AGRICULTURAL
EXTENSION
SERVICE

North Carolina State University
School of Agriculture and Life Sciences

Office of Extension Poultry Science
Scott Hall
Box 5307 Zip 27650
(919) 737-2621

October 8, 1979

I am enclosing the final summary of the Twentieth 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 a Report of Random Sample Egg Production Tests in the United States and Canada by the USDA. 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.

For this flock, three reps of each stock in each of a curtain-side and a closed house were phased-fed as with previous flocks. Another three reps of each stock in each house were fed to conform with a set of instructions by the breeder or distributor such as would be given to a customer or a field service supervisor who had the five feeds which we made available to choose among. [Chosen specifications of these formulae are listed elsewhere.] Feed consumption and egg production rate were calculated every 14 days and appropriate changes in choice of feed were made. All test birds were full-fed the ration assigned to them. In order to fit the program within the available budget, no birds of this flock were housed in the half slat-half litter pens.

All space not required for the laying test was utilized for detoe, cage shape, and crowding research in the closed house and for limited feed and detoe research in the curtain-side house. We express our appreciation to Chore Time Equipment, Inc., Swish Manufacturing Co., Hubbard Farms, Babcock Poultry Farm, Inc., Pilch-Hisex, Wallace Hatcheries, Inc., Shaver Poultry Breeding Farms, Ltd., DeKalb AgResearch, Inc., H & N, Inc., and/or their distributors for providing the equipment and extra hatching eggs that made this research possible. 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

GRADY A. MARTIN
Extension Poultry Specialist

FINAL SUMMARY REPORT
TWENTIETH NORTH CAROLINA RANDOM SAMPLE LAYING TEST
March 23, 1978 through August 1, 1979

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, P. O. Box 5307, 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 20-4A-I, II, III, and IV, 20-4C-I, II, III, and IV, and 20-4D-I, II, III, IV, V, and VI. Tables carrying the letters A and C in their numbers report performance data for birds housed @ 3 birds/12" X 16" cage in a light-and-air controlled house and housed @ 2 birds/10" X 18" cage in a curtain-side house, respectively. They are subdivided into sections for reps fed by breeder recommendations and for reps that were phased-fed as in prior tests. Tables carrying the letter D in their numbers report averages across the A and C tables. Due to the large number of items reported, each table is divided into parts I, II, etc. for the final report. These data are for one year at one location. The USDA publishes a Report of Random Sample Egg Production Tests in the United States and Canada which includes results from other location. Other stock comparisons are available from each of the other tests.

INFORMATION CONCERNING DATA REPORTED

Samples of 1080 freshly gathered hatching eggs were taken at selected supply flocks, or by 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. Three 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 112 birds each were grown in a closed (light-and-air controlled) house in 24" X 20" cages @ 21 sq. in./bird for 5 weeks and @ 64 sq. in./bird thereafter (73 and 24 birds/M^2). Starting mash was fed at a rate of 2.67 lbs. per bird and then growing mash was fed ad lib until housing at 147 days or 5% production.

At 147 days, six reps of 26 birds each (when available) were randomly selected from pullets of each stock in the open house and placed in a similar house with two birds per 10" X 18" cage @ 90 sq. in. per bird (17 birds/M^2). At the same time six reps of 30 birds each (when available) were randomly selected from pullets of each stock in the closed house and placed in a similar house with three birds per 12" X 16" cage @ 64 sq. in. per bird (24 birds/M^2). Three reps in each house were assigned to the breeder-specified feeding program and the other three were placed on the regular phased-feeding program.

All-mash starting, growing, and five laying rations were purchased on contract from a commercial feed manufacturer to conform with selected specifications shown elsewhere in the report. Feed consumption and rate of production were calculated every 14 days during the laying period for blocks of layers having the same shell color and in the same house to guide formula assignment for phased-feeding. Similar data for the three reps of each stock in each house were used in following the breeders feeding program.

