

AGRICULTURAL EXTENSION SERVICE  
NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

SCHOOL OF AGRICULTURE AND LIFE SCIENCES

OFFICE OF EXTENSION POULTRY SCIENCE  
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I am enclosing the final summary of the Nineteenth North Carolina Random Sample Laying Test which you have requested. We believe that the information contained herein is a useful guide for evaluating egg production stocks and management systems. Additional useful data on most of these stocks are published in the reports of other laying tests and in ARS-NE-21 series, a two-year combined summary of random sample laying tests in the United States and Canada. Please circulate this report among your associates in order that maximum use of it may be made. If additional copies are needed, they may be obtained from the address below.

The North Carolina Test continues its policy of acquiring those commercial stocks experiencing major distribution in this area. YES under category indicates full cooperation and financial support of the entry. Category I-A indicates voluntarily entered stocks with full cooperation by the breeder or distributor and I-C indicates stocks acquired without approval of the breeder or distributor. Category II designates stocks lacking major distribution in North Carolina but enjoying commercial volume elsewhere and tested at the request of the breeder. We misunderstood the status of one stock (entry No. 9) and thought that it was to be the primary commercial stock distributed by that breeder in the southeast. When we learned of our error, we reclassified the entry to Category III (experimental) which apparently describes its current status. We regret any inconvenience that our misdirection has caused.

Beginning with this test, the light-and-air-controlled house becomes "Housing Type No. 1," replacing the curtain-side house with 24" X 20" (60 cm X 50 cm) cages @ 7 birds/cage as an environmental treatment. Each entry has 6 reps of 30 birds @ three per 12" X 18" (30 cm X 44 cm) cage in this environment.

All space not required for the laying test in these houses was utilized for management research. We express our appreciation to Shaver Poultry Breeding Farms, Ltd., H & N, Inc., and Babcock Poultry Farm, Inc. and their distributors for providing extra hatching eggs to be used in this research. Results will be published elsewhere.

Requests for reports from this test should be sent to Mr. T. R. Burleson, Jr.,  
PIEDMONT RESEARCH STATION, ROUTE 6, BOX 420, SALISBURY, NORTH CAROLINA 28144.

Very truly yours,

GRADY A. MARTIN  
Extension Poultry Specialist



COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS. NORTH CAROLINA STATE UNIVERSITY AT RALEIGH. 100 COUNTIES AND U. S. DEPARTMENT OF AGRICULTURE COOPERATING

FINAL SUMMARY REPORT  
NINETEENTH NORTH CAROLINA RANDOM SAMPLE LAYING TEST  
March 25, 1977 through August 6, 1978

The North Carolina Random Sample Laying Tests are conducted under the auspices of the Agricultural Extension Service of North Carolina State University and the Division of Research Stations of the North Carolina Department of Agriculture. Mr. T. R. Burleson, Jr., Route 6, Box 420, Salisbury, North Carolina 28144, is Resident Manager of the tests and Dr. G. A. Martin, Department of Poultry Science, North Carolina State University, Raleigh, North Carolina 27650, is Project Leader. The purpose of the project is to assist poultrymen in evaluating stocks and management systems. A committee representing various poultry interests in the State advises the Steering Committee in establishing policies and practices which best serve this purpose. Since no laying tests are now operating in the United States west of the Appalachian mountain range, the Steering Committee of this test altered policy to permit a limited number of Category II stocks.

Data are presented in Tables 19-4A-I, II, III and IV, 19-4B-I, II, III and IV. 19-4C-I, II, III and IV, and 19-4D-I, II, III, IV, V and VI. Tables carrying the letters A, B, C and D in their number contain performance data for birds housed @ 3 birds/12" X 18" cage in light-and-air controlled house, on combination of litter and slats, in 2-bird cages in a curtain-side house, and averaged across all three housing schemes, respectively. Due to the large number of items reported, each of the tables is divided into Parts I, II, etc., for the final report. These data are for one year at one location. The ARS-NE-21 series of publications summarizes all laying tests in the United States and Canada over two years and may be obtained from the USDA. It provides an excellent basis for comparing the performance of different stocks.

INFORMATION CONCERNING DATA REPORTED

Samples of 1260 freshly gathered hatching eggs were taken at selected supply flocks, or by random sampling from egg rooms when nest sampling was not feasible. Public employees in Agriculture supervised sample selection and sealed the cases for delivery to the test site where all eggs were incubated. Each entry had a maximum of 458 sexed pullets placed for brooding. (Due to shipping damage to eggs, 78 pullet chicks that were hatched the same day in a commercial hatchery were utilized for entry No. 4). Two pens of 64 birds each were grown on pine shavings litter floors at 1.37 sq. ft. per bird ( $7.9 \text{ birds/M}^2$ ) for 150 days. Two groups of 60 birds each were grown in open (curtain-side) housing in 24" X 20" cages @ 24 sq. in./bird for 5 weeks and @ 56 sq. in./bird thereafter (65 and 28 birds/ $M^2$ ). Two groups of 105 birds each were grown in a closed (light-and-air controlled) house in 24" X 20" cages @ 23 sq. in./bird for 5 weeks and @ 69 sq. in./bird thereafter (68 and 23 birds/ $M^2$ ).

At 150-days-old, the litter-grown birds were randomly reduced to 58 birds per pen and kept in the same pen @ 1.5 sq. ft./bird ( $7.1 \text{ birds/M}^2$ ) for the laying period with hardwood slats over half of the area. At the same time the groups of pullets grown in cages in open houses were randomly reduced to 52 birds and housed as two reps in an open house @ 2 birds/10" X 18" cage ( $17 \text{ birds/M}^2$  or 90 sq. in./bird). Also, the groups of pullets grown in cages in the closed house were randomly reduced to 90 birds and housed as 3 reps in a closed house @ 3 birds/12" X 18" cage ( $21.5 \text{ birds/M}^2$  or 72 sq. in./bird).

All birds were vaccinated at day-old for Marek's with cell associated live turkey herpes virus vaccine. We express our appreciation to Dr. Bob Keenum, Keenum, Inc., P.O. Box 1706, Anniston, Alabama for providing this vaccine for the flock. Only one death was attributable to Marek's during the 500-day life of the flock.

All birds were debeaked at 7 to 10 days old with touch-up, if needed at about 12 weeks of age. All birds were vaccinated for Newcastle at 7 days (B1), four weeks (La Sota) and 16 weeks (La Sota) and for bronchitis at 7 days and 16 weeks via water; vaccinated for pox via wing web at 12 weeks; and vaccinated for Avian Encephalomyelitis at 17 weeks. Chicks that were housed on litter were given 6 species Coccivac at 11 days of age--no coccistat or treatment were needed.

A check on the Mycoplasma gallisepticum status on the farm revealed that the old flock was clean but that a slow-moving break was in progress in the young flock. When attempts to isolate and produce an inoculum from the flock were not fully successful, Dr. Max Colwell, Department of Veterinary Science, North Carolina State University, obtained the necessary permits and secured the mild strain of Mg from Dr. Julius Fabricant of Ithaca, New York that had been used successfully on multi-age premises. No adverse reaction was observed to the vaccine from this strain which he produced and administered to the flock. All groups of pullets were Mg positive at the time of sexual maturity. We express our appreciation to Drs. Colwell and Fabricant and to the members of the Veterinary section of NCDA for their assistance in minimizing the impact of this break.

