	48	46	44	42	0.217	6	22	27.8636	208	225	203	249
63	TRT3	26	0	23	18	18	18	18	0.219	6	21	34.0455	206	224	225	244
64	TRT3	60	2	51	48	47	46	42	0.197	6	26	31.7273	206	225	190	248

42634001 18:17 Monday, June 25, 2001

	LEVEL			
	CONTROL	TRT1	TRT2	TRT3
	Mean	Mean	Mean	Mean
EL	47.87,	50.60,	51.75,	43.56,
EC	2.40,	1.00,	1.00,	0.69,
ES	39.93,	44.33,	45.44,	38.38,
VE	37.53,	39.47,	39.88,	32.50,
LE	37.33,	38.93,	39.38,	32.00,
NH	34.73,	36.13,	37.31,	30.75,
HS	33.07,	33.60,	35.75,	27.50,
ES/EL (%)	83.09,	87.41,	87.76,	87.29,
(EL-EC)/EL (%)	94.49,	98.08,	98.20,	98.72,
VE/ES (%)	93.64,	88.63,	86.75,	84.67,
LE/VE (%)	99.18,	98.51,	98.73,	98.63,
NH/EL (%)	72.53,	71.02,	71.28,	68.87,
NH/ES (%)	86.36,	80.94,	81.27,	78.75,
NH/LE (%)	92.61,	92.30,	94.97,	94.37,
HS/ES (%)	82.02,	75.40,	77.94,	69.61,
HS/NH (%)	94.91,	93.19,	96.00,	88.42,
THICK	0.21,	0.22,	0.21,	0.21,
HATWT	6.13,	6.36,	6.20,	5.88,
SURVWT	23.33,	23.14,	23.73,	22.06,
FOOD	29.21,	27.50,	29.70,	31.38,
POSTM	216.40,	227.93,	218.06,	224.06,
POSTF	250.33,	248.47,	246.13,	231.31,

42634001 18:17 Monday, June 25, 2001

---------- LEVEL=CONTROL ----------

The MEANS Procedure

Variable	Label	N	Mean	Std Dev	Coeff of Variation
EL		15	47.867	9.790	20.452
EC		15	2.400	2.923	121.784
ES		15	39.933	9.852	24.672
VE		15	37.533	10.980	29.253
LE		15	37.333	11.114	29.770
NH		15	34.733	11.100	31.958
HS		15	33.067	10.892	32.940
THICK		15	0.209	0.015	7.296
HATWT		15	6.133	0.352	5.737
SURVWT		15	23.333	2.526	10.826
FOOD		16	29.211	3.027	10.363
PREM		16	199.625	12.811	6.417
POSTM		15	216.400	13.168	6.085
PREF		16	202.500	14.468	7.145
POSTF		15	250.333	22.308	8.911
ES_EL	ES/EL (%)	15	83.087	10.496	12.633
NH_EL	NH/EL (%)	15	72.525	16.102	22.202
ENC_EL	(EL-EC)/EL (%)	15	94.492	7.997	8.463
VE_ES	VE/ES (%)	15	93.643	11.627	12.416
NH_ES	NH/ES (%)	15	86.363	13.350	15.459
HS_ES	HS/ES (%)	15	82.020	13.589	16.567
LE_VE	LE/VE (%)	15	99.177	1.862	1.878
NH_LE	NH/LE (%)	15	92.611	5.748	6.207
HS_NH	HS/NH (%)	15	94.906	4.750	5.005

---------- LEVEL=TRT1 ----------

Variable	Label	N	Mean	Std Dev	Coeff of Variation
EL		15	50.600	16.070	31.760
EC		15	1.000	1.254	125.357
ES		15	44.333	14.544	32.806
VE		15	39.467	14.207	35.997
LE		15	38.933	14.230	36.550
NH		15	36.133	13.897	38.460
HS		15	33.600	12.872	38.309
THICK		14	0.217	0.008	3.820
HATWT		14	6.357	0.497	7.822
SURVWT		14	23.143	2.381	10.289
FOOD		16	27.498	2.528	9.193
PREM		16	205.875	15.349	7.455
POSTM		15	227.933	20.700	9.082
PREF		16	199.313	11.487	5.764

POSTF		15	248.467	30.088	12.109
ES_EL	ES/EL (%)	14	87.408	4.337	4.962
NH_EL	NH/EL (%)	14	71.020	13.080	18.418

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42634001 18:17 Monday, June 25, 2001

---------- LEVEL=TRT1 ----------

The MEANS Procedure

Variable	Label	N	Mean	Std Dev	Coeff of Variation
ENC_EL	(EL-EC)/EL (%)	14	98.076	2.259	2.303
VE_ES	VE/ES (%)	14	88.625	9.840	11.102
NH_ES	NH/ES (%)	14	80.941	12.604	15.572
HS_ES	HS/ES (%)	14	75.399	12.030	15.955
LE_VE	LE/VE (%)	14	98.513	4.080	4.142
NH_LE	NH/LE (%)	14	92.295	4.892	5.300
HS_NH	HS/NH (%)	14	93.190	4.173	4.478

---------- LEVEL=TRT2 ----------

Variable	Label	N	Mean	Std Dev	Coeff of Variation
EL		16	51.750	11.463	22.151
EC		16	1.000	1.317	131.656
ES		16	45.438	10.185	22.415
VE		16	39.875	14.505	36.375
LE		16	39.375	14.357	36.462
NH		16	37.313	13.607	36.469
HS		16	35.750	12.882	36.032
THICK		16	0.214	0.013	5.968
HATWT		15	6.200	0.561	9.042
SURVWT		15	23.733	1.831	7.715
FOOD		16	29.696	3.378	11.377
PREM		16	203.313	13.484	6.632
POSTM		16	218.063	17.643	8.091
PREF		16	204.313	10.694	5.234
POSTF		16	246.125	23.366	9.494
ES_EL	ES/EL (%)	16	87.759	2.226	2.537
NH_EL	NH/EL (%)	16	71.277	19.846	27.844
ENC_EL	(EL-EC)/EL (%)	16	98.200	2.256	2.297
VE_ES	VE/ES (%)	16	86.746	23.965	27.627
NH_ES	NH/ES (%)	16	81.269	22.568	27.770
HS_ES	HS/ES (%)	16	77.942	21.554	27.653
LE_VE	LE/VE (%)	15	98.732	1.727	1.749
NH_LE	NH/LE (%)	15	94.968	4.497	4.735
HS_NH	HS/NH (%)	15	96.003	3.797	3.955

42634001 18:17 Monday, June 25, 2001

---------- LEVEL=TRT3 ----------

The MEANS Procedure

Variable	Label	N	Mean	Std Dev	Coeff of Variation
EL		16	43.563	17.029	39.092
EC		16	0.688	0.946	137.671
ES		16	38.375	15.453	40.267
VE		16	32.500	13.555	41.707
LE		16	32.000	13.312	41.599
NH		16	30.750	13.274	43.168
HS		16	27.500	12.925	47.002
THICK		16	0.210	0.011	5.412
HATWT		16	5.875	0.500	8.511
SURVWT		16	22.063	2.175	9.857
FOOD		16	31.375	4.247	13.535
PREM		16	205.063	8.544	4.166
POSTM		16	224.063	11.463	5.116
PREF		16	199.125	12.722	6.389
POSTF		16	231.313	29.346	12.687
ES_EL	ES/EL (%)	16	87.285	3.740	4.285
NH_EL	NH/EL (%)	16	68.865	8.556	12.425
ENC_EL	(EL-EC)/EL (%)	16	98.715	1.705	1.727
VE_ES	VE/ES (%)	16	84.667	5.157	6.091
NH_ES	NH/ES (%)	16	78.755	8.372	10.631
HS_ES	HS/ES (%)	16	69.613	11.903	17.099
LE_VE	LE/VE (%)	16	98.628	2.145	2.175
NH_LE	NH/LE (%)	16	94.374	8.493	8.999
HS_NH	HS/NH (%)	16	88.416	11.459	12.961

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                42634001     18:17 Monday, June 25, 2001
         1. ANALYSIS OF EGGS LAID
         ************************

            The GLM Procedure

         Class Level Information

Class          Levels    Values

LEVEL               4    CONTROL TRT1 TRT2 TRT3


       Number of observations    64

NOTE: Due to missing values, only 62 observations can be used in this
      analysis.
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42634001 18:17 Monday, June 25, 2001

1. ANALYSIS OF EGGS LAID

****

The GLM Procedure

Type I Estimable Functions

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

42634001 18:17 Monday, June 25, 2001
1. ANALYSIS OF EGGS LAID
****

The GLM Procedure

Dependent Variable: EL

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	630.82594	210.27531	1.08
Error	58	11278.27083	194.45295	
Corrected Total	61	11909.09677		

Source	Pr > F
Model	0.3642
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	EL Mean
0.052970	28.79972	13.94464	48.41935

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	630.8259409	210.2753136	1.08

Source	Pr > F
LEVEL	0.3642

42634001 18:17 Monday, June 25, 2001

1. ANALYSIS OF EGGS LAID

****

The GLM Procedure
Least Squares Means

LEVEL	EL LSMEAN	LSMEAN Number
CONTROL	47.8666667	1
TRT1	50.6000000	2
TRT2	51.7500000	3
TRT3	43.5625000	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: EL

i/j	1	2	3	4
1		0.5935	0.4416	0.3940
2	0.5935		0.8193	0.1656
3	0.4416	0.8193		0.1022
4	0.3940	0.1656	0.1022	