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 and to Dr. Max Colwell, who was then a Professor in the Department of Veterinary Science at North Carolina State University, for supervising the administration of the vaccine. No mortality was attributable to Marek's during the growing or laying periods of this flock. All pullets were debeaked at between 6 and 10 days of age with touch-up at about 12 weeks for the few that needed it. All pullets were vaccinated for Newcastle at seven days (B1), four weeks (LaSota) and 16 weeks (LaSota) and for bronchitis at seven days and 16 weeks via water; vaccinated for pox via wing web at 12 weeks; and vaccinated for Avian encephalomyelitis at 16 weeks of age. The flock was monitored and remained negative for M.g. throughout the test, even though hatched and grown on the same farm with a positive adult flock. (The requirement for an M.g. clean supply source precluded some Category II stocks that might otherwise have been tested.)

We express our gratitude to Mr. Jim Arneson, Manager of the FCX egg processing plant at Charlotte, for providing a grading service by entry and making Part V of the tables possible.

RESULTS
Part I of Tables

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

Type Housing: 1 = 3-bird cages in closed house, 3 = 2-bird cages in open house, 0 = average to two 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 24 but less than 27 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 147 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 1978.

Values Per Pullet Housed. Weekly averages of Raleigh egg prices quoted by the Federal-State Market Service were adjusted to farm price and averaged over three years. Fowl prices in North Carolina for the week in which the test terminated were averaged over three years. Monthly feed prices quoted by the NCDA were averaged over three years and assumed to represent a 16% protein, 1288 Kcal./lb. feed. Prices of other feeds were adjusted up or down by an amount equal to the difference in ingredient prices at the middle of each quarter of the current year.

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, since the eggs were graded unwashed.

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.

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 both types of housing and feed 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.

TABLE 20-4A-I. Body Weight, Egg Size, Maturity and Production Rate