Commercial all-mash rations were purchased on contract. Starting mash (20% protein, 1320 Kcal. M.E./lb.) was fed at a rate of 2.5 lbs./bird and growing mash (14.3% protein, 1324 Kcal. M.E./lb.) was fed ad lib until housing at 150 days for all environments. Light in open houses was held constant at maximum day length during the growing period. Nine hours of light was maintained in the closed house during the growing period. Beginning at 20 weeks light was stepped up at 15- and 30-minute weekly steps until a maximum of 17 hours was reached during the laying period. After 150 days, layers were full-fed one of four commercial all-mash rations containing 20%, 18%, 16% and 14.7% protein and near 1300 Kcal. M.E./lb., phased on production and feed consumption rate within type of bird (white-egg or brown-egg) and house. Other management was as nearly commercial procedures as practical.

When the flock was 412 days old an evening electrical storm tripped the circuit breakers on the fans in the closed laying house without sounding the power-off alarm. When this was discovered some 11 hours later, about 6 dozen birds were dead. Survivors experienced a short production slump and appeared to return to normal rapidly. Since such numbers of accidental deaths are, hopefully, rare we have shown accidental deaths in an added column in Part IV of the tables.

We express our gratitude to Mr. Jim Areneson, Manager of the FCX egg processing plant at Charlotte, for providing a grading service by entry each quarter. The data are reported in Part V of the tables.

## RESULTS

### Part I of Tables

Entry No. is assigned at random to the particular entry.

Type Housing: 1 = 3-bird cages in closed house, 2 = slats and litter in open house, 3 = 2-bird cages in open house, 0 = average of three types.

Breeder is the name used to distinguish entries. Full information about the stock and source is listed elsewhere in this report.

Average Body Weight is recorded in pounds at housing and at end of test.

Egg Size, Distribution (%) was obtained by crediting each week's production to size classes in proportion to those observed in the total production of one day. Individual eggs weighing 23 but less than 26 oz./doz. are classified as large. Other size classes are scaled up or down from large in blocks of 3 oz./doz.

Average Egg Weight was obtained by crediting all eggs for each week at the average size observed on one day by mass weight.

Age at 50% Production was the age of pullets on the first day of the first two consecutive days on which production reached or exceeded 50%.

Hen-Day Production Percentages represent the daily average number of eggs produced per 100 hens of the entry during the specified periods.

Eggs Per Pullet Housed is the total number of eggs produced divided by the number of pullets housed.

### Part II of Tables

Entry No. and Type Housing are the same as above.

No. of Birds are the net pullets or hens retained at the specified times. Sexing errors, first week mortality and accidental deaths are excluded.

Mortality is the percentage of birds that died during growing and laying periods and the average days per bird housed that were lost to mortality during the laying period.

Feed Consumed is average feed consumed for the 150 days in the growing period, per 100 birds per day in laying period, per pound of eggs produced in laying period, and per dozen eggs laid.

Chick Price is the average of prices quoted for all stocks in the test in March 1977.

Values Per Pullet Housed are the dollar amounts charged and credited to the entry at 3-year monthly average feed prices quoted by North Carolina Department of Agriculture, at 3-year weekly average egg prices quoted for Raleigh market by the Federal-State Market Service, with adjustment to farm price, and 3-year average fowl prices in North Carolina for the week in which the test terminated.

IOFCC is income over laying feed cost and growing chick and feed cost per pullet housed. This does not represent net return since many other costs are involved in egg production.

### Part III of Tables

Entry No. and Type Housing are the same as above.

% Inclusion (Break-Out): Blood spots and colored meat spots were observed by breaking one day's production from each lot at about 30-day intervals throughout the year. Spots exceeding 1/8 inch were classified as large and those of lesser size as small. Break-out data were not used for egg value calculations.

% Loss (Downgrades) was the percentage by which total egg value was reduced below Grade A value due to downgrades detected by candling. We express our appreciation to the personnel of the North Carolina Department of Agriculture who provided candling service on one day of production each month. Market values of all eggs were calculated on the basis of these candling reports, with no discount for stained or dirty eggs.

Candled Quality Percentages: Official egg graders from the North Carolina Department of Agriculture candled the production of one day each month. The percentages reported are a summary of their findings and were used to determine egg value.

Haugh Units were measured on one day's production each quarter of the year. Since this factor undergoes seasonal change, the quarterly averages and the annual average are given.

Shell Score (Specific Gravity) was secured by using salt solutions to determine the specific gravity of eggs. The eggs with specific gravity below 1.068 were given a score of 0; those between 1.068 and 1.072, a score of 1; etc. with those exceeding 1.100 receiving a score of 9. One day's production from each group of birds was classified in the months indicated.

### Part IV of Tables

Entry No. and Type Housing are the same as above.

Causes of Mortality were assigned from autopsy findings. Birds were held in a freezer as mortality occurred and examined at a North Carolina Department of Agriculture Diagnostic Laboratory once each week. We express our appreciation to Dr. W. H. Emory for providing this service to the test. The 12-point classification system recommended by the Council of American Official Poultry Tests was used on autopsy reports. Some categories which accounted for little mortality were combined under "Other" in the interest of saving space. The column at the right of total mortality reports the percentage of birds lost due to accidents and is included because it is abnormally high.

Part V of Tables

Entry No., Type Housing, and Breeder are the same as above.

Commercial Egg Gradeout was made by stocks during the weeks indicated at the FCX plant at Charlotte, North Carolina. % A large and over and % A medium, small, and pee wee are consumer grades. % Breaker combines C quality, B quality, small inclusions, and stains which constitute breaker stock with sound shells. % Crax are non-leakers with unsound shells removed for breaker stock. % Farm Loss is the percentage of unsound eggs removed before shipping and % Other Loss includes all other eggs shipped (large spots, addled eggs, leakers, lost in machines, etc.). Seasonal data are not combined.

Part VI of Tables

This section of the tables is presented only for the average performance of the entries in all types of housing and for only the four characteristics listed.

The Range column indicates those entries which are in the most desirable half of the range above the mean by 1, those between this point and the mean by 2, those in the least desirable half of the range below the mean by 4, and those between this point and the mean by 3.

Entry No. indicates which stock from earlier listing in the tables attained the average performance value shown.

Entries spanned by the same vertical line in the Duncan Test column have a greater than 5% probability that the indicated difference is due to sampling variation.