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

42634001 18:17 Monday, June 25, 2001
1. ANALYSIS OF EGGS LAID
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for EL

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	194.4529
Critical Value of Studentized Range	3.74075

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2 - TRT1	1.150	-12.106	14.406
TRT2 - CONTROL	3.883	-9.373	17.140
TRT2 - TRT3	8.188	-4.853	21.228
TRT1 - TRT2	-1.150	-14.406	12.106
TRT1 - CONTROL	2.733	-10.735	16.202
TRT1 - TRT3	7.038	-6.219	20.294
CONTROL - TRT2	-3.883	-17.140	9.373
CONTROL - TRT1	-2.733	-16.202	10.735
CONTROL - TRT3	4.304	-8.952	17.561
TRT3 - TRT2	-8.188	-21.228	4.853
TRT3 - TRT1	-7.038	-20.294	6.219
TRT3 - CONTROL	-4.304	-17.561	8.952

42634001 18:17 Monday, June 25, 2001

1. ANALYSIS OF EGGS LAID

****

The GLM Procedure

Dunnett's One-tailed t Tests for EL

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	194.4529
Critical Value of Dunnett's t	2.10273

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2	- CONTROL	3.883	-Infinity	14.422
TRT1	- CONTROL	2.733	-Infinity	13.440
TRT3	- CONTROL	-4.304	-Infinity	6.234

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                                42634001     18:17 Monday, June 25, 2001
                    2. ANALYSIS OF EGGS CRACKED
                    ***************************

                         The GLM Procedure

                       Class Level Information

              Class          Levels    Values

              LEVEL               4    CONTROL TRT1 TRT2 TRT3


                    Number of observations    64

NOTE: Due to missing values, only 62 observations can be used in this
      analysis.
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42634001 18:17 Monday, June 25, 2001
2. ANALYSIS OF EGGS CRACKED
****

The GLM Procedure

Type I Estimable Functions

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

42634001 18:17 Monday, June 25, 2001
2. ANALYSIS OF EGGS CRACKED
****

The GLM Procedure

Dependent Variable: EC

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	26.8334677	8.9444892	2.87
Error	58	181.0375000	3.1213362	
Corrected Total	61	207.8709677		

Source	Pr > F
Model	0.0443
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	EC Mean
0.129087	140.4324	1.766730	1.258065

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	26.83346774	8.94448925	2.87

Source	Pr > F
LEVEL	0.0443

42634001 18:17 Monday, June 25, 2001
2. ANALYSIS OF EGGS CRACKED
****

The GLM Procedure
Least Squares Means

LEVEL	EC LSMEAN	LSMEAN Number
CONTROL	2.40000000	1
TRT1	1.00000000	2
TRT2	1.00000000	3
TRT3	0.68750000	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: EC

i/j	1	2	3	4
1		0.0341	0.0314	0.0091
2	0.0341		1.0000	0.6245
3	0.0314	1.0000		0.6188
4	0.0091	0.6245	0.6188	.

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

42634001 18:17 Monday, June 25, 2001
2. ANALYSIS OF EGGS CRACKED
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for EC

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	3.121336
Critical Value of Studentized Range	3.74075

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
CONTROL - TRT1	1.4000	-0.3064	3.1064	
CONTROL - TRT2	1.4000	-0.2795	3.0795	
CONTROL - TRT3	1.7125	0.0330	3.3920	***
TRT1 - CONTROL	-1.4000	-3.1064	0.3064	
TRT1 - TRT2	0.0000	-1.6795	1.6795	
TRT1 - TRT3	0.3125	-1.3670	1.9920	
TRT2 - CONTROL	-1.4000	-3.0795	0.2795	
TRT2 - TRT1	0.0000	-1.6795	1.6795	
TRT2 - TRT3	0.3125	-1.3397	1.9647	
TRT3 - CONTROL	-1.7125	-3.3920	-0.0330	***
TRT3 - TRT1	-0.3125	-1.9920	1.3670	
TRT3 - TRT2	-0.3125	-1.9647	1.3397	

42634001 18:17 Monday, June 25, 2001
2. ANALYSIS OF EGGS CRACKED
****

The GLM Procedure

Dunnett's One-tailed t Tests for EC

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	3.121336
Critical Value of Dunnett's t	2.10273

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT1	- CONTROL	-1.4000	-2.7565	Infinity
TRT2	- CONTROL	-1.4000	-2.7351	Infinity
TRT3	- CONTROL	-1.7125	-3.0476	Infinity

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                                42634001     18:17 Monday, June 25, 2001
                        3. ANALYSIS OF EGGS SET
                        ***********************

                           The GLM Procedure

                        Class Level Information

                Class         Levels    Values

                LEVEL              4    CONTROL TRT1 TRT2 TRT3


                         Number of observations    64

NOTE: Due to missing values, only 62 observations can be used in this
      analysis.
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                42634001     18:17 Monday, June 25, 2001
        3. ANALYSIS OF EGGS SET
        **********************

           The GLM Procedure

       Type I Estimable Functions

                          -Coefficients-
Effect                    LEVEL

Intercept                 0

LEVEL       CONTROL       L2
LEVEL       TRT1          L3
LEVEL       TRT2          L4
LEVEL       TRT3          -L2-L3-L4
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42634001 18:17 Monday, June 25, 2001
3. ANALYSIS OF EGGS SET
****

The GLM Procedure

Dependent Variable: ES

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	545.02970	181.67657	1.11
Error	58	9457.95417	163.06818	
Corrected Total	61	10002.98387		

Source	Pr > F
Model	0.3508
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	ES Mean
0.054487	30.39265	12.76982	42.01613

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	545.0297043	181.6765681	1.11

Source	Pr > F
LEVEL	0.3508

42634001 18:17 Monday, June 25, 2001
3. ANALYSIS OF EGGS SET
****

The GLM Procedure
Least Squares Means

LEVEL	ES LSMEAN	LSMEAN Number
CONTROL	39.9333333	1
TRT1	44.3333333	2
TRT2	45.4375000	3
TRT3	38.3750000	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: ES

i/j	1	2	3	4
1		0.3493	0.2353	0.7354
2	0.3493		0.8107	0.1993
3	0.2353	0.8107		0.1232
4	0.7354	0.1993	0.1232	

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

42634001 18:17 Monday, June 25, 2001
3. ANALYSIS OF EGGS SET
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for ES

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	163.0682
Critical Value of Studentized Range	3.74075

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

LEVEL Comparison			Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2	-	TRT1	1.104	-11.035	13.244
TRT2	-	CONTROL	5.504	-6.635	17.644
TRT2	-	TRT3	7.063	-4.880	19.005
TRT1	-	TRT2	-1.104	-13.244	11.035
TRT1	-	CONTROL	4.400	-7.934	16.734
TRT1	-	TRT3	5.958	-6.181	18.098
CONTROL	-	TRT2	-5.504	-17.644	6.635
CONTROL	-	TRT1	-4.400	-16.734	7.934
CONTROL	-	TRT3	1.558	-10.581	13.698
TRT3	-	TRT2	-7.063	-19.005	4.880
TRT3	-	TRT1	-5.958	-18.098	6.181
TRT3	-	CONTROL	-1.558	-13.698	10.581

42634001 18:17 Monday, June 25, 2001
3. ANALYSIS OF EGGS SET
****

The GLM Procedure

Dunnett's One-tailed t Tests for ES

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	163.0682
Critical Value of Dunnett's t	2.10273

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2 - CONTROL	5.504	-Infinity	15.155
TRT1 - CONTROL	4.400	-Infinity	14.205
TRT3 - CONTROL	-1.558	-Infinity	8.092

```
                    42634001      18:17 Monday, June 25, 2001
                4. ANALYSIS OF VIABLE EMBRYOS
                ****************************

                      The GLM Procedure

                   Class Level Information

          Class         Levels    Values

          LEVEL              4    CONTROL TRT1 TRT2 TRT3

                    Number of observations     64

NOTE: Due to missing values, only 62 observations can be used in this
      analysis.
```

```
                42634001      18:17 Monday, June 25, 2001
    4. ANALYSIS OF VIABLE EMBRYOS
    ****************************

          The GLM Procedure

        Type I Estimable Functions

                           -Coefficients-
    Effect                 LEVEL

    Intercept              0

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

42634001 18:17 Monday, June 25, 2001

4. ANALYSIS OF VIABLE EMBRYOS

The GLM Procedure

Dependent Variable: VE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	545.96075	181.98692	1.01
Error	58	10425.21667	179.74511	
Corrected Total	61	10971.17742		

Source	Pr > F
Model	0.3938
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	VE Mean
0.049763	35.93723	13.40691	37.30645

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	545.9607527	181.9869176	1.01

Source	Pr > F
LEVEL	0.3938

42634001 18:17 Monday, June 25, 2001

4. ANALYSIS OF VIABLE EMBRYOS

The GLM Procedure
Least Squares Means

LEVEL	VE LSMEAN	LSMEAN Number
CONTROL	37.5333333	1
TRT1	39.4666667	2
TRT2	39.8750000	3
TRT3	32.5000000	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: VE

i/j	1	2	3	4
1		0.6944	0.6288	0.3005
2	0.6944		0.9328	0.1536
3	0.6288	0.9328		0.1252
4	0.3005	0.1536	0.1252	

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

42634001 18:17 Monday, June 25, 2001
4. ANALYSIS OF VIABLE EMBRYOS
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for VE

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	179.7451
Critical Value of Studentized Range	3.74075

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2	- TRT1	0.408	-12.337	13.154
TRT2	- CONTROL	2.342	-10.404	15.087
TRT2	- TRT3	7.375	-5.163	19.913
TRT1	- TRT2	-0.408	-13.154	12.337
TRT1	- CONTROL	1.933	-11.016	14.882
TRT1	- TRT3	6.967	-5.779	19.712
CONTROL	- TRT2	-2.342	-15.087	10.404
CONTROL	- TRT1	-1.933	-14.882	11.016
CONTROL	- TRT3	5.033	-7.712	17.779
TRT3	- TRT2	-7.375	-19.913	5.163
TRT3	- TRT1	-6.967	-19.712	5.779
TRT3	- CONTROL	-5.033	-17.779	7.712

42634001 18:17 Monday, June 25, 2001
4. ANALYSIS OF VIABLE EMBRYOS
****

The GLM Procedure

Dunnett's One-tailed t Tests for VE

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	179.7451
Critical Value of Dunnett's t	2.10273

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2	- CONTROL	2.342	-Infinity	12.473
TRT1	- CONTROL	1.933	-Infinity	12.227
TRT3	- CONTROL	-5.033	-Infinity	5.098