Entry No.	Type Housing	Breeder	Average Body Weight		% Egg Size, Distribution					Average Egg Wt. Oz./Doz.	Age at 50% Production	Egg Production Rate - %						Eggs Per Pullet Housed
			147 Days	497 Days	Pee Wee	Small	Medium	Large	Extra Large and Over			148-231 Days	232-315 Days	316-399 Days	400-497 Days	456-497 Days	After 50% Production	
		Phased Feed																
1	1	Hubbard (Gld. Comet)	3.1	4.8	0.4	1.7	13.8	37.7	46.3	25.9	168.7	70.6	85.4	73.6	65.4	62.4	77.4	244.1
2	1	Babcock (B-300V)	2.7	3.8	0.9	2.5	18.9	45.2	32.5	25.3	164.7	73.9	84.3	75.1	65.5	60.4	77.4	253.6
3	1	Babcock (B-380)	3.5	5.0	0.2	0.9	7.5	30.7	60.7	27.2	167.7	70.1	84.6	76.1	67.9	64.5	78.0	256.9
4	1	Euribrid (Hisex Wh.)	2.7	3.9	1.4	3.2	22.9	44.9	27.5	24.6	160.3	80.4	88.5	79.4	72.3	68.0	81.9	273.3
5	1	Tatum (T-100)	2.8	4.1	0.7	2.5	16.5	40.2	40.2	25.7	163.3	73.3	84.4	71.3	57.5	52.3	74.1	239.1
6	1	Hy Line (W-36)	2.8	3.8	0.9	4.6	22.3	43.6	28.6	24.9	173.0	61.3	84.3	74.7	63.2	59.4	75.7	210.6
7	1	Shaver (288)	2.8	4.0	0.2	0.9	9.0	33.3	56.6	26.6	163.7	76.3	92.8	82.9	67.1	58.5	82.3	268.3
8	1	DeKalb (XL Link)	2.7	3.8	0.6	2.0	20.3	42.0	35.1	25.3	166.3	75.4	91.2	82.2	71.6	67.6	83.4	270.9
9	1	DeKalb (Amber Link)	3.2	5.6	0.7	1.3	10.2	36.0	51.8	26.4	172.0	64.4	85.2	76.0	66.6	62.3	77.4	250.5
10	1	H & N ("Nick Chick")	2.7	3.8	0.6	1.5	18.3	44.9	34.7	25.2	162.0	76.7	87.4	77.0	65.5	60.3	78.7	265.4
0	1	Average	2.9	4.3	0.7	2.1	16.0	39.9	41.4	25.7	166.2	72.3	86.8	76.8	66.3	61.6	78.6	253.3
		Breeders Program Feed																
1	2	Hubbard (Gld. Comet)	3.1	4.8	0.3	1.2	13.5	35.2	49.9	26.2	168.0	70.5	83.5	73.6	63.3	61.3	76.1	243.8
2	2	Babcock (B-300V)	2.7	3.7	0.9	2.4	18.8	44.5	33.4	25.1	164.3	75.0	84.9	77.0	65.1	60.4	77.7	260.5
3	2	Babcock (B-380)	3.5	5.0	0.2	0.8	7.3	27.5	64.3	27.4	168.0	72.3	85.3	75.3	67.5	65.4	78.3	256.9
4	2	Euribrid (Hisex Wh.)	2.8	3.9	1.0	3.1	22.4	43.3	30.2	24.9	160.7	79.1	87.4	78.9	70.8	63.9	81.0	266.3
5	2	Tatum (T-100)	2.9	4.0	0.9	2.4	17.8	40.5	38.5	25.5	167.3	70.3	84.8	74.6	61.5	56.7	75.8	245.9
6	2	Hy Line (W-36)	2.7	3.9	0.6	4.1	23.2	43.5	28.6	25.0	174.7	62.4	83.1	73.4	59.7	53.4	74.6	214.4
7	2	Shaver (288)	2.8	4.2	0.5	1.0	10.4	34.8	53.4	26.3	164.7	76.0	89.7	80.4	64.7	56.0	80.9	258.3
8	2	DeKalb (XL Link)	2.8	3.8	0.5	1.6	16.5	44.8	36.6	25.2	166.0	73.6	91.1	81.3	64.6	56.2	80.5	259.6
9	2	DeKalb (Amber Link)	3.2	5.6	0.5	0.9	10.3	37.7	50.5	26.4	171.0	64.2	85.6	76.8	69.3	65.6	78.4	251.1
10	2	H & N ("Nick Chick")	2.7	3.7	0.9	2.5	21.1	43.9	31.6	25.1	163.7	73.9	83.5	73.2	66.8	62.5	76.9	251.4
0	2	Average	2.9	4.3	0.6	2.0	16.1	39.6	41.7	25.7	166.8	71.7	85.9	76.5	65.3	60.2	78.0	250.8