Breeder	Stock Identifi- cation	Entry Cate- gory*	Source of Sample
Babcock Poultry Farm, Inc. Box 280 Ithaca, NY 14850	Babcock B-300V WL INX	I-A YES	Harrold's Hatchery P. O. Box 98 Winterville, GA 30683
Babcock Poultry Farm, Inc. Box 280 Ithaca, NY 14850	Babcock B-380 RIRxSYN IBX	I-A YES	Babcock Poultry Farm, Inc. Box 280 Ithaca, NY 14850
Carey Farms, Inc. 3252 Mt. Olive - Agosta Rd. Marion, OH 43302	Carey's Nick 310 WL SX	II YES	Carey Farms, Inc. 3252 Mt. Olive - Agosta Rd. Marion, OH 43302
Colonial Poultry Farms, Inc. P. O. Box 89 Pleasant Hill, MO 64070	True Line 365-S WL 4wIN	II YES	Colonial Poultry Farms, Inc. P. O. Box 89 Pleasant Hill, MO 64070
DeKalb AgResearch, Inc. Sycamore Road DeKalb, IL 60115	DeKalb Amber Link RIRxSYN BX	I-A YES	Hillcrest Hatchery Route 2, Box 163 Bogart, GA 30622
DeKalb AgResearch, Inc. Sycamore Road DeKalb, IL 60115	DeKalb XL-Link WL 4wSX	I-A YES	Tri-State Hatchery Route 3, Box 386 Cuthbert, GA 31740
Euribrid B.U. Entry by Chicks of Dixie, Inc. Atlanta, GA 30317	Hisex White WL 4wSX	I-A YES	Chicks of Dixie, Inc. 260 Howard St. N.E. Atlanta, GA 30317
H & N, Inc. 15305 N.E. 40th St. Redmond, WA 98052	H&N "Petite Nick" WL 4wSX	III* YES	H & N, Inc. 1150 Everee Inn Road Griffin, GA 30223
Hubbard Farms, Inc. Walpole, NH 03608	Hubbard Golden Comet NHxSYN BX	I-A YES	Cleveland Farms, Box 608 Shelby, NC 28150
Hubbard Farms, Inc. Walpole, NH 03608	Hubbard Leghorn WL SX	II YES	Hubbard Farms, Inc. Statesville, NC 28677
Hy-Line International 1206 Mulberry Des Moines, IO 50309	Hy-Line W-36 INX	I-C NO	Not Applicable
Ideal Poultry Breeding Farm, Inc. Box 581 Cameron, TX 76520	Ideal 236 SYNwWL BX	II YES	Ideal Poultry Breeding Farm, Inc. Box 581 Cameron, TX 76520
Shaver Poultry Breeding Farms, LTD. Box 400 Galt, Cambridge Ontario, NIR 5W6, CANADA	Starcross 288 WL SX	I-A YES	Shaver Poultry Breeding Farms, LTD. Box 400 Galt, Cambridge Ontario, NIR 5W6, CANADA

\*See Text.

TABLE 19-4A-I - Body Weight, Egg Size, Maturity and Production Rate

Entry No.	Type Housing	Wt.										Egg Production Rate - %		Eggs Per Pullet Housed				
		Average Body Weight		% Egg Size, Distribution						Wt. Eggs Oz./Doz.	Age at 50% Production	151-234 Days	235-318 Days	319-402 Days	403-500 Days			
		150 Days	500 Days	Pee Wee	Small	Medium	Large	Extra Large	Over									
1	1	DeKalb (Amber Link)	3.5	5.4	0.1	1.9	5.3	28.3	64.4	26.0	178.8	60.3	88.2	80.5	66.4	63.8	79.2	248.2
2	1	DeKalb (XL Link)	3.0	4.2	0.1	1.8	8.3	35.0	54.7	25.4	172.2	65.9	89.2	80.7	69.3	68.0	80.3	256.9
3	1	Babcock (B-300V)	2.9	4.2	0.1	2.4	6.8	32.8	57.9	25.4	172.5	62.9	83.4	76.8	68.4	67.9	76.4	245.9
4	1	Ideal (236)	3.0	4.5	0.1	1.5	5.3	27.8	65.4	26.1	179.8	57.1	82.5	74.0	65.0	64.5	74.3	233.8
5	1	Hubbard (Leghorn)	3.0	4.3	0.1	1.9	6.1	28.0	63.9	26.1	175.5	60.6	82.1	77.6	67.6	66.0	76.4	232.5
6	1	Hubbard (Gld. Comet)	3.4	4.8	0.1	1.3	5.5	25.3	67.8	26.4	172.2	66.0	82.7	73.1	63.9	61.7	74.9	243.4
7	1	Carey (Nick 310)	3.0	3.8	0.1	2.6	10.4	38.5	48.4	25.1	179.0	59.1	83.7	76.2	67.8	67.7	76.5	238.6
8	1	Shaver (288)	3.1	4.1	0.0	1.0	3.3	19.0	76.7	26.8	172.5	67.4	91.6	83.4	73.6	72.1	83.3	266.0
9	1	H & N (Petite Nick)	2.6	3.3	0.1	2.7	10.4	38.5	48.2	25.0	170.5	64.4	84.9	76.4	66.6	64.7	76.2	247.8
10	1	Hy-Line (W-36)	2.9	3.9	0.0	3.4	10.6	36.0	50.0	25.1	180.7	56.1	81.5	69.0	57.2	56.3	70.8	202.4
11	1	Colonial (T.L. 365-S)	2.7	3.2	0.4	4.6	10.6	38.6	45.8	24.8	168.5	60.7	78.6	67.8	59.1	58.0	68.9	223.0
12	1	Euribrid (Hisex Wh.)	2.9	4.0	0.2	3.1	8.8	33.5	54.4	25.3	168.7	67.3	86.9	80.4	73.5	72.8	79.9	265.1
13	1	Babcock (B-380)	3.6	5.0	0.1	1.3	4.0	20.0	74.6	26.8	175.2	65.7	84.1	75.1	66.3	63.8	76.9	250.7
0	1	Average	3.1	4.2	0.1	2.3	7.3	30.9	59.4	25.7	174.3	62.6	84.6	76.2	66.5	65.2	76.5	242.6

TABLE 19-4A-II - Birds, Mortality, Feed Use, and Cost and Income Data

Entry No.	Type Housing	At One Week	At End of Test	% 8-150 Days	Ave. Days Lost/ Hen Housed	Per Bird 1-150 Days	Per 100 Birds (One Day)	Per Dozen Eggs	Chick Price	Growing Feed Cost	Laying Feed Cost	Total Feed and Chick Cost	Value of Eggs	Value of Meat	TOFCC		
1 1	209	180	155	1.0	8.3	12.8	14.8	26.0	2.60	4.24	0.36	1.13	6.77	8.28	10.57	0.58	2.872
2 1	204	180	169	2.0	6.1	12.2	15.6	22.7	2.25	3.58	0.36	1.21	5.92	7.50	10.80	0.49	3.780
3 1	211	180	166	0.0	7.8	11.8	14.6	22.2	2.31	3.66	0.36	1.12	5.80	7.28	10.29	0.48	3.488
4 1	206	180	161	2.9	8.3	13.2	15.3	22.2	2.35	3.84	0.36	1.18	5.78	7.34	9.96	0.50	3.122
5 1	208	181	154	2.9	12.7	26.3	15.5	23.1	2.37	3.86	0.36	1.20	5.77	7.35	9.54	0.46	2.652
6 1	208	180	167	0.5	5.0	7.9	16.1	23.2	2.38	3.92	0.36	1.24	6.14	7.74	10.45	0.55	3.257
7 1	203	180	174	1.5	7.2	16.1	15.5	21.8	2.34	3.67	0.36	1.19	5.64	7.20	10.10	0.46	3.356
8 1	205	180	171	0.5	5.6	12.1	15.4	24.2	2.21	3.69	0.36	1.18	6.33	7.86	11.14	0.48	3.768
9 1	202	180	162	1.5	5.0	9.8	14.0	20.6	2.17	3.39	0.36	1.08	5.41	6.86	9.94	0.37	3.452
10 1	201	180	147	0.8	17.8	40.5	15.4	20.6	2.41	3.78	0.36	1.18	4.92	6.49	8.64	0.40	2.542
11 1	195	180	163	0.5	10.0	13.6	14.5	19.2	2.24	3.48	0.36	1.11	4.98	6.46	9.33	0.36	3.227
12 1	205	178	170	0.5	3.4	5.1	15.6	22.6	2.24	3.54	0.36	1.19	6.04	7.59	10.92	0.47	3.794
13 1	210	180	162	0.9	3.9	4.6	16.1	25.3	2.50	4.18	0.36	1.23	6.76	8.36	10.51	0.56	2.714
0 1	205	180	163	1.2	7.8	14.3	15.3	22.6	2.34	3.76	0.36	1.17	5.87	7.41	10.17	0.47	3.233