```
                    42634001     18:17 Monday, June 25, 2001
             5. ANALYSIS OF LIVE 3-WEEK EMBRYOS
             **********************************

                         The GLM Procedure

                      Class Level Information

        Class         Levels    Values

        LEVEL              4    CONTROL TRT1 TRT2 TRT3


                   Number of observations    64

NOTE: Due to missing values, only 62 observations can be used in this
      analysis.
```

42634001 18:17 Monday, June 25, 2001
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS
****

The GLM Procedure

Type I Estimable Functions

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

42634001 18:17 Mcnday, June 25, 2001
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS
****

The GLM Procedure

Dependent Variable: LE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	546.95108	182.31703	1.03
Error	58	10314.01667	177.82787	
Corrected Total	61	10860.96774		

Source	Pr > F
Model	0.3882
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	LE Mean
0.050359	36.16724	13.33521	36.87097

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	546.9510753	182.3170251	1.03

Source	Pr > F
LEVEL	0.3882

42634001 18:17 Monday, June 25, 2001
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS
****

The GLM Procedure
Least Squares Means

LEVEL	LE LSMEAN	LSMEAN Number
CONTROL	37.3333333	1
TRT1	38.9333333	2
TRT2	39.3750000	3
TRT3	32.0000000	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: LE

i/j	1	2	3	4
1		0.7437	0.6717	0.2704
2	0.7437		0.9269	0.1534
3	0.6717	0.9269		0.1232
4	0.2704	0.1534	0.1232	

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

42634001 18:17 Monday, June 25, 2001
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for LE

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	177.8279
Critical Value of Studentized Range	3.74075

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2	- TRT1	0.442	-12.235	13.119
TRT2	- CONTROL	2.042	-10.635	14.719
TRT2	- TRT3	7.375	-5.096	19.846
TRT1	- TRT2	-0.442	-13.119	12.235
TRT1	- CONTROL	1.600	-11.280	14.480
TRT1	- TRT3	6.933	-5.744	19.610
CONTROL	- TRT2	-2.042	-14.719	10.635
CONTROL	- TRT1	-1.600	-14.480	11.280
CONTROL	- TRT3	5.333	-7.344	18.010
TRT3	- TRT2	-7.375	-19.846	5.096
TRT3	- TRT1	-6.933	-19.610	5.744
TRT3	- CONTROL	-5.333	-18.010	7.344

42634001 18:17 Monday, June 25, 2001
5. ANALYSIS OF LIVE 3-WEEK EMBRYOS
****

The GLM Procedure

Dunnett's One-tailed t Tests for LE

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	177.8279
Critical Value of Dunnett's t	2.10273

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2 - CONTROL	2.042	-Infinity	12.119
TRT1 - CONTROL	1.600	-Infinity	11.839
TRT3 - CONTROL	-5.333	-Infinity	4.744

```
                              42634001     18:17 Monday, June 25, 2001
                    6. ANALYSIS OF NORMAL HATCHLINGS
                    ********************************

                          The GLM Procedure

                       Class Level Information

              Class         Levels    Values

              LEVEL              4    CONTROL TRT1 TRT2 TRT3


                       Number of observations    64

NOTE: Due to missing values, only 62 observations can be used in this
      analysis.
```

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                42634001     18:17 Monday, June 25, 2001
  6. ANALYSIS OF NORMAL HATCHLINGS
  ********************************

         The GLM Procedure

      Type I Estimable Functions

                          -Coefficients-
Effect                    LEVEL

Intercept                 0

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

42634001 18:17 Monday, June 25, 2001
6. ANALYSIS OF NORMAL HATCHLINGS
****

The GLM Procedure

Dependent Variable: NH

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	389.67003	129.89001	0.76
Error	58	9849.10417	169.81214	
Corrected Total	61	10238.77419		

Source	Pr > F
Model	0.5184
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	NH Mean
0.038058	37.54342	13.03120	34.70968

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	389.6700269	129.8900090	0.76

Source	Pr > F
LEVEL	0.5184

42634001 18:17 Monday, June 25, 2001
6. ANALYSIS OF NCRMAL HATCHLINGS
****

The GLM Procedure
Least Squares Means

LEVEL	NH LSMEAN	LSMEAN Number
CONTROL	34.7333333	1
TRT1	36.1333333	2
TRT2	37.3125000	3
TRT3	30.7500000	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: NH

i/j	1	2	3	4
1		0.7696	0.5840	0.3985
2	0.7696		0.8021	0.2551
3	0.5840	0.8021		0.1597
4	0.3985	0.2551	0.1597	

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

42634001 18:17 Monday, June 25, 2001
6. ANALYSIS OF NORMAL HATCHLINGS
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for NH

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	169.8121
Critical Value of Studentized Range	3.74075

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2 - TRT1	1.179	-11.209	13.567
TRT2 - CONTROL	2.579	-9.809	14.967
TRT2 - TRT3	6.563	-5.624	18.749
TRT1 - TRT2	-1.179	-13.567	11.209
TRT1 - CONTROL	1.400	-11.186	13.986
TRT1 - TRT3	5.383	-7.005	17.771
CONTROL - TRT2	-2.579	-14.967	9.809
CONTROL - TRT1	-1.400	-13.986	11.186
CONTROL - TRT3	3.983	-8.405	16.371
TRT3 - TRT2	-6.563	-18.749	5.624
TRT3 - TRT1	-5.383	-17.771	7.005
TRT3 - CONTROL	-3.983	-16.371	8.405

42634001 18:17 Monday, June 25, 2001
6. ANALYSIS OF NORMAL HATCHLINGS
****

The GLM Procedure

Dunnett's One-tailed t Tests for NH

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	169.8121
Critical Value of Dunnett's t	2.10273

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2	- CONTROL	2.579	-Infinity	12.427
TRT1	- CONTROL	1.400	-Infinity	11.405
TRT3	- CONTROL	-3.983	-Infinity	5.865

42634001 18:17 Monday, June 25, 2001
7. ANALYSIS OF 14-DAY-OLD SURVIVORS
****

The GLM Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations 64

NOTE: Due to missing values, only 62 observations can be used in this analysis.

```
                42634001     18:17 Monday, June 25, 2001
7. ANALYSIS OF 14-DAY-OLD SURVIVORS
***********************************

          The GLM Procedure

     Type I Estimable Functions

                        -Coefficients-
Effect                  LEVEL

Intercept               0

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

42634001 18:17 Monday, June 25, 2001
7. ANALYSIS OF 14-DAY-OLD SURVIVORS
****

The GLM Procedure

Dependent Variable: HS

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	591.821505	197.273835	1.27
Error	58	8975.533333	154.750575	
Corrected Total	61	9567.354839		

Source	Pr > F
Model	0.2915
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	HS Mean
0.061858	38.33362	12.43988	32.45161

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	591.8215054	197.2738351	1.27

Source	Pr > F
LEVEL	0.2915

42634001 18:17 Monday, June 25, 2001
7. ANALYSIS OF 14-DAY-OLD SURVIVORS
****

The GLM Procedure
Least Squares Means

LEVEL	HS LSMEAN	LSMEAN Number
CONTROL	33.0666667	1
TRT1	33.6000000	2
TRT2	35.7500000	3
TRT3	27.5000000	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: HS

i/j	1	2	3	4
1		0.9069	0.5507	0.2181
2	0.9069		0.6324	0.1777
3	0.5507	0.6324		0.0657
4	0.2181	0.1777	0.0657	

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

42634001 18:17 Monday, June 25, 2001
7. ANALYSIS OF 14-DAY-OLD SURVIVORS
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for HS

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	154.7506
Critical Value of Studentized Range	3.74075