TABLE 20-4C-I. Body Weight, Egg Size, Maturity and Production Rate

Entry No.	Type Housing	Breeder	Average Body Weight		% Egg Size, Distribution					Average Egg Wt. Oz./Doz.	Age at 50% Production	Egg Production Rate - %						Eggs Per Pullet Housed
			147 Days	497 Days	Pee Wee	Small	Medium	Large	Extra Large and Over			148-231 Days	232-315 Days	316-399 Days	400-497 Days	456-497 Days	After 50% Production	
		Phased Feed																
1	3	Hubbard (Gld. Comet)	3.2	4.7	0.1	0.7	9.5	34.0	55.6	26.8	186.7	56.1	82.2	72.6	68.6	66.5	74.2	244.1
2	3	Babcock (B-300V)	2.7	3.9	0.7	1.2	11.4	41.3	45.4	26.0	168.0	63.9	84.1	74.3	69.5	69.6	75.5	247.5
3	3	Babcock (B-380)	3.6	5.0	0.2	0.3	6.1	19.1	74.2	28.5	171.7	63.7	86.8	77.7	70.3	67.2	78.8	257.0
4	3	Euribrid (Hisex Wh.)	2.8	3.6	1.4	2.9	20.4	45.5	29.7	25.0	154.7	77.4	84.9	78.6	74.6	70.6	78.8	273.3
5	3	Tatum (T-100)	3.1	4.1	0.3	1.6	14.3	38.9	44.8	26.0	166.3	70.2	79.9	71.6	70.2	69.1	75.5	249.2
6	3	Hy Line (W-36)	2.8	3.8	0.5	1.8	15.5	41.0	41.2	25.8	173.3	63.2	84.2	75.5	68.8	66.8	77.3	231.3
7	3	Shaver (288)	2.9	4.2	0.2	0.4	5.9	28.0	65.5	27.3	176.3	60.6	86.4	79.0	75.9	74.4	80.3	262.2
8	3	DeKalb (XL Link)	3.0	4.0	0.5	1.4	12.1	38.9	47.0	26.3	170.0	62.4	85.0	78.8	72.5	69.8	78.3	258.0
9	3	DeKalb (Amber Link)	3.1	5.2	0.1	0.3	3.1	25.6	70.9	27.6	210.0	37.7	84.0	78.4	76.3	74.6	78.9	238.1
10	3	H & N ("Nick Chick")	3.0	3.7	0.8	2.4	17.7	44.6	34.5	25.5	160.0	70.3	83.8	77.0	66.9	65.6	75.5	255.0
0	3	Average	3.0	4.2	0.5	1.3	11.6	35.7	50.9	26.5	173.7	62.6	84.1	76.3	71.4	69.4	77.3	251.6
		Breeder Program Feed																
1	4	Hubbard (Gld. Comet)	3.2	4.6	0.1	0.7	8.4	34.4	56.4	26.5	177.0	57.5	82.8	73.5	69.3	68.2	75.4	246.2
2	4	Babcock (B-300V)	2.7	3.7	3.0	0.9	13.9	41.7	40.5	25.3	165.7	65.3	82.5	72.7	70.7	70.7	74.8	252.2
3	4	Babcock (B-380)	3.5	5.1	0.1	0.5	5.7	19.5	74.2	28.2	174.0	63.5	86.4	77.3	70.4	68.3	79.1	257.8
4	4	Euribrid (Hisex Wh.)	2.9	4.0	0.9	3.0	19.5	41.7	34.9	25.2	152.3	79.0	83.5	75.1	73.8	73.3	77.4	266.2
5	4	Tatum (T-100)	3.0	4.4	0.4	1.7	14.0	38.7	45.2	26.4	164.3	69.2	77.9	71.2	64.0	62.6	72.5	242.5
6	4	Hy Line (W-36)	2.8	4.0	0.5	1.9	13.7	36.9	47.1	26.1	176.7	61.1	84.4	76.2	70.5	67.3	77.5	237.6
7	4	Shaver (288)	3.0	4.3	0.2	0.2	6.6	20.2	72.8	27.9	171.3	62.3	88.8	72.6	72.6	71.8	77.8	246.7
8	4	DeKalb (XL Link)	2.8	4.1	0.3	1.4	14.0	41.0	43.3	26.0	169.7	65.2	89.2	79.5	73.7	72.1	80.5	265.1
9	4	DeKalb (Amber Link)	3.2	5.2	0.1	0.5	4.0	30.0	65.3	27.4	199.3	38.1	85.3	75.9	76.0	76.1	78.4	241.9
10	4	H & N ("Nick Chick")	2.9	3.7	0.8	1.9	18.5	46.9	31.8	25.3	161.3	69.4	85.1	77.5	69.8	66.1	77.0	251.9
0	4	Average	3.0	4.3	0.6	1.3	11.8	35.1	51.2	26.4	171.2	63.1	84.6	75.2	71.1	69.7	77.1	250.8