TABLE 19-4D-I - Body Weight, Egg Size, Maturity and Production Rate

Entry No.	Type Housing	Average Body Weight	% Egg Size, Distribution						Egg Production Rate - %						After 50% Production	Eggs Per Pullet Housed		
			150 Days	500 Days	Pee	Wee	Small	Medium	Large	Extra Large and Over	151-234 Days	235-318 Days	319-402 Days	403-500 Days	462-500 Days			
1	0	DeKalb (Amber Link)	3.6	6.2	0.1	1.5	5.2	26.5	66.7	26.3	175.6	60.6	88.1	81.3	70.4	67.2	80.1	253.5
2	0	DeKalb (XL Link)	3.0	4.1	0.2	2.0	8.2	32.2	57.5	25.6	168.2	70.1	87.9	80.2	71.7	68.8	80.3	258.8
3	0	Babcock (B-300V)	3.0	4.0	0.3	3.0	7.7	30.1	59.0	25.5	164.6	70.9	83.5	77.7	70.6	68.2	77.4	257.1
4	0	Ideal (236)	3.2	4.4	0.1	1.6	5.6	25.2	67.5	26.4	174.2	62.3	81.7	76.0	68.6	66.5	75.5	241.3
5	0	Hubbard (Leghorn)	3.2	4.3	0.2	2.3	6.5	27.0	64.0	26.1	166.8	67.5	82.8	75.5	68.0	65.5	75.7	240.0
6	0	Hubbard (Gld. Comet)	3.6	5.1	0.1	1.9	6.1	24.8	67.1	26.5	167.0	70.0	81.9	73.3	64.9	61.9	74.7	242.1
7	0	Carey (Nick 310)	3.1	3.9	0.2	2.6	8.8	36.4	52.0	25.2	174.7	62.5	84.2	78.3	70.9	69.5	77.9	245.3
8	0	Shaver (288)	3.2	4.2	0.1	1.2	3.5	20.4	74.9	26.9	168.5	69.7	89.7	82.1	74.2	72.1	82.2	267.3
9	0	H & N (Petite Nick)	2.8	3.4	0.2	3.0	10.1	35.3	51.4	25.2	164.7	71.4	84.2	75.6	66.5	64.8	75.9	248.6
10	0	Hy-Line (W-36)	2.9	3.9	0.2	4.0	11.4	31.7	52.7	25.1	173.0	63.5	80.7	68.4	60.9	59.5	71.7	215.1
11	0	Colonial (T.L. 365-S)	2.7	3.3	0.5	4.4	10.5	34.6	50.1	25.0	162.7	67.3	77.6	68.0	60.8	58.6	69.3	227.7
12	0	Euribrid (Hisex Wh.)	3.0	3.9	0.4	3.7	9.6	32.7	53.7	25.2	162.9	74.4	86.8	80.6	69.4	66.6	79.0	264.9
13	0	Babcock (B-380)	3.7	4.9	0.1	1.2	4.0	20.9	73.8	27.0	168.2	69.0	85.5	76.2	67.9	66.1	77.7	255.4
0	0	Average	3.2	4.2	0.2	2.5	7.5	29.1	60.8	25.8	168.6	67.6	84.2	76.4	68.0	65.8	76.7	247.5

TABLE 19-4A-III - Egg Quality Data

Entry No.		Type Housing	Loss % (Downgrades)	Large Bloods	Small Bloods	Large Meats	Small Meats	A or Better	C Quality	Cracks	Loss Eggs	Haugh Units	Shell Score (Specific Gravity)
% Inclusion	(Break-Out)												
1	1	3.7	1.4	1.7	11.2	13.4	94.4	1.7	0.2	3.1	0.5	93.0	90.9
2	1	4.6	0.7	0.9	0.5	0.6	93.1	2.7	0.2	3.4	0.7	86.0	88.5
3	1	4.8	0.5	0.9	0.1	0.3	92.4	3.4	0.4	3.4	0.5	86.8	88.7
4	1	3.8	1.1	1.6	0.5	0.8	93.9	2.7	0.4	2.5	0.4	85.7	84.0
5	1	6.9	2.5	0.9	0.1	0.1	89.5	4.8	0.6	4.2	0.9	85.0	84.3
6	1	3.1	2.1	1.9	16.3	15.9	95.1	1.6	0.4	2.7	0.3	85.4	86.7
7	1	3.4	1.1	1.1	0.2	0.4	94.9	1.7	0.1	3.1	0.3	84.2	84.3
8	1	5.7	1.8	1.6	0.4	0.1	91.4	3.4	0.3	4.1	0.8	87.7	87.5
9	1	8.4	0.1	1.0	0.3	0.2	86.8	8.8	1.1	3.0	0.3	90.6	90.4
10	1	3.0	1.2	0.3	0.8	0.4	95.3	2.0	0.3	2.2	0.2	86.6	85.9
11	1	3.8	0.9	1.0	0.6	0.2	93.6	3.8	0.4	2.1	0.1	86.2	84.6
12	1	5.6	0.9	0.8	0.2	0.1	91.3	4.8	0.3	3.2	0.3	85.5	84.2
13	1	5.5	2.2	2.1	9.7	10.2	91.8	1.6	0.1	5.8	0.8	87.2	85.4
0	1	4.8	1.3	1.2	3.1	3.3	92.6	3.3	0.4	3.3	0.5	86.9	86.6

TABLE 19-4D-II - Birds, Mortality, Feed Use, and Cost and Income Data

		Entry No.		Type Housing														
		Number of Birds		Mortality		Feed Consumed						Value Per Pullet Housed						
		At One Week		At End of Test		% 8-150 Days		% 151-500 Days		Ave. Days Lost/ Hen Housed								
1	0	511	456	416	3.1	7.0	11.7	16.2	25.6	2.50	4.10	0.36	1.25	6.69	8.32	10.81	0.59	3.070
2	0	505	456	422	2.1	7.9	15.0	15.3	23.6	2.30	3.68	0.36	1.18	6.12	7.67	10.86	0.47	3.655
3	0	500	452	431	1.7	5.1	9.3	15.2	23.5	2.33	3.72	0.36	1.17	6.13	7.67	10.79	0.48	3.597
4	0	500	456	422	1.6	7.4	14.4	15.1	23.4	2.37	3.91	0.36	1.16	6.07	7.60	10.17	0.50	3.068
5	0	503	457	408	2.1	10.6	22.1	15.7	24.0	2.42	3.94	0.36	1.21	6.07	7.65	9.97	0.47	2.786
6	0	513	456	391	0.7	10.4	15.4	16.4	24.5	2.46	4.07	0.36	1.26	6.34	7.96	10.37	0.56	2.972
7	0	503	456	416	0.5	8.6	17.5	15.4	23.4	2.42	3.81	0.36	1.18	6.02	7.57	10.35	0.45	3.230
8	0	506	456	431	0.7	5.2	10.3	16.2	24.7	2.24	3.77	0.36	1.23	6.49	8.09	11.24	0.50	3.654
9	0	507	457	427	1.6	7.0	14.6	14.7	22.2	2.29	3.61	0.36	1.12	5.75	7.24	10.01	0.39	3.158
10	0	513	456	394	1.9	15.4	34.0	15.4	21.6	2.42	3.81	0.36	1.19	5.27	6.84	9.04	0.41	2.619
11	0	495	456	411	1.0	9.7	16.0	15.1	20.6	2.33	3.64	0.36	1.16	5.30	6.83	9.42	0.37	2.966
12	0	503	455	426	0.4	5.0	8.3	15.5	23.4	2.31	3.65	0.36	1.19	6.17	7.73	10.83	0.46	3.562
13	0	524	454	424	1.1	4.4	6.6	16.1	25.1	2.41	4.06	0.36	1.23	6.67	8.27	10.72	0.56	3.011
0	0	506	456	417	1.4	7.9	15.0	15.6	23.5	2.37	3.83	0.36	1.19	6.08	7.65	10.35	0.48	3.181