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2 - TRT1	2.150	-9.676	13.976
TRT2 - CONTROL	2.683	-9.143	14.509
TRT2 - TRT3	8.250	-3.384	19.884
TRT1 - TRT2	-2.150	-13.976	9.676
TRT1 - CONTROL	0.533	-11.482	12.548
TRT1 - TRT3	6.100	-5.726	17.926
CONTROL - TRT2	-2.683	-14.509	9.143
CONTROL - TRT1	-0.533	-12.548	11.482
CONTROL - TRT3	5.567	-6.259	17.393
TRT3 - TRT2	-8.250	-19.884	3.384
TRT3 - TRT1	-6.100	-17.926	5.726
TRT3 - CONTROL	-5.567	-17.393	6.259

42634001 18:17 Monday, June 25, 2001
7. ANALYSIS OF 14-DAY-OLD SURVIVORS
****

The GLM Procedure

Dunnett's One-tailed t Tests for HS

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

Alpha	0.05
Error Degrees of Freedom	58
Error Mean Square	154.7506
Critical Value of Dunnett's t	2.10273

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2 - CONTROL	2.683	-Infinity	12.084
TRT1 - CONTROL	0.533	-Infinity	10.085
TRT3 - CONTROL	-5.567	-Infinity	3.834

```
                    42634001     18:17 Monday, June 25, 2001
          8. ANALYSIS OF EGGS SET/EGGS LAID
          **********************************

                  The GLM Procedure

               Class Level Information

     Class         Levels    Values

     LEVEL              4    CONTROL TRT1 TRT2 TRT3


               Number of observations    64

NOTE: Due to missing values, only 61 observations can be used in this
      analysis.
```

42634001 18:17 Monday, June 25, 2001
8. ANALYSIS OF EGGS SET/EGGS LAID
****

The GLM Procedure

Type I Estimable Functions

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

42634001 18:17 Monday, June 25, 2001
8. ANALYSIS OF EGGS SET/EGGS LAID
****

The GLM Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	100.675586	33.558529	1.66
Error	57	1152.041671	20.211257	
Corrected Total	60	1252.717257		

Source	Pr > F
Model	0.1857
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	RESPONSE Mean
0.080366	6.545915	4.495693	68.67937

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	100.6755856	33.5585285	1.66

Source	Pr > F
LEVEL	0.1857

42634001 18:17 Monday, June 25, 2001
8. ANALYSIS OF EGGS SET/EGGS LAID
****

The GLM Procedure
Least Squares Means

LEVEL	RESPONSE LSMEAN	LSMEAN Number
CONTROL	66.4379051	1
TRT1	69.4134309	2
TRT2	69.5608073	3
TRT3	69.2569929	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: RESPONSE

i/j	1	2	3	4
1		0.0802	0.0582	0.0864
2	0.0802		0.9289	0.9246
3	0.0582	0.9289		0.8491
4	0.0864	0.9246	0.8491	

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

42634001 18:17 Monday, June 25, 2001
8. ANALYSIS OF EGGS SET/EGGS LAID
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	20.21126
Critical Value of Studentized Range	3.74268

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2 - TRT1	0.147	-4.207	4.502
TRT2 - TRT3	0.304	-3.903	4.510
TRT2 - CONTROL	3.123	-1.153	7.399
TRT1 - TRT2	-0.147	-4.502	4.207
TRT1 - TRT3	0.156	-4.198	4.511
TRT1 - CONTROL	2.976	-1.446	7.397
TRT3 - TRT2	-0.304	-4.510	3.903
TRT3 - TRT1	-0.156	-4.511	4.198
TRT3 - CONTROL	2.819	-1.457	7.095
CONTROL - TRT2	-3.123	-7.399	1.153
CONTROL - TRT1	-2.976	-7.397	1.446
CONTROL - TRT3	-2.819	-7.095	1.457

42634001 18:17 Monday, June 25, 2001
8. ANALYSIS OF EGGS SET/EGGS LAID
****

The GLM Procedure

Dunnett's One-tailed t Tests for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	20.21126
Critical Value of Dunnett's t	2.10495

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2	- CONTROL	3.123	-Infinity	6.524
TRT1	- CONTROL	2.976	-Infinity	6.492
TRT3	- CONTROL	2.819	-Infinity	6.220

```
                    42634001     18:17 Monday, June 25, 2001
        9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS
        ***************************************

                  The GLM Procedure

                Class Level Information

        Class          Levels    Values

        LEVEL               4    CONTROL TRT1 TRT2 TRT3

                Number of observations    64

NOTE: Due to missing values, only 61 observations can be used in this
      analysis.
```

```
                42634001      18:17 Monday, June 25, 2001
9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS
****************************************

          The GLM Procedure

      Type I Estimable Functions

                          -Coefficients-
  Effect                  LEVEL

  Intercept               0

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

42634001 18:17 Monday, June 25, 2001
9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS
****

The GLM Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	1181.50764	393.83588	2.26
Error	57	9944.47748	174.46452	
Corrected Total	60	11125.98512		

Source	Pr > F
Model	0.0915
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	RESPONSE Mean
0.106194	18.20237	13.20850	72.56473

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	1181.507641	393.835880	2.26

Source	Pr > F
LEVEL	0.0915

42634001 18:17 Monday, June 25, 2001
9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS
****

The GLM Procedure
Least Squares Means

LEVEL	RESPONSE LSMEAN	LSMEAN Number
CONTROL	79.4315563	1
TRT1	72.4488120	2
TRT2	71.5820558	3
TRT3	67.2111705	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: RESPONSE

i/j	1	2	3	4
1		0.1603	0.1037	0.0127
2	0.1603		0.8583	0.2831
3	0.1037	0.8583		0.3532
4	0.0127	0.2831	0.3532	.

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

42634001 18:17 Monday, June 25, 2001
9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	174.4645
Critical Value of Studentized Range	3.74268

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
CONTROL - TRT1	6.983	-6.007	19.973
CONTROL - TRT2	7.850	-4.714	20.413
CONTROL - TRT3	12.220	-0.343	24.783
TRT1 - CONTROL	-6.983	-19.973	6.007
TRT1 - TRT2	0.867	-11.926	13.659
TRT1 - TRT3	5.238	-7.555	18.030
TRT2 - CONTROL	-7.850	-20.413	4.714
TRT2 - TRT1	-0.867	-13.659	11.926
TRT2 - TRT3	4.371	-7.988	16.730
TRT3 - CONTROL	-12.220	-24.783	0.343
TRT3 - TRT1	-5.238	-18.030	7.555
TRT3 - TRT2	-4.371	-16.730	7.988

42634001 18:17 Monday, June 25, 2001
9. ANALYSIS OF VIABLE EMBRYOS/EGGS SETS
****

The GLM Procedure

Dunnett's One-tailed t Tests for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	174.4645
Critical Value of Dunnett's t	2.10495

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits		
TRT1	- CONTROL	-6.983	-Infinity	3.349	
TRT2	- CONTROL	-7.850	-Infinity	2.143	
TRT3	- CONTROL	-12.220	-Infinity	-2.228	***

```
                          42634001     18:17 Monday, June 25, 2001
10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS
************************************************

                The GLM Procedure

             Class Level Information

 Class         Levels    Values

 LEVEL              4    CONTROL TRT1 TRT2 TRT3

            Number of observations    64

NOTE: Due to missing values, only 60 observations can be used in this
      analysis.
```

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                    42634001     18:17 Monday, June 25, 2001
10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS
*************************************************

               The GLM Procedure

          Type I Estimable Functions

                                 -Coefficients-
      Effect                     LEVEL

      Intercept                  0

      LEVEL      CONTRCL         L2
      LEVEL      TRT1            L3
      LEVEL      TRT2            L4
      LEVEL      TRT3            -L2-L3-L4
```

42634001 18:17 Monday, June 25, 2001
10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS
****

The GLM Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	33.465318	11.155106	0.35
Error	56	1775.812806	31.710943	
Corrected Total	59	1809.278123		

Source	Pr > F
Model	0.7880
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	RESPONSE Mean
0.018497	6.502115	5.631247	86.60640

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	33.46531777	11.15510592	0.35

Source	Pr > F
LEVEL	0.7880

42634001 18:17 Monday, June 25, 2001
10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS
****

The GLM Procedure
Least Squares Means

LEVEL	RESPONSE LSMEAN	LSMEAN Number
CONTROL	87.6797277	1
TRT1	86.9646909	2
TRT2	85.9137418	3
TRT3	85.9359996	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: RESPONSE

i/j	1	2	3	4
1		0.7339	0.3941	0.3926
2	0.7339		0.6175	0.6196
3	0.3941	0.6175		0.9913
4	0.3926	0.6196	0.9913	

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

42634001 18:17 Monday, June 25, 2001
10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	56
Error Mean Square	31.71094
Critical Value of Studentized Range	3.74475

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
CONTROL - TRT1	0.715	-4.826	6.256
CONTROL - TRT3	1.744	-3.615	7.103
CONTROL - TRT2	1.766	-3.679	7.211
TRT1 - CONTROL	-0.715	-6.256	4.826
TRT1 - TRT3	1.029	-4.428	6.486
TRT1 - TRT2	1.051	-4.490	6.592
TRT3 - CONTROL	-1.744	-7.103	3.615
TRT3 - TRT1	-1.029	-6.486	4.428
TRT3 - TRT2	0.022	-5.337	5.381
TRT2 - CONTROL	-1.766	-7.211	3.679
TRT2 - TRT1	-1.051	-6.592	4.490
TRT2 - TRT3	-0.022	-5.381	5.337