TABLE 20-4D-I. Body Weight, Egg Size, Maturity and Production Rate

Entry No.	Type Housing	Breeder	Average Body Weight		% Egg Size, Distribution					Average Egg Wt. Oz./Doz.	Age at 50% Production	Egg Production Rate - %						Eggs Per Pullet Housed
			147 Days	497 Days	Pee Wee	Small	Medium	Large	Extra Large and Over			148-231 Days	232-315 Days	316-399 Days	400-497 Days	456-497 Days	After 50% Production	
		4 Treatment Means																
1	0	Hubbard (Gld. Comet)	3.1	4.8	0.2	1.1	11.3	35.3	52.0	26.4	175.1	63.7	83.5	73.3	66.6	64.6	75.8	244.5
2	0	Babcock (B-300V)	2.7	3.7	1.4	1.8	15.7	43.2	38.0	25.4	165.7	69.5	84.0	74.8	67.7	65.3	76.4	253.4
3	0	Babcock (B-380)	3.5	5.0	0.2	0.6	6.6	24.2	68.4	27.8	170.3	67.4	85.8	76.6	69.0	66.4	78.5	257.1
4	0	Euribrid (Hisex Wh.)	2.8	3.9	1.2	3.0	21.3	43.8	30.6	24.9	157.0	79.0	86.1	78.0	72.9	69.0	79.8	269.8
5	0	Tatum (T-100)	2.9	4.1	0.6	2.0	15.7	39.6	42.2	25.9	165.3	70.8	81.8	72.2	63.3	60.2	74.5	244.2
6	0	Hy Line (W-36)	2.8	3.9	0.6	3.1	18.7	41.2	36.4	25.4	174.4	62.0	84.0	75.0	65.6	61.7	76.3	223.5
7	0	Shaver (288)	2.9	4.2	0.3	0.6	8.0	29.0	62.1	27.0	169.0	68.8	89.4	78.7	70.1	65.2	80.3	258.9
8	0	DeKalb (XL Link)	2.8	3.9	0.5	1.6	15.8	41.7	40.5	25.7	168.0	69.1	89.1	80.5	70.6	66.4	80.7	263.4
9	0	DeKalb (Amber Link)	3.2	5.4	0.4	0.8	6.9	32.3	59.6	26.9	188.1	51.1	85.0	76.8	72.0	69.7	78.3	245.4
10	0	H & N ("Nick Chick")	2.8	3.7	0.8	2.1	18.9	45.1	33.2	25.3	161.7	72.6	84.9	76.2	67.3	63.6	77.0	255.9
0	0	Average	3.0	4.3	0.6	1.7	13.9	37.5	46.3	26.1	169.5	67.4	85.4	76.2	68.5	65.2	77.8	251.6

TABLE 20-4D-II. Birds, Mortality, Feed Use, and Cost and Income Data

Entry No.	Type Housing	Number of Birds: At One Week	Number of Birds: Housed	Number of Birds: At End of Test	Mortality: % 8-147 Days	Mortality: % 148-497 Days	Mortality: Ave. Days Lost/ Hen Housed	Feed Consumed: Per Bird 1-147 Days	Feed Consumed: Per 100 Birds (One Day)	Feed Consumed: Per Pound of Eggs	Feed Consumed: Per Dozen Eggs	Chick Price	Value Per Pullet Housed: Growing Feed Cost	Value Per Pullet Housed: Laying Feed Cost	Value Per Pullet Housed: Total Feed and Chick Cost	Value Per Pullet Housed: Value of Eggs	Value Per Pullet Housed: Value of Meat	IOFCC
4 Treatment Means																		
1	0	337	336	316	0.4	5.1	8.4	13.7	23.6	2.45	4.03	0.38	1.08	6.56	8.02	10.76	0.37	3.108
2	0	338	336	320	0.8	4.8	8.2	13.5	22.4	2.31	3.70	0.38	1.06	6.32	7.77	10.82	0.29	3.350
3	0	302	293	285	3.2	2.6	4.8	15.9	25.9	2.45	4.26	0.38	1.24	7.25	8.89	10.97	0.40	2.477
4	0	339	336	316	1.2	5.8	7.7	13.3	23.7	2.31	3.60	0.38	1.05	6.54	7.98	11.20	0.30	3.527
5	0	291	284	265	2.8	6.5	9.6	15.7	22.9	2.45	3.97	0.38	1.21	6.55	8.16	10.59	0.32	2.748
6	0	342	336	278	1.4	16.9	36.9	13.0	21.8	2.31	3.68	0.38	1.03	5.61	7.03	9.74	0.26	2.977
7	0	339	335	314	1.0	6.2	11.7	14.0	24.7	2.32	3.92	0.38	1.10	6.84	8.33	11.14	0.32	3.136
8	0	337	336	317	0.4	5.5	8.3	13.7	23.4	2.26	3.63	0.38	1.08	6.47	7.94	11.34	0.30	3.708
9	0	338	336	323	0.4	3.7	5.4	14.3	26.7	2.62	4.42	0.38	1.12	7.14	8.64	10.70	0.43	2.492
10	0	323	322	304	0.4	5.6	8.5	13.7	23.3	2.40	3.79	0.38	1.08	6.56	8.03	10.87	0.29	3.136
0	0	329	325	304	1.2	6.3	11.0	14.1	23.9	2.39	3.90	0.38	1.11	6.58	8.08	10.81	0.33	3.066