TABLE 19-4B-I - Body Weight, Egg Size, Maturity and Production Rate

Entry No.	Type	Housing	Breeder	Average Body Weight		% Egg Size, Distribution		Egg Production Rate - %		After 50% Production	Eggs Per Pullet Housed							
				150 Days	500 Days	Pee Wee	Small Medium	Large	Extra Large and Over									
1	2	DeKalb (Amber Link)	3.9	4.7	0.1	1.8	6.5	32.0	59.6	25.6	164.0	65.7	88.9	82.2	72.1	67.9	80.9	259.7
2	2	DeKalb (XL Link)	3.3	4.1	0.2	2.3	9.2	34.2	54.0	25.2	163.5	78.2	87.7	78.9	73.4	68.4	81.1	267.7
3	2	Babcock (B-300V)	3.2	4.0	0.4	4.2	10.6	33.3	51.5	24.8	157.0	82.1	84.5	77.0	70.3	65.5	78.3	267.1
4	2	Ideal (236)	3.4	4.3	0.1	1.9	6.7	27.0	64.2	26.1	169.0	67.7	81.2	75.8	67.9	63.6	75.3	248.0
5	2	Hubbard (Leghorn)	3.4	4.2	0.2	2.9	7.9	30.4	58.7	25.5	160.5	74.7	81.9	72.1	68.4	66.0	75.2	249.1
6	2	Hubbard (Gld. Comet)	3.8	5.5	0.1	2.6	8.3	28.0	61.1	25.9	162.0	75.3	81.8	72.3	65.0	61.5	74.9	235.7
7	2	Carey (Nick 310)	3.2	4.0	0.2	2.8	9.2	37.6	50.1	24.9	170.5	68.2	84.5	80.2	72.0	70.2	79.1	245.6
8	2	Shaver (288)	3.4	4.2	0.1	1.2	4.4	27.5	66.7	26.3	167.5	74.3	89.2	80.9	75.2	72.2	82.6	271.4
9	2	H & N (Petite Nick)	2.9	3.5	0.3	3.3	11.4	36.0	49.0	24.9	163.0	77.3	82.8	71.8	63.0	61.8	73.8	252.1
10	2	Hy-Line (W-36)	3.1	3.9	0.3	4.6	13.6	31.2	50.3	24.6	165.5	73.1	80.3	66.6	64.0	63.7	73.0	230.5
11	2	Colonial (T.L. 365-S)	2.7	3.3	0.6	4.0	11.3	34.7	49.5	24.7	159.5	75.9	76.2	66.7	59.4	55.3	69.6	234.3
12	2	Euribrid (Hisex Wh.)	3.3	4.0	0.4	4.6	12.1	34.6	48.3	24.8	158.0	83.0	87.3	81.0	62.0	55.3	78.1	259.6
13	2	Babcock (B-380)	3.7	4.6	0.1	1.4	5.4	27.7	65.4	26.2	161.5	74.5	86.4	75.1	66.5	66.6	77.4	262.8
0	2	Average	3.3	4.2	0.2	2.9	9.0	31.9	56.0	25.3	163.2	74.6	84.0	75.4	67.6	64.5	76.9	252.6

TABLE 19-4C-I - Body Weight, Egg Size, Maturity and Production Rate

Entry No.	Type Housing	Breeder	Average Body Weight	% Egg Size, Distribution			Egg Wt.	Age at 50% Production oz./Doz.	Average Egg Over Large and Medium	Age at 50% Production Days	Egg Production Rate - % 403-500 Days	After 50% Production Days	Eggs Per Household					
			500 Days	150 Days	500 Days	150 Days												
1 3	DeKalb (Amber Link)		3.6	5.5	0.1	0.8	3.9	19.1	76.1	27.3	184.0	55.7	87.2	81.1	72.8	69.8	80.3	252.7
2 3	DeKalb (XL Link)		2.7	4.0	0.2	1.7	7.1	27.3	63.7	26.2	169.0	66.0	86.9	81.1	72.5	70.1	79.6	251.9
3 3	Babcock (B-300V)		2.9	4.0	0.3	2.3	5.7	24.2	67.6	26.3	164.3	67.5	82.7	79.2	73.1	71.1	77.5	258.3
4 3	Ideal (236)		3.2	4.3	0.2	1.5	4.7	20.8	72.9	27.0	173.8	62.0	81.3	78.0	73.0	71.4	76.9	242.2
5 3	Hubbard (Leghorn)		3.3	4.3	0.3	2.3	5.5	22.5	69.5	26.7	164.5	67.0	84.3	76.7	67.9	64.5	75.5	238.4
6 3	Hubbard (Gld. Comet)		3.7	5.0	0.2	1.7	4.6	21.2	72.3	27.2	166.8	68.6	81.4	74.4	65.8	62.3	74.4	247.2
7 3	Carey (Nick 310)		2.9	3.8	0.2	2.4	6.8	33.1	57.4	25.6	174.8	60.3	84.3	78.5	72.9	70.5	78.0	251.6
8 3	Shaver (288)		3.1	4.3	0.1	1.3	2.8	14.6	81.2	27.6	165.5	67.3	88.4	82.0	73.9	72.0	80.6	264.6
9 3	H & N (Petite Nick)		2.8	3.4	0.2	3.0	8.4	31.4	56.9	25.7	160.5	72.5	84.9	78.7	69.8	68.0	77.5	246.0
10 3	Hy-Line (W-36)		2.8	3.9	0.3	4.0	10.0	28.0	57.7	25.8	172.8	61.2	80.2	69.7	61.6	58.5	71.3	212.5
11 3	Colonial (T.L. 365-S)		2.8	3.4	0.5	4.6	9.5	30.5	54.9	25.3	160.3	65.2	78.0	69.5	63.8	62.3	69.3	225.8
12 3	Euribrid (Hisex Wh.)		2.7	3.8	0.6	3.3	7.8	30.0	58.3	25.5	162.0	73.0	86.1	80.4	72.8	71.8	78.9	270.1
13 3	Babcock (B-380)		3.7	5.0	0.0	1.0	2.5	15.1	81.4	27.9	168.0	66.9	86.2	78.4	70.8	67.9	78.7	252.8
0 3	Average		3.1	4.2	0.2	2.3	6.1	24.5	66.9	26.5	168.2	65.6	84.0	77.5	70.1	67.7	76.8	247.2