42634001 18:17 Monday, June 25, 2001
10. ANALYSIS OF LIVE 3-WEEK EMBRYOS/VIABLE EMBRYOS
****

The GLM Procedure

Dunnett's One-tailed t Tests for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	56
Error Mean Square	31.71094
Critical Value of Dunnett's t	2.10707

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT1	- CONTROL	-0.715	-Infinity	3.694
TRT3	- CONTROL	-1.744	-Infinity	2.521
TRT2	- CONTROL	-1.766	-Infinity	2.567

```
                          42634001     18:17 Monday, June 25, 2001
      11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS
      ****************************************************

                        The GLM Procedure

                     Class Level Information

         Class          Levels    Values

         LEVEL               4    CONTROL TRT1 TRT2 TRT3

                   Number of observations    64

NOTE: Due to missing values, only 60 observations can be used in this
      analysis.
```

42634001 18:17 Monday, June 25, 2001
11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS
****

The GLM Procedure

Type I Estimable Functions

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

42634001 18:17 Monday, June 25, 2001
11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS
****

The GLM Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	260.148291	86.716097	1.28
Error	56	3779.434846	67.489908	
Corrected Total	59	4039.583137		

Source	Pr > F
Model	0.2885
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	RESPONSE Mean
0.064400	10.58270	8.215224	77.62879

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	260.1482906	86.7160969	1.28

Source	Pr > F
LEVEL	0.2885

42634001 18:17 Monday, June 25, 2001
11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS
****

The GLM Procedure
Least Squares Means

LEVEL	RESPONSE LSMEAN	LSMEAN Number
CONTROL	75.9319095	1
TRT1	75.0631339	2
TRT2	79.2715855	3
TRT3	79.9244286	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: RESPONSE

i/j	1	2	3	4
1		0.7770	0.2703	0.1817
2	0.7770		0.1735	0.1115
3	0.2703	0.1735		0.8258
4	0.1817	0.1115	0.8258	.

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

42634001 18:17 Monday, June 25, 2001
11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	56
Error Mean Square	67.48991
Critical Value of Studentized Range	3.74475

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT3	- TRT2	0.653	-7.165	8.471
TRT3	- CONTROL	3.993	-3.826	11.811
TRT3	- TRT1	4.861	-3.100	12.822
TRT2	- TRT3	-0.653	-8.471	7.165
TRT2	- CONTROL	3.340	-4.604	11.283
TRT2	- TRT1	4.208	-3.875	12.292
CONTROL	- TRT3	-3.993	-11.811	3.826
CONTROL	- TRT2	-3.340	-11.283	4.604
CONTROL	- TRT1	0.869	-7.215	8.953
TRT1	- TRT3	-4.861	-12.822	3.100
TRT1	- TRT2	-4.208	-12.292	3.875
TRT1	- CONTROL	-0.869	-8.953	7.215

42634001 18:17 Monday, June 25, 2001
11. ANALYSIS OF NORMAL HATCHLINGS/3-WEEK LIVE EMBRYOS
****

The GLM Procedure

Dunnett's One-tailed t Tests for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	56
Error Mean Square	67.48991
Critical Value of Dunnett's t	2.10707

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT3	- CONTROL	3.993	-Infinity	10.214
TRT2	- CONTROL	3.340	-Infinity	9.660
TRT1	- CONTROL	-0.869	-Infinity	5.564

42634001 18:17 Monday, June 25, 2001

12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID

The GLM Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations 64

NOTE: Due to missing values, only 61 observations can be used in this analysis.

42634001 18:17 Monday, June 25, 2001
12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID
****

The GLM Procedure

Type I Estimable Functions

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

42634001 18:17 Monday, June 25, 2001
12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID
****

The GLM Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	63.790894	21.263631	0.19
Error	57	6407.959418	112.420341	
Corrected Total	60	6471.750312		

Source	Pr > F
Model	0.9034
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	RESPONSE Mean
0.009857	18.44895	10.60285	57.47127

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	63.79089417	21.26363139	0.19

Source	Pr > F
LEVEL	0.9034

42634001 18:17 Monday, June 25, 2001
12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID
****

The GLM Procedure
Least Squares Means

LEVEL	RESPONSE LSMEAN	LSMEAN Number
CONTROL	58.9443767	1
TRT1	57.8670673	2
TRT2	57.0097780	3
TRT3	56.2053842	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: RESPONSE

i/j	1	2	3	4
1		0.7855	0.6136	0.4752
2	0.7855		0.8259	0.6701
3	0.6136	0.8259		0.8309
4	0.4752	0.6701	0.8309	

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

42634001 18:17 Monday, June 25, 2001
12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	112.4203
Critical Value of Studentized Range	3.74268

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
CONTROL - TRT1	1.077	-9.350	11.505
CONTROL - TRT2	1.935	-8.150	12.019
CONTROL - TRT3	2.739	-7.346	12.824
TRT1 - CONTROL	-1.077	-11.505	9.350
TRT1 - TRT2	0.857	-9.412	11.126
TRT1 - TRT3	1.662	-8.607	11.931
TRT2 - CONTROL	-1.935	-12.019	8.150
TRT2 - TRT1	-0.857	-11.126	9.412
TRT2 - TRT3	0.804	-9.116	10.725
TRT3 - CONTROL	-2.739	-12.824	7.346
TRT3 - TRT1	-1.662	-11.931	8.607
TRT3 - TRT2	-0.804	-10.725	9.116

42634001 18:17 Monday, June 25, 2001
12. ANALYSIS OF NORMAL HATCHLINGS/EGGS LAID
****

The GLM Procedure

Dunnett's One-tailed t Tests for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	112.4203
Critical Value of Dunnett's t	2.10495

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT1	- CONTROL	-1.077	-Infinity	7.217
TRT2	- CONTROL	-1.935	-Infinity	6.087
TRT3	- CONTROL	-2.739	-Infinity	5.282

```
                                42634001     18:17 Monday, June 25, 2001
      13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS
      ************************************************************

                            The GLM Procedure

                         Class Level Information

            Class         Levels    Values

            LEVEL              4    CONTROL TRT1 TRT2 TRT3

                      Number of observations    64

NOTE: Due to missing values, only 60 observations can be used in this
      analysis.
```

42634001 18:17 Monday, June 25, 2001
13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS
****

The GLM Procedure

Type I Estimable Functions

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

42634001 18:17 Monday, June 25, 2001

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

****

The GLM Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	721.595941	240.531980	3.29
Error	56	4089.117686	73.019959	
Corrected Total	59	4810.713627		

Source	Pr > F
Model	0.0270
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	RESPONSE Mean
0.149998	11.05675	8.545172	77.28469

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	721.5959407	240.5319802	3.29

Source	Pr > F
LEVEL	0.0270

42634001 18:17 Monday, June 25, 2001
13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS
****

The GLM Procedure
Least Squares Means

LEVEL	RESPONSE LSMEAN	LSMEAN Number
CONTROL	79.9048155	1
TRT1	75.7814807	2
TRT2	81.1485586	3
TRT3	72.5212686	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: RESPONSE

i/j	1	2	3	4
1		0.1994	0.6917	0.0195
2	0.1994		0.0966	0.3016
3	0.6917	0.0966		0.0068
4	0.0195	0.3016	0.0068	

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

42634001 18:17 Monday, June 25, 2001
13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	56
Error Mean Square	73.01996
Critical Value of Studentized Range	3.74475

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits		
TRT2	- CONTROL	1.244	-7.019	9.506	
TRT2	- TRT1	5.367	-3.041	13.776	
TRT2	- TRT3	8.627	0.495	16.759	***
CONTROL	- TRT2	-1.244	-9.506	7.019	
CONTROL	- TRT1	4.123	-4.285	12.532	
CONTROL	- TRT3	7.384	-0.749	15.516	
TRT1	- TRT2	-5.367	-13.776	3.041	
TRT1	- CONTROL	-4.123	-12.532	4.285	
TRT1	- TRT3	3.260	-5.020	11.541	
TRT3	- TRT2	-8.627	-16.759	-0.495	***
TRT3	- CONTROL	-7.384	-15.516	0.749	
TRT3	- TRT1	-3.260	-11.541	5.020	

42634001 18:17 Monday, June 25, 2001
13. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/NORMAL HATCHLINGS
****

The GLM Procedure

Dunnett's One-tailed t Tests for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	56
Error Mean Square	73.01996
Critical Value of Dunnett's t	2.10707

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits		
TRT2	- CONTROL	1.244	-Infinity	7.818	
TRT1	- CONTROL	-4.123	-Infinity	2.568	
TRT3	- CONTROL	-7.384	-Infinity	-0.912	***

42634001 18:17 Monday, June 25, 2001

14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

****

The GLM Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations 64

NOTE: Due to missing values, only 61 observations can be used in this analysis.