TABLE 20-4A-II. Birds, Mortality, Feed Use, and Cost and Income Data

Entry No.	Type Housing	Number Of Birds: At One Week	Housed	At End of Test	Mortality: % 8-147 Days	% 148-497 Days	Ave. Days Lost/ Hen Housed	Feed Consumed: Per Bird 1-147 Days	Per 100 Birds (One Day)	Per Pound of Eggs	Per Dozen Eggs	Chick Price	Value Per Pullet Housed: Growing Feed Cost	Laying Feed Cost	Total Feed And Chick Cost	Value of Eggs	Value of Meat	IOFCC
	Phased Feed																	
1	1	90	90	80	0.0	11.1	18.2	13.8	23.9	2.47	4.01	0.38	1.09	6.47	7.94	10.78	0.35	3.192
2	1	90	90	84	0.6	6.7	9.0	13.5	21.4	2.21	3.50	0.38	1.06	6.08	7.52	10.95	0.29	3.716
3	1	88	86	84	1.6	2.2	4.7	15.4	25.9	2.48	4.21	0.38	1.23	7.19	8.81	11.06	0.40	2.652
4	1	90	90	83	0.5	7.8	8.5	12.8	23.3	2.24	3.45	0.38	1.01	6.43	7.83	11.41	0.30	3.876
5	1	82	81	74	2.3	8.6	14.1	15.4	21.4	2.36	3.79	0.38	1.18	6.21	7.78	10.32	0.31	2.850
6	1	92	90	68	2.1	24.4	51.2	13.2	20.9	2.24	3.48	0.38	1.05	5.01	6.45	9.15	0.24	2.945
7	1	91	90	86	0.9	4.4	11.4	14.2	23.7	2.19	3.64	0.38	1.12	6.69	8.19	11.51	0.31	3.632
8	1	90	90	84	0.3	6.7	10.9	13.9	22.6	2.14	3.39	0.38	1.10	6.30	7.77	11.75	0.29	4.267
9	1	91	90	87	0.6	3.3	6.0	14.6	27.1	2.70	4.45	0.38	1.15	7.37	8.91	10.94	0.45	2.469
10	1	91	90	89	0.8	1.1	1.9	13.3	23.1	2.32	3.66	0.38	1.04	6.64	8.07	11.38	0.31	3.612
0	1	90	89	82	1.0	7.6	13.6	14.0	23.3	2.33	3.76	0.38	1.10	6.44	7.93	10.92	0.33	3.322
	Breeders Program Feed																	
1	2	90	90	83	0.0	5.6	13.2	13.8	24.2	2.44	4.00	0.38	1.09	6.56	8.02	10.72	0.37	3.057
2	2	90	90	88	0.3	2.2	3.1	13.6	21.7	2.24	3.52	0.38	1.07	6.33	7.78	11.13	0.30	3.642
3	2	82	81	77	2.0	4.9	6.9	15.5	25.7	2.36	4.05	0.38	1.23	6.91	8.53	10.96	0.38	2.814
4	2	90	90	83	0.3	7.8	12.2	13.2	24.3	2.33	3.62	0.38	1.04	6.53	7.95	11.13	0.30	3.476
5	2	85	84	78	1.1	7.0	10.6	14.9	22.2	2.34	3.74	0.38	1.16	6.29	7.83	10.67	0.31	3.146
6	2	93	90	73	2.4	18.9	40.6	12.9	20.8	2.31	3.60	0.38	1.03	5.39	6.81	9.38	0.26	2.831
7	2	90	90	81	0.9	10.0	16.2	14.2	24.1	2.30	3.78	0.38	1.12	6.55	8.05	11.19	0.31	3.452
8	2	90	90	83	0.3	7.8	13.4	14.2	22.5	2.24	3.54	0.38	1.12	6.23	7.73	11.19	0.29	3.755
9	2	90	90	82	0.3	8.9	9.9	14.6	26.8	2.62	4.32	0.38	1.15	7.10	8.62	10.93	0.42	2.722
10	2	90	90	82	0.9	8.9	11.2	13.2	22.6	2.33	3.66	0.38	1.04	6.26	7.69	10.69	0.28	3.286
0	2	89	89	81	0.8	8.2	13.7	14.0	23.5	2.35	3.78	0.38	1.10	6.41	7.90	10.80	0.32	3.218