TABLE 19-4B-II - Birds, Mortality, Feed Use, and Cost and Income Data

Entry No.	Type Housing	At One Week	Housed	At End of Test	% 8-150 Days	% 151-500 Days	Ave. Days Lost/ Hen Housed	Per Bird 1-150 Days (One Day)	Per 100 Birds (One Day)	Per Dozen Eggs	Chicken Price	Growing Feed Cost	Laying Feed Cost	Total Feed and Chick Cost	Value of Eggs	Value of Meat	TOFC	
1	2	126	116	107	0.0	7.8	13.1	17.8	24.8	2.41	3.87	0.36	1.36	6.46	8.18	11.24	0.53	3.594
2	2	124	116	108	1.6	6.9	12.6	14.9	24.4	2.35	3.70	0.36	1.14	6.37	7.89	11.20	0.47	3.785
3	2	120	114	111	4.2	2.7	8.4	16.0	23.4	2.33	3.63	0.36	1.25	6.20	7.82	11.15	0.48	3.810
4	2	124	116	110	0.0	5.2	9.9	14.9	23.7	2.40	3.91	0.36	1.14	6.23	7.74	10.43	0.51	3.200
5	2	124	116	106	0.8	9.5	13.9	15.9	24.2	2.47	3.94	0.36	1.22	6.30	7.89	10.30	0.47	2.890
6	2	127	116	90	0.0	22.4	30.1	17.6	25.1	2.54	4.11	0.36	1.34	6.22	7.93	10.10	0.53	2.699
7	2	124	116	100	0.0	13.8	27.0	16.0	24.5	2.49	3.86	0.36	1.22	6.11	7.70	10.34	0.43	3.062
8	2	128	116	109	1.6	5.2	9.4	16.6	24.5	2.25	3.70	0.36	1.26	6.46	8.10	11.47	0.50	3.868
9	2	128	116	114	0.0	2.6	6.5	15.3	22.5	2.38	3.71	0.36	1.13	5.97	7.46	10.19	0.43	3.156
10	2	126	116	104	2.4	12.1	24.4	15.4	22.4	2.48	3.81	0.36	1.19	5.65	7.21	9.56	0.44	2.786
11	2	123	116	104	1.6	9.5	12.1	15.0	21.2	2.39	3.70	0.36	1.15	5.54	7.07	9.51	0.37	2.812
12	2	127	116	106	0.8	8.6	16.7	16.0	24.1	2.42	3.75	0.36	1.23	6.21	7.81	10.43	0.45	3.068
13	2	132	115	110	0.0	2.6	1.0	16.3	24.4	2.38	3.90	0.36	1.24	6.58	8.19	11.08	0.55	3.435
0	2	126	116	106	1.0	8.4	14.2	16.0	23.8	2.41	3.81	0.36	1.22	6.18	7.77	10.54	0.47	3.243

TABLE 19-4C-II - Birds, Mortality, Feed Use, and Cost and Income Data

Entry No. Type Housing		Number of Birds	Mortality	Feed Consumed	% 8-150 Days	% 151-500 Days	Ave. Days Lost/ Hen Housed	Per Bird 1-150 Days	Per 100 Birds (One Day)	Per Pound of Eggs	Per Dozen Eggs	Chick Price	Growing Feed Cost	Laying Feed Cost	Total Feed and Chick Cost	Value of Eggs	Value of Meat	IOFCC	Value Per Pullet Housed
At One Week Housed	At End of Test																		
1	3	120	104	99	8.3	4.8	9.2	15.8	26.0	2.47	4.21	0.36	1.27	6.84	8.51	10.61	0.65	2.744	
2	3	121	104	93	2.6	10.6	20.0	15.3	23.8	2.29	3.75	0.36	1.18	6.06	7.62	10.58	0.44	3.399	
3	3	119	104	98	0.8	4.8	7.7	14.9	24.2	2.34	3.86	0.36	1.14	6.40	7.91	10.93	0.47	3.491	
4	3	115	104	95	1.8	8.7	20.0	15.1	24.3	2.36	3.99	0.36	1.16	6.20	7.73	10.12	0.49	2.883	
5	3	116	104	93	2.7	9.6	26.2	15.6	24.5	2.41	4.02	0.36	1.21	6.13	7.72	10.06	0.48	2.815	
6	3	120	104	100	1.7	3.8	8.1	15.5	25.1	2.46	4.20	0.36	1.20	6.65	8.21	10.58	0.60	2.960	
7	3	120	104	99	0.0	4.8	9.5	14.8	24.0	2.43	3.90	0.36	1.13	6.30	7.80	10.62	0.46	3.274	
8	3	113	104	99	0.0	4.8	9.4	16.5	25.4	2.27	3.93	0.36	1.26	6.68	8.30	11.12	0.51	3.326	
9	3	116	105	91	3.4	13.3	27.5	14.7	23.6	2.33	3.74	0.36	1.14	5.88	7.40	9.91	0.36	2.866	
10	3	127	104	88	2.4	16.3	37.2	15.3	21.7	2.38	3.84	0.36	1.19	5.24	6.81	8.93	0.41	2.528	
11	3	119	104	94	0.8	9.6	22.4	15.8	21.3	2.36	3.75	0.36	1.21	5.39	6.96	9.44	0.38	2.858	
12	3	112	104	101	0.0	2.9	3.2	15.0	23.4	2.28	3.65	0.36	1.15	6.27	7.78	11.15	0.46	3.826	
13	3	120	104	96	2.5	6.7	14.3	15.8	25.7	2.35	4.09	0.36	1.22	6.66	8.25	10.56	0.58	2.885	
0	3	118	104	96	2.1	7.8	16.5	15.4	24.1	2.36	3.92	0.36	1.19	6.21	7.77	10.35	0.48	3.066	