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                42634001     18:17 Monday, June 25, 2001
14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID
****************************************

          The GLM Procedure

     Type I Estimable Functions

                          -Coefficients-
   Effect                 LEVEL

   Intercept              0

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

42634001 18:17 Monday, June 25, 2001
14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID
****

The GLM Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	266.783237	88.927746	1.87
Error	57	2710.420271	47.551233	
Corrected Total	60	2977.203509		

Source	Pr > F
Model	0.1449
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	RESPONSE Mean
0.089609	8.244656	6.895740	83.63891

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	266.7832372	88.9277457	1.87

Source	Pr > F
LEVEL	0.1449

42634001 18:17 Monday, June 25, 2001
14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID
****

The GLM Procedure
Least Squares Means

LEVEL	RESPONSE LSMEAN	LSMEAN Number
CONTROL	80.1339627	1
TRT1	84.1288994	2
TRT2	84.4097071	3
TRT3	85.7252660	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: RESPONSE

i/j	1	2	3	4
1		0.1245	0.0899	0.0279
2	0.1245		0.9118	0.5295
3	0.0899	0.9118		0.5916
4	0.0279	0.5295	0.5916	

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

42634001 18:17 Monday, June 25, 2001

14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID

****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	47.55123
Critical Value of Studentized Range	3.74268

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
TRT3 - TRT2	1.316	-5.137	7.768
TRT3 - TRT1	1.596	-5.082	8.275
TRT3 - CONTROL	5.591	-0.967	12.150
TRT2 - TRT3	-1.316	-7.768	5.137
TRT2 - TRT1	0.281	-6.398	6.959
TRT2 - CONTROL	4.276	-2.283	10.835
TRT1 - TRT3	-1.596	-8.275	5.082
TRT1 - TRT2	-0.281	-6.959	6.398
TRT1 - CONTROL	3.995	-2.787	10.777
CONTROL - TRT3	-5.591	-12.150	0.967
CONTROL - TRT2	-4.276	-10.835	2.283
CONTROL - TRT1	-3.995	-10.777	2.787

42634001 18:17 Monday, June 25, 2001
14. ANALYSIS OF EGGS NOT CRACKED/EGGS LAID
****

The GLM Procedure

Dunnett's One-tailed t Tests for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	47.55123
Critical Value of Dunnett's t	2.10495

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT3	- CONTROL	5.591	-Infinity	10.808
TRT2	- CONTROL	4.276	-Infinity	9.492
TRT1	- CONTROL	3.995	-Infinity	9.389

```
                    42634001     18:17 Monday, June 25, 2001
        15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET
        ******************************************

                    The GLM Procedure

                 Class Level Information

     Class         Levels    Values

     LEVEL              4    CONTROL TRT1 TRT2 TRT3

              Number of observations    64

NOTE: Due to missing values, only 61 observations can be used in this
      analysis.
```

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                42634001      18:17 Monday, June 25, 2001
15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET
*****************************************

           The GLM Procedure

      Type I Estimable Functions

                          -Coefficients-
  Effect                  LEVEL

  Intercept               0

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

42634001 18:17 Monday, June 25, 2001
15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET
****

The GLM Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	383.116401	127.705467	0.93
Error	57	7790.709714	136.679118	
Corrected Total	60	8173.826115		

Source	Pr > F
Model	0.4301
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	RESPONSE Mean
0.046871	17.83029	11.69098	65.56811

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	383.1164012	127.7054671	0.93

Source	Pr > F
LEVEL	0.4301

42634001 18:17 Monday, June 25, 2001
15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET
****

The GLM Procedure
Least Squares Means

LEVEL	RESPONSE LSMEAN	LSMEAN Number
CONTROL	69.6966411	1
TRT1	65.0859953	2
TRT2	64.7964981	3
TRT3	62.8910708	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: RESPONSE

i/j	1	2	3	4
1		0.2930	0.2484	0.1108
2	0.2930		0.9463	0.6099
3	0.2484	0.9463		0.6466
4	0.1108	0.6099	0.6466	

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

42634001 18:17 Monday, June 25, 2001
15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	136.6791
Critical Value of Studentized Range	3.74268

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
CONTROL - TRT1	4.611	-6.887	16.108
CONTROL - TRT2	4.900	-6.220	16.020
CONTROL - TRT3	6.806	-4.314	17.925
TRT1 - CONTROL	-4.611	-16.108	6.887
TRT1 - TRT2	0.289	-11.033	11.612
TRT1 - TRT3	2.195	-9.128	13.518
TRT2 - CONTROL	-4.900	-16.020	6.220
TRT2 - TRT1	-0.289	-11.612	11.033
TRT2 - TRT3	1.905	-9.033	12.844
TRT3 - CONTROL	-6.806	-17.925	4.314
TRT3 - TRT1	-2.195	-13.518	9.128
TRT3 - TRT2	-1.905	-12.844	9.033

42634001 18:17 Monday, June 25, 2001
15. ANALYSIS OF NORMAL HATCHLINGS/EGGS SET
****

The GLM Procedure

Dunnett's One-tailed t Tests for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	136.6791
Critical Value of Dunnett's t	2.10495

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT1	- CONTROL	-4.611	-Infinity	4.534
TRT2	- CONTROL	-4.900	-Infinity	3.944
TRT3	- CONTROL	-6.806	-Infinity	2.039

```
                                42634001     18:17 Monday, June 25, 2001
        16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET
        ***************************************************

                            The GLM Procedure

                         Class Level Information

          Class          Levels    Values

          LEVEL               4    CONTROL TRT1 TRT2 TRT3

                        Number of observations    64

NOTE: Due to missing values, only 61 observations can be used in this
      analysis.
```

42634001 18:17 Monday, June 25, 2001
16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET
****

The GLM Procedure

Type I Estimable Functions

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

42634001 18:17 Monday, June 25, 2001

16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET

****

The GLM Procedure

Dependent Variable: RESPONSE

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	636.754789	212.251596	1.67
Error	57	7239.776049	127.013615	
Corrected Total	60	7876.530839		

Source	Pr > F
Model	0.1834
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	RESPONSE Mean
0.080842	18.38163	11.27003	61.31137

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	636.7547992	212.2515964	1.67

Source	Pr > F
LEVEL	0.1834

42634001 18:17 Monday, June 25, 2001

16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET

****

The GLM Procedure
Least Squares Means

LEVEL	RESPONSE LSMEAN	LSMEAN Number
CONTROL	65.9057268	1
TRT1	60.7753076	2
TRT2	61.8813999	3
TRT3	56.9032025	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: RESPONSE

i/j	1	2	3	4
1		0.2256	0.3246	0.0302
2	0.2256		0.7895	0.3518
3	0.3246	0.7895		0.2166
4	0.0302	0.3518	0.2166	

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

42634001 18:17 Monday, June 25, 2001
16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	127.0136
Critical Value of Studentized Range	3.74268

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
CONTROL - TRT2	4.024	-6.695	14.744
CONTROL - TRT1	5.130	-5.953	16.214
CONTROL - TRT3	9.003	-1.717	19.722
TRT2 - CONTROL	-4.024	-14.744	6.695
TRT2 - TRT1	1.106	-9.809	12.021
TRT2 - TRT3	4.978	-5.567	15.523
TRT1 - CONTROL	-5.130	-16.214	5.953
TRT1 - TRT2	-1.106	-12.021	9.809
TRT1 - TRT3	3.872	-7.043	14.787
TRT3 - CONTROL	-9.003	-19.722	1.717
TRT3 - TRT2	-4.978	-15.523	5.567
TRT3 - TRT1	-3.872	-14.787	7.043

42634001 18:17 Monday, June 25, 2001
16. ANALYSIS OF 14-DAY HATCHLING SURVIVORS/EGGS SET
****

The GLM Procedure

Dunnett's One-tailed t Tests for RESPONSE

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	127.0136
Critical Value of Dunnett's t	2.10495

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
TRT2 - CONTROL	-4.024	-Infinity	4.502	
TRT1 - CONTROL	-5.130	-Infinity	3.685	
TRT3 - CONTROL	-9.003	-Infinity	-0.477	***

```
                    42634001     18:17 Monday, June 25, 2001
            17. ANALYSIS OF EGGSHELL THICKNESS
            **********************************

                    The GLM Procedure

                 Class Level Information

      Class          Levels    Values

      LEVEL               4    CONTROL TRT1 TRT2 TRT3


              Number of observations     64

NOTE: Due to missing values, only 61 observations can be used in this
      analysis.
```

42634001 18:17 Monday, June 25, 2001
17. ANALYSIS OF EGGSHELL THICKNESS
****

The GLM Procedure

Type I Estimable Functions

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

42634001 18:17 Monday, June 25, 2001
17. ANALYSIS OF EGGSHELL THICKNESS
****

The GLM Procedure

Dependent Variable: THICK

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	0.00051415	0.00017138	1.14
Error	57	0.00854890	0.00014998	
Corrected Total	60	0.00906305		

Source	Pr > F
Model	0.3397
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	THICK Mean
0.056730	5.761580	0.012247	0.212557

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	0.00051415	0.00017138	1.14

Source	Pr > F
LEVEL	0.3397

42634001 18:17 Monday, June 25, 2001

17. ANALYSIS OF EGGSHELL THICKNESS

****

The GLM Procedure
Least Squares Means

LEVEL	THICK LSMEAN	LSMEAN Number
CONTROL	0.20940000	1
TRT1	0.21692857	2
TRT2	0.21381250	3
TRT3	0.21043750	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: THICK

i/j	1	2	3	4
1		0.1036	0.3203	0.8145
2	0.1036		0.4897	0.1530
3	0.3203	0.4897		0.4389
4	0.8145	0.1530	0.4389	