TABLE 19-4B-III - Egg Quality Data

Entry No.	Type Housing	Loss % (Downgrades)	% Inclusion (Break-Out)		Candled Quality Percentages		Haugh Units		Shell Score (Specific Gravity)		Average										
			A	B	C	D	Eggs	Cracks	Chex and	Loss Eggs	January	February	March	June	July						
1	2	1.8	0.9	2.3	8.0	10.4	97.2	0.9	0.0	1.7	0.2	87.6	91.5	83.3	78.3	85.2	1.77	1.68	2.08	1.48	1.75
2	2	4.4	0.6	1.0	0.2	0.5	93.4	3.6	0.3	2.2	0.5	82.7	83.8	77.2	78.5	80.6	2.59	2.12	2.96	1.45	2.28
3	2	3.4	0.5	0.7	0.2	0.3	94.4	2.5	0.2	2.5	0.5	77.8	84.2	70.7	73.0	76.4	3.55	2.85	2.77	1.60	2.69
4	2	4.3	0.9	0.8	0.0	0.5	93.2	2.8	0.1	3.5	0.4	81.9	83.5	72.0	72.8	77.6	2.50	2.52	2.47	1.90	2.35
5	2	5.6	1.3	0.8	0.1	0.1	91.0	3.6	0.4	4.6	0.4	81.8	82.6	76.2	74.3	78.7	2.28	2.00	2.23	1.46	1.99
6	2	2.7	1.9	2.2	16.3	14.2	95.7	1.8	0.1	2.2	0.1	80.2	84.2	76.0	77.6	79.5	1.82	1.96	2.08	1.24	1.78
7	2	3.6	0.7	1.3	0.0	0.3	94.1	2.2	0.4	3.0	0.3	77.1	81.3	76.0	73.8	77.1	2.37	2.41	2.01	1.55	2.08
8	2	4.5	0.5	0.5	0.3	0.2	92.7	3.5	0.1	3.6	0.1	80.4	85.9	78.7	79.9	81.2	2.73	2.67	2.47	1.55	2.36
9	2	7.3	0.2	0.3	0.1	0.0	88.5	6.7	1.0	3.6	0.1	88.4	87.1	80.9	80.6	84.3	2.79	2.49	2.67	1.86	2.45
10	2	4.0	0.5	0.2	0.2	0.2	92.8	3.9	0.1	2.9	0.1	78.6	80.1	73.1	71.5	75.8	2.09	2.06	2.29	1.72	2.04
11	2	6.4	0.5	0.9	0.3	0.2	89.8	5.2	0.8	3.9	0.3	80.9	83.0	73.6	73.8	77.8	2.16	1.60	2.24	1.72	1.93
12	2	7.2	0.7	0.9	0.0	0.7	88.7	4.3	0.1	6.0	0.9	77.1	82.3	74.8	77.2	77.8	2.43	2.33	2.01	1.36	2.03
13	2	4.8	1.0	1.5	9.6	11.0	92.0	2.4	0.7	4.7	0.3	85.1	85.0	78.4	77.8	81.6	2.00	1.82	1.78	1.46	1.76
0	2	4.6	0.8	1.0	2.7	3.0	92.6	3.3	0.3	3.4	0.3	81.5	84.2	76.2	76.1	79.5	2.39	2.19	2.31	1.57	2.12

TABLE 19-4C-III - Egg Quality Data

Entry No.	Type Housing	% Inclusion (Break-Out)		Candled Quality Percentages		Haugh Units		Shell Score (Specific Gravity)													
		Loss % (Downgrades)		Large Bloods		Small Bloods		Large Meats		Small Meats											
		A or Better	B	C Quality	Chex and Cracks	Loss Eggs	October	January	March	June	Average	November	January	April	July	Average					
1	3	5.4	1.5	1.3	8.6	14.2	91.7	0.7	0.2	6.7	0.8	95.0	88.5	83.6	80.0	86.8	2.01	1.61	1.58	1.20	1.60
2	3	4.6	0.7	0.7	0.5	0.4	92.7	2.7	0.2	4.4	0.1	86.6	79.3	80.3	76.5	80.7	3.63	2.62	2.02	1.32	2.40
3	3	3.5	1.9	1.4	0.2	0.1	94.5	1.6	0.4	3.1	0.4	86.0	79.2	76.2	73.9	78.8	4.23	2.62	2.24	1.42	2.63
4	3	5.1	0.5	0.4	0.1	0.5	90.7	2.5	0.3	5.2	0.2	85.3	76.8	75.6	68.9	76.7	3.64	2.41	2.27	1.22	2.38
5	3	4.1	1.8	1.8	0.0	0.5	93.5	2.2	0.3	3.5	0.5	86.9	79.1	80.8	75.1	80.5	2.85	1.75	1.58	1.18	1.84
6	3	3.2	2.0	3.8	13.9	16.1	95.0	1.1	0.1	3.3	0.4	86.3	81.2	77.7	75.4	80.2	2.35	1.59	1.74	1.19	1.72
7	3	3.7	0.8	1.1	0.2	0.1	94.5	1.1	0.1	3.9	0.6	82.0	74.1	76.9	71.2	76.0	3.58	2.15	2.19	1.26	2.30
8	3	5.2	0.5	1.0	0.0	0.2	92.4	1.7	0.1	4.9	1.0	85.8	77.3	81.4	76.2	80.2	3.47	2.35	2.18	1.26	2.31
9	3	7.8	0.5	0.7	0.2	0.5	87.7	6.1	0.9	4.6	0.7	89.6	83.7	83.8	81.5	84.4	4.13	2.37	1.98	1.46	2.48
10	3	3.7	0.7	0.4	0.4	1.1	94.2	1.4	0.6	3.5	0.3	84.8	77.4	76.5	72.6	77.8	3.57	2.59	3.04	1.42	2.65
11	3	3.5	1.0	1.4	0.1	0.8	94.6	1.7	0.2	2.9	0.6	86.5	77.4	76.8	73.6	78.6	3.76	2.80	2.27	1.42	2.56
12	3	5.1	1.4	1.1	0.6	0.6	92.4	2.7	0.2	3.8	1.0	82.2	77.8	75.8	73.7	77.4	3.52	2.14	1.83	1.15	2.16
13	3	6.1	1.4	1.2	7.9	15.7	90.3	1.3	0.1	8.0	0.3	89.7	79.1	75.5	74.9	79.8	2.16	1.44	1.55	1.18	1.58
0	3	4.7	1.1	1.3	2.5	3.9	92.6	2.0	0.3	4.4	0.5	86.7	79.3	78.5	74.9	79.8	3.30	2.19	2.04	1.28	2.20

TABLE 19-4D-III - Egg Quality Data

TABLE 19-4A & B - IV - Causes of Mortality

TABLE 19-4C & D - IV - Causes of Mortality

Marek's	Type Housing No.	Lymphoid Leukosis		Other Causes		No Visible Lesions		No Necropsy Report		% Total Mortality		Accide- ntal Death						
		Gro.	Lay	Gro.	Lay	Gro.	Lay	Gro.	Lay	Gro.	Lay							
C 1	3	-	-	-	5.8	1.9	-	4.2	2.9	2.5	-	1.7	-	8.3	4.8			
2	3	-	-	-	2.9	1.0	-	0.9	3.8	0.9	-	0.9	-	2.6	10.6			
3	3	-	-	-	1.9	2.9	1.0	0.8	1.0	-	-	-	0.8	4.8	1.0			
4	3	-	-	-	-	-	-	0.9	1.9	-	-	0.9	0.9	1.8	8.7			
5	3	-	-	-	-	7.7	-	1.8	1.0	-	1.0	0.9	-	2.7	9.6			
6	3	-	-	-	-	-	2.9	-	1.7	1.0	-	-	-	1.7	3.8			
7	3	-	-	-	-	1.0	2.9	-	1.0	-	-	-	0.0	4.8	1.0			
8	3	-	-	-	-	1.0	1.0	-	1.0	-	-	1.0	0.0	4.8	1.0			
9	3	-	-	-	-	1.0	1.0	-	1.0	-	-	-	0.0	4.8	1.0			
10	3	-	-	-	-	1.9	4.8	-	0.8	2.8	2.6	3.8	-	3.4	13.3			
11	3	-	-	-	-	1.6	13.5	-	1.0	-	1.0	0.8	1.0	-	2.4	16.3		
12	3	-	-	-	-	-	6.7	-	0.8	1.9	-	1.0	-	0.8	9.6	1.0		
13	3	-	-	-	-	-	-	1.0	-	1.0	-	1.0	-	0.0	2.9	1.0		
AV 0	3	0.0	0.0	0.0	0.1	2.7	2.2	0.3	1.0	1.9	0.6	0.6	0.4	0.1	2.1	7.8	0.2	
D 1	0	-	-	-	-	1.2	0.2	1.4	2.1	0.8	1.7	0.9	-	3.1	7.0	3.3		
2	0	-	-	-	-	3.9	0.7	-	1.2	2.8	0.3	0.6	-	2.1	7.9	0.3		
3	0	-	-	-	-	3.0	0.8	-	0.8	0.9	0.8	0.4	-	1.7	5.1	1.1		
4	0	-	-	-	-	2.1	2.0	0.3	1.1	1.7	-	0.4	0.5	0.9	7.4	0.4		
5	0	-	-	-	-	0.2	4.7	3.0	-	0.6	2.0	0.6	0.7	-	2.1	10.6	0.9	
6	0	-	-	-	-	-	0.6	5.6	0.6	0.7	3.1	-	0.6	-	0.7	10.4	0.7	
7	0	-	-	-	-	-	1.9	2.8	1.4	0.5	2.2	-	0.3	-	0.5	8.6	0.2	
8	0	-	-	-	-	-	1.3	1.8	0.6	-	0.8	0.2	0.4	0.5	0.7	5.2	0.9	
9	0	-	-	-	-	-	1.7	2.4	-	0.4	1.1	0.9	1.7	0.3	-	1.6	7.0	0.9
10	0	-	-	-	-	0.8	10.7	1.5	0.3	0.7	1.9	0.3	0.8	0.2	0.2	1.9	15.4	1.0
11	0	-	-	-	-	-	1.1	3.0	0.3	0.4	3.0	-	1.3	0.5	0.9	9.7	0.7	
12	0	-	-	-	-	-	0.4	1.8	0.3	-	1.0	0.3	0.6	0.2	-	0.4	5.0	0.4
13	0	-	-	-	-	-	-	1.4	0.3	0.6	2.1	0.3	0.4	0.3	0.2	1.1	4.4	2.7
AV 0	0	0.0	0.0	0.0	0.1	2.5	2.2	0.3	0.6	1.9	0.3	0.8	0.4	0.2	0.2	1.4	8.0	0.9