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

42634001 18:17 Monday, June 25, 2001
17. ANALYSIS OF EGGSHELL THICKNESS
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for THICK

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	0.00015
Critical Value of Studentized Range	3.74268

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT1	- TRT2	0.003116	-0.008745	0.014977
TRT1	- TRT3	0.006491	-0.005370	0.018352
TRT1	- CONTROL	0.007529	-0.004516	0.019573
TRT2	- TRT1	-0.003116	-0.014977	0.008745
TRT2	- TRT3	0.003375	-0.008084	0.014834
TRT2	- CONTROL	0.004413	-0.007236	0.016061
TRT3	- TRT1	-0.006491	-0.018352	0.005370
TRT3	- TRT2	-0.003375	-0.014834	0.008084
TRT3	- CONTROL	0.001037	-0.010611	0.012686
CONTROL	- TRT1	-0.007529	-0.019573	0.004516
CONTROL	- TRT2	-0.004413	-0.016061	0.007236
CONTROL	- TRT3	-0.001037	-0.012686	0.010611

42634001 18:17 Monday, June 25, 2001
17. ANALYSIS OF EGGSHELL THICKNESS
****

The GLM Procedure

Dunnett's One-tailed t Tests for THICK

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	0.00015
Critical Value of Dunnett's t	2.10495

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
TRT1 - CONTROL	0.007529	-Infinity	0.017108
TRT2 - CONTROL	0.004413	-Infinity	0.013677
TRT3 - CONTROL	0.001037	-Infinity	0.010302

```
                                42634001      18:17 Monday, June 25, 2001
                    18. ANALYSIS OF HATCHLING WEIGHT
                    ********************************

                          The GLM Procedure

                       Class Level Information

             Class          Levels    Values

             LEVEL               4    CONTROL TRT1 TRT2 TRT3


                       Number of observations    64

NOTE: Due to missing values, only 60 observations can be used in this
      analysis.
```

```
                42634001     18:17 Monday, June 25, 2001
  18. ANALYSIS OF HATCHLING WEIGHT
  ********************************

         The GLM Procedure

     Type I Estimable Functions

                          -Coefficients-
Effect                    LEVEL

Intercept                 0

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

42634001 18:17 Monday, June 25, 2001
18. ANALYSIS OF HATCHLING WEIGHT
****

The GLM Procedure

Dependent Variable: HATWT

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	1.83571429	0.61190476	2.62
Error	56	13.09761905	0.23388605	
Corrected Total	59	14.93333333		

Source	Pr > F
Model	0.0599
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	HATWT Mean
0.122927	7.885071	0.483618	6.133333

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	1.83571429	0.61190476	2.62

Source	Pr > F
LEVEL	0.0599

42634001 18:17 Monday, June 25, 2001
18. ANALYSIS OF HATCHLING WEIGHT
****

The GLM Procedure
Least Squares Means

LEVEL	HATWT LSMEAN	LSMEAN Number
CONTROL	6.13333333	1
TRT1	6.35714286	2
TRT2	6.20000000	3
TRT3	5.87500000	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: HATWT

i/j	1	2	3	4
1		0.2182	0.7072	0.1428
2	0.2182		0.3856	0.0086
3	0.7072	0.3856		0.0667
4	0.1428	0.0086	0.0667	

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

42634001 18:17 Monday, June 25, 2001

18. ANALYSIS OF HATCHLING WEIGHT

The GLM Procedure

Tukey's Studentized Range (HSD) Test for HATWT

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

Alpha	0.05
Error Degrees of Freedom	56
Error Mean Square	0.233886
Critical Value of Studentized Range	3.74475

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
TRT1 - TRT2	0.1571	-0.3187	0.6330	
TRT1 - CONTROL	0.2238	-0.2521	0.6997	
TRT1 - TRT3	0.4821	0.0135	0.9508	***
TRT2 - TRT1	-0.1571	-0.6330	0.3187	
TRT2 - CONTROL	0.0667	-0.4009	0.5343	
TRT2 - TRT3	0.3250	-0.1352	0.7852	
CONTROL - TRT1	-0.2238	-0.6997	0.2521	
CONTROL - TRT2	-0.0667	-0.5343	0.4009	
CONTROL - TRT3	0.2583	-0.2019	0.7186	
TRT3 - TRT1	-0.4821	-0.9508	-0.0135	***
TRT3 - TRT2	-0.3250	-0.7852	0.1352	
TRT3 - CONTROL	-0.2583	-0.7186	0.2019	

42634001 18:17 Monday, June 25, 2001
18. ANALYSIS OF HATCHLING WEIGHT
****

The GLM Procedure

Dunnett's One-tailed t Tests for HATWT

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

Alpha	0.05
Error Degrees of Freedom	56
Error Mean Square	0.233886
Critical Value of Dunnett's t	2.10707

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT1	- CONTROL	0.2238	-Infinity	0.6025
TRT2	- CONTROL	0.0667	-Infinity	0.4388
TRT3	- CONTROL	-0.2583	-Infinity	0.1079

```
                    42634001     18:17 Monday, June 25, 2001
19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT
************************************

          The GLM Procedure

        Class Level Information

Class         Levels    Values

LEVEL              4    CONTROL TRT1 TRT2 TRT3


      Number of observations    64

NOTE: Due to missing values, only 60 observations can be used in this
      analysis.
```

```
                42634001     18:17 Monday, June 25, 2001
19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT
*************************************

          The GLM Procedure

     Type I Estimable Functions

                        -Coefficients-
 Effect                 LEVEL

 Intercept              0

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

42634001 18:17 Monday, June 25, 2001
19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT
****

The GLM Procedure

Dependent Variable: SURVWT

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	23.9315476	7.9771825	1.59
Error	56	280.9184524	5.0164009	
Corrected Total	59	304.8500000		

Source	Pr > F
Model	0.2020
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	SURVWT Mean
0.078503	9.716843	2.239732	23.05000

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	23.93154762	7.97718254	1.59

Source	Pr > F
LEVEL	0.2020

42634001 18:17 Monday, June 25, 2001
19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT
****

The GLM Procedure
Least Squares Means

LEVEL	SURVWT LSMEAN	LSMEAN Number
CONTROL	23.3333333	1
TRT1	23.1428571	2
TRT2	23.7333333	3
TRT3	22.0625000	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: SURVWT

i/j	1	2	3	4
1		0.8198	0.6267	0.1200
2	0.8198		0.4810	0.1929
3	0.6267	0.4810		0.0425
4	0.1200	0.1929	0.0425	

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

42634001 18:17 Monday, June 25, 2001
19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for SURVWT

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

Alpha	0.05
Error Degrees of Freedom	56
Error Mean Square	5.016401
Critical Value of Studentized Range	3.74475

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2	- CONTROL	0.4000	-1.7656	2.5656
TRT2	- TRT1	0.5905	-1.6134	2.7944
TRT2	- TRT3	1.6708	-0.4606	3.8023
CONTROL	- TRT2	-0.4000	-2.5656	1.7656
CONTROL	- TRT1	0.1905	-2.0134	2.3944
CONTROL	- TRT3	1.2708	-0.8606	3.4023
TRT1	- TRT2	-0.5905	-2.7944	1.6134
TRT1	- CONTROL	-0.1905	-2.3944	2.0134
TRT1	- TRT3	1.0804	-1.0900	3.2508
TRT3	- TRT2	-1.6708	-3.8023	0.4606
TRT3	- CONTROL	-1.2708	-3.4023	0.8606
TRT3	- TRT1	-1.0804	-3.2508	1.0900

42634001 18:17 Monday, June 25, 2001

19. ANALYSIS OF 14-DAY SURVIVOR WEIGHT

The GLM Procedure

Dunnett's One-tailed t Tests for SURVWT

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

Alpha	0.05
Error Degrees of Freedom	56
Error Mean Square	5.016401
Critical Value of Dunnett's t	2.10707

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT2	- CONTROL	0.4000	-Infinity	2.1232
TRT1	- CONTROL	-0.1905	-Infinity	1.5633
TRT3	- CONTROL	-1.2708	-Infinity	0.4253