TABLE 19-4D-V - Commercial Egg Gradeout

## 33 WEEKS OLD - NOVEMBER

## 46 WEEKS OLD - FEBRUARY

	% A Lg. & Over	% A Med. Sm.&P.W.	% Breaker	% Crax	% Farm Loss	% Other Loss		% A Lg. & Over	% A Med. Sm.&P.W.	% Breaker	% Crax	% Farm Loss	% Other Loss	
1	0	71.1	21.5	0.4	5.2	0.6	1.2	85.8	7.9	0.1	4.5	0.1	1.5	
2	0	61.3	29.8	1.5	5.0	0.8	1.7	82.1	11.0	1.0	4.1	0.2	1.7	
3	0	60.6	30.1	1.9	6.4	0.1	0.8	78.3	8.4	3.6	7.8	0	1.9	
4	0	60.3	30.2	2.1	4.4	0.8	2.3	80.5	6.7	2.7	8.3	0.1	1.7	
5	0	65.1	24.4	1.7	5.4	1.4	2.0	80.3	6.7	2.7	6.9	0.2	3.1	
6	0	73.2	18.9	0.6	4.4	0.6	2.2	90.1	3.0	0.3	4.8	0.1	1.8	
7	0	47.1	41.7	2.5	4.6	1.3	2.8	73.3	14.2	3.0	7.5	0.1	1.8	
8	0	78.6	12.2	1.9	5.4	0.8	1.0	82.5	3.3	2.1	9.9	0.2	2.0	
9	0	47.5	45.8	0.9	3.5	0.4	1.8	79.0	12.8	1.1	5.5	0.2	1.4	
10	0	43.4	47.8	0.9	4.9	0.6	2.4	76.7	10.8	1.4	8.3	0.2	2.6	
11	0	45.5	42.9	2.8	4.4	2.2	2.3	74.6	11.7	2.8	8.7	0	2.2	
12	0	57.3	33.1	1.7	5.3	1.4	1.2	78.0	10.9	1.4	7.5	0.2	2.0	
13	0	80.3	10.5	0.4	6.3	0.7	1.8	89.3	2.8	0.2	5.9	0.4	1.4	
0	0	60.9	29.9	1.5	5.0	0.9	1.8	80.8	8.5	1.7	6.9	0.2	1.9	
57 WEEKS OLD - MAY														
71 WEEKS OLD - JULY														
1	0	85.1	4.5	0.3	6.1	0.3	3.7	79.2	3.6	0.5	13.2	1.5	2.0	
2	0	82.8	5.9	2.0	5.8	0.4	3.2	69.6	3.5	2.4	13.0	3.8	7.8	
3	0	80.7	3.7	4.0	5.9	2.1	3.7	68.4	3.4	5.8	10.3	0.2	10.6	
4	0	77.0	2.8	4.1	6.8	0.8	8.5	62.8	1.7	5.9	19.0	2.3	8.3	
5	0	76.6	3.1	4.5	10.5	0.2	5.0	54.7	1.7	9.0	19.5	0.3	14.9	
6	0	88.3	0.9	0.8	6.9	0.4	2.7	77.8	1.4	0.6	14.2	0.2	5.8	
7	0	78.2	4.6	4.4	6.5	0.7	5.6	59.2	6.9	8.0	15.5	0.9	9.6	
8	0	82.3	1.9	2.3	8.0	0.8	4.7	42.0	18.5	9.5	19.7	1.1	9.2	
9	0	75.7	6.2	2.1	13.4	0.4	2.0	50.8	3.9	6.2	32.2	0.3	6.7	
10	0	77.2	4.8	2.0	6.3	5.7	4.0	63.2	4.4	5.0	17.3	0.3	9.8	
11	0	79.1	7.8	3.9	5.9	1.4	2.0	62.2	5.1	9.5	19.9	0.2	3.1	
12	0	79.0	4.6	3.4	11.0	0.3	1.9	61.7	5.3	4.2	22.5	0.3	6.0	
13	0	85.0	1.2	0.7	7.2	0.8	5.1	74.3	1.0	0.5	18.8	1.6	3.9	
0	0	80.5	4.0	2.7	7.7	1.1	4.0	63.5	4.6	5.2	18.1	1.0	7.5	

TABLE 19-4D-VI - Duncan Range Test and Range Groups

Range	En- try	Eggs Per Pullet Housed	Duncan Test	Range	En- try	% Pro- duction After 50%	Duncan Test	Range	En- try	Feed Per Lb. of Eggs	Duncan Test	Range	En- try	Days Lost	to Mor- tality	Duncan Test	
1	8	267.3		1	8	82.2		1	8	2.24		1	13	6.6			
1	12	264.9		1	2	80.3		1	9	2.29		1	12	8.3			
1	2	258.8		1	1	80.1		1	2	2.30		1	3	9.3			
2	3	257.1		2	12	79.0		2	12	2.31		1	8	10.3			
2	13	255.4		2	7	77.9		2	3	2.33		2	1	11.7			
2	1	253.5		2	13	77.7		2	11	2.33		2	4	14.4			
2	9	248.6		2	3	77.4		3	4	2.37		2	9	14.6			
3	7	245.3		3	9	75.9		3	13	2.41		3	2	15.0			
3	6	242.1		3	5	75.7		3	5	2.42		3	6	15.4			
3	4	241.3		3	4	75.5		3	7	2.42		3	11	16.0			
3	5	240.0		3	6	74.7		3	10	2.42		3	7	17.5			
4	11	227.7		4	10	71.7		4	6	2.46		3	5	22.1			
4	10	215.1		4	11	69.3		4	1	2.50		4	10	34.0			