42634001 18:17 Monday, June 25, 2001
20. ANALYSIS OF FOOD CONSUMPTION
****

The GLM Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations 64

```
                42634001      18:17 Monday, June 25, 2001
  20. ANALYSIS OF FOOD CONSUMPTION
  *******************************

         The GLM Procedure

      Type I Estimable Functions

                          -Coefficients-
Effect                    LEVEL

Intercept                 0

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

42634001 18:17 Monday, June 25, 2001
20. ANALYSIS OF FOOD CONSUMPTION
****

The GLM Procedure

Dependent Variable: FOOD

Source	DF	Sum of Squares	Mean Square	F Value
Model	3	122.1304159	40.7101386	3.62
Error	60	675.0274356	11.2504573	
Corrected Total	63	797.1578515		

Source	Pr > F
Model	0.0181
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	FOOD Mean
0.153207	11.39126	3.354170	29.44512

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	122.1304159	40.7101386	3.62

Source	Pr > F
LEVEL	0.0181

42634001 18:17 Monday, June 25, 2001
20. ANALYSIS OF FOOD CONSUMPTION
****

The GLM Procedure
Least Squares Means

LEVEL	FOOD LSMEAN	LSMEAN Number
CONTROL	29.2114225	1
TRT1	27.4980338	2
TRT2	29.6960231	3
TRT3	31.3750006	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: FOOD

i/j	1	2	3	4
1		0.1537	0.6843	0.0731
2	0.1537		0.0687	0.0018
3	0.6843	0.0687		0.1620
4	0.0731	0.0018	0.1620	

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

42634001 18:17 Monday, June 25, 2001

20. ANALYSIS OF FOOD CONSUMPTION

The GLM Procedure

Tukey's Studentized Range (HSD) Test for FOOD

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

Alpha	0.05
Error Degrees of Freedom	60
Error Mean Square	11.25046
Critical Value of Studentized Range	3.73709
Minimum Significant Difference	3.1337

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits		
TRT3	- TRT2	1.679	-1.455	4.813	
TRT3	- CONTROL	2.164	-0.970	5.297	
TRT3	- TRT1	3.877	0.743	7.011	***
TRT2	- TRT3	-1.679	-4.813	1.455	
TRT2	- CONTROL	0.485	-2.649	3.618	
TRT2	- TRT1	2.198	-0.936	5.332	
CONTROL	- TRT3	-2.164	-5.297	0.970	
CONTROL	- TRT2	-0.485	-3.618	2.649	
CONTROL	- TRT1	1.713	-1.420	4.847	
TRT1	- TRT3	-3.877	-7.011	-0.743	***
TRT1	- TRT2	-2.198	-5.332	0.936	
TRT1	- CONTROL	-1.713	-4.847	1.420	

42634001 18:17 Monday, June 25, 2001

20. ANALYSIS OF FOOD CONSUMPTION

The GLM Procedure

Dunnett's One-tailed t Tests for FOOD

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

Alpha	0.05
Error Degrees of Freedom	60
Error Mean Square	11.25046
Critical Value of Dunnett's t	2.10392
Minimum Significant Difference	2.495

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
TRT3 - CONTROL	2.164	-Infinity	4.659
TRT2 - CONTROL	0.485	-Infinity	2.980
TRT1 - CONTROL	-1.713	-Infinity	0.782

```
                    42634001     18:17 Monday, June 25, 2001
          21. COVARIATE ANALYSIS OF MALE BODY WEIGHT
          ******************************************

                     The GLM Procedure

                  Class Level Information

        Class         Levels    Values

        LEVEL              4    CONTROL TRT1 TRT2 TRT3

                 Number of observations    64

NOTE: Due to missing values, only 62 observations can be used in this
      analysis.
```

42634001 18:17 Monday, June 25, 2001

21. COVARIATE ANALYSIS OF MALE BODY WEIGHT

The GLM Procedure

Dependent Variable: POSTM

Source	DF	Sum of Squares	Mean Square	F Value
Model	4	10669.39729	2667.34932	26.67
Error	57	5701.52207	100.02670	
Corrected Total	61	16370.91935		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	POSTM Mean
0.651729	4.513304	10.00134	221.5968

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	1304.511022	434.837007	4.35
PREM	1	9364.886267	9364.886267	93.62

Source	Pr > F
LEVEL	0.0079
PREM	<.0001

Source	DF	Type III SS	Mean Square	F Value
LEVEL	3	631.859815	210.619938	2.11
PREM	1	9364.886267	9364.886267	93.62

Source	Pr > F
LEVEL	0.1096
PREM	<.0001

42634001 18:17 Monday, June 25, 2001
21. COVARIATE ANALYSIS OF MALE BODY WEIGHT
****

The GLM Procedure
Least Squares Means

LEVEL	POSTM LSMEAN	Standard Error	Pr > |t|	LSMEAN Number
CONTROL	219.906906	2.607644	<.0001	1
TRT1	226.578905	2.586125	<.0001	2
TRT2	217.927567	2.500373	<.0001	3
TRT3	222.179485	2.507896	<.0001	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: POSTM

i/j	1	2	3	4
1		0.0756	0.5861	0.5346
2	0.0756		0.0194	0.2261
3	0.5861	0.0194		0.2348
4	0.5346	0.2261	0.2348	

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

42634001 18:17 Monday, June 25, 2001
21. COVARIATE ANALYSIS OF MALE BODY WEIGHT
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for POSTM

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	100.0267
Critical Value of Studentized Range	3.74268

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits		
TRT1	- TRT3	3.871	-5.642	13.383	
TRT1	- TRT2	9.871	0.358	19.383	***
TRT1	- CONTROL	11.533	1.868	21.198	***
TRT3	- TRT1	-3.871	-13.383	5.642	
TRT3	- TRT2	6.000	-3.358	15.358	
TRT3	- CONTROL	7.662	-1.850	17.175	
TRT2	- TRT1	-9.871	-19.383	-0.358	***
TRT2	- TRT3	-6.000	-15.358	3.358	
TRT2	- CONTROL	1.662	-7.850	11.175	
CONTROL	- TRT1	-11.533	-21.198	-1.868	***
CONTROL	- TRT3	-7.662	-17.175	1.850	
CONTROL	- TRT2	-1.662	-11.175	7.850	

42634001 18:17 Monday, June 25, 2001
21. COVARIATE ANALYSIS OF MALE BODY WEIGHT
****

The GLM Procedure

Dunnett's One-tailed t Tests for POSTM

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	100.0267
Critical Value of Dunnett's t	2.10350

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

LEVEL Comparison		Difference Between Means	Simultaneous 95% Confidence Limits	
TRT1	- CONTROL	11.533	-Infinity	19.215
TRT3	- CONTROL	7.662	-Infinity	15.223
TRT2	- CONTROL	1.662	-Infinity	9.223

42634001 18:17 Monday, June 25, 2001
22. COVARIATE ANALYSIS OF FEMALE BODY WEIGHT
****

The GLM Procedure

Class Level Information

Class	Levels	Values
LEVEL	4	CONTROL TRT1 TRT2 TRT3

Number of observations 64

NOTE: Due to missing values, only 62 observations can be used in this analysis.

42634001 18:17 Monday, June 25, 2001
22. COVARIATE ANALYSIS OF FEMALE BODY WEIGHT
****

The GLM Procedure

Dependent Variable: POSTF

Source	DF	Sum of Squares	Mean Square	F Value
Model	4	15650.29508	3912.57377	7.79
Error	57	28645.91459	502.55991	
Corrected Total	61	44296.20968		

Source	Pr > F
Model	<.0001
Error	
Corrected Total	

R-Square	Coeff Var	Root MSE	POSTF Mean
0.353310	9.191896	22.41785	243.8871

Source	DF	Type I SS	Mean Square	F Value
LEVEL	3	3547.95551	1182.65184	2.35
PREF	1	12102.33957	12102.33957	24.08

Source	Pr > F
LEVEL	0.0816
PREF	<.0001

Source	DF	Type III SS	Mean Square	F Value
LEVEL	3	2819.52784	939.84261	1.87
PREF	1	12102.33957	12102.33957	24.08

Source	Pr > F
LEVEL	0.1449
PREF	<.0001

42634001 18:17 Monday, June 25, 2001
22. COVARIATE ANALYSIS OF FEMALE BODY WEIGHT
****

The GLM Procedure
Least Squares Means

LEVEL	POSTF LSMEAN	Standard Error	Pr > |t|	LSMEAN Number
CONTROL	250.404547	5.788282	<.0001	1
TRT1	249.720541	5.793900	<.0001	2
TRT2	242.436340	5.654644	<.0001	3
TRT3	233.758890	5.626590	<.0001	4

Least Squares Means for effect LEVEL
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: POSTF

i/j	1	2	3	4
1		0.9337	0.3290	0.0437
2	0.9337		0.3734	0.0525
3	0.3290	0.3734		0.2841
4	0.0437	0.0525	0.2841	.

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

42634001 18:17 Monday, June 25, 2001
22. COVARIATE ANALYSIS OF FEMALE BODY WEIGHT
****

The GLM Procedure

Tukey's Studentized Range (HSD) Test for POSTF

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	502.5599
Critical Value of Studentized Range	3.74268

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits	
CONTROL - TRT1	1.867	-19.797	23.530
CONTROL - TRT2	4.208	-17.114	25.531
CONTROL - TRT3	19.021	-2.302	40.343
TRT1 - CONTROL	-1.867	-23.530	19.797
TRT1 - TRT2	2.342	-18.981	23.664
TRT1 - TRT3	17.154	-4.168	38.477
TRT2 - CONTROL	-4.208	-25.531	17.114
TRT2 - TRT1	-2.342	-23.664	18.981
TRT2 - TRT3	14.813	-6.163	35.788
TRT3 - CONTROL	-19.021	-40.343	2.302
TRT3 - TRT1	-17.154	-38.477	4.168
TRT3 - TRT2	-14.813	-35.788	6.163

42634001 18:17 Monday, June 25, 2001
22. COVARIATE ANALYSIS OF FEMALE BODY WEIGHT
****

The GLM Procedure

Dunnett's One-tailed t Tests for POSTF

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

Alpha	0.05
Error Degrees of Freedom	57
Error Mean Square	502.5599
Critical Value of Dunnett's t	2.10350

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

LEVEL Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
TRT1 - CONTROL	-1.867	-Infinity	15.352	
TRT2 - CONTROL	-4.208	-Infinity	12.739	
TRT3 - CONTROL	-19.021	-Infinity	-2.073	***