TABLE 20-4C-II. Birds, Mortality, Feed Use, and Cost and Income Data

Entry No.	Type Housing	Number of Birds			Mortality			Feed Consumed				Chick Price	Value Per Pullet Housed					IOFCC
		At One Week	Housed	At End of Test	% 8-147 Days	% 148-497 Days	Ave. Days Lost/ Hen Housed	Per Bird 1-147 Days	Per 100 Birds (One Day)	Per Pound of Eggs	Per Dozen Eggs		Growing Feed Cost	Laying Feed Cost	Total Feed and Chick Cost	Value of Eggs	Value of Meat	
Phased Feed																		
1	3	78	78	76	0.6	2.6	0.4	13.5	23.8	2.47	4.13	0.38	1.06	6.65	8.10	10.64	0.38	2.924
2	3	79	78	75	1.1	3.8	10.0	13.4	23.5	2.40	3.91	0.38	1.06	6.49	7.94	10.52	0.31	2.889
3	3	65	63	62	4.6	1.5	4.7	16.5	26.3	2.48	4.42	0.38	1.25	7.52	9.18	10.91	0.41	2.138
4	3	80	78	76	2.1	2.6	2.9	13.6	23.6	2.32	3.63	0.38	1.08	6.60	8.07	11.37	0.29	3.597
5	3	61	59	56	4.0	5.1	8.3	16.2	25.0	2.59	4.21	0.38	1.26	7.03	8.69	10.75	0.32	2.383
6	3	78	78	66	0.6	15.4	31.9	12.9	23.0	2.39	3.85	0.38	1.01	5.99	7.39	10.09	0.26	2.962
7	3	79	77	75	1.1	2.6	2.7	13.8	25.7	2.40	4.10	0.38	1.08	7.22	8.69	11.27	0.34	2.916
8	3	78	78	75	016	3.8	3.9	13.4	23.8	2.33	3.83	0.38	1.06	6.65	8.09	11.05	0.31	3.276
9	3	78	78	76	0.0	2.6	5.9	13.9	26.5	2.55	4.41	0.38	1.09	6.94	8.41	10.33	0.42	2.343
10	3	71	71	67	0.0	5.6	6.5	14.1	23.7	2.47	3.94	0.38	1.11	6.73	8.22	10.70	0.29	2.772
0	3	75	74	70	1.5	4.6	7.7	14.1	24.5	2.44	4.04	0.38	1.11	6.78	8.28	10.76	0.33	2.820
Breeders Program Feed																		
1	4	79	78	77	1.1	1.3	1.9	13.7	22.4	2.40	3.98	0.38	1.07	6.56	8.02	10.90	0.38	3.259
2	4	79	78	73	1.1	6.4	10.6	13.4	22.9	2.39	3.86	0.38	1.06	6.38	7.83	10.70	0.28	3.152
3	4	67	63	62	4.6	1.7	2.9	16.0	25.6	2.49	4.38	0.38	1.25	7.39	9.04	10.94	0.41	2.304
4	4	79	78	74	1.8	5.1	7.4	13.7	23.8	2.35	3.72	0.38	1.08	6.59	8.06	10.90	0.32	3.160
5	4	63	60	57	4.0	5.1	5.5	16.2	23.1	2.50	4.12	0.38	1.26	6.69	8.34	10.62	0.34	2.618
6	4	79	78	71	0.6	9.0	23.9	12.9	22.7	2.32	3.79	0.38	1.01	6.07	7.47	10.34	0.30	3.169
7	4	79	78	72	1.1	7.7	16.6	13.8	25.5	2.39	4.17	0.38	1.08	6.90	8.27	10.59	0.33	2.543
8	4	79	78	75	0.6	3.8	4.9	13.4	24.9	2.32	3.76	0.38	1.06	6.71	8.15	11.36	0.32	3.534
9	4	79	78	78	0.6	0.0	0.0	13.9	26.4	2.62	4.49	0.38	1.09	7.14	8.61	10.61	0.43	2.424
10	4	71	71	66	0.0	6.9	14.5	14.1	23.9	2.48	3.93	0.38	1.11	6.62	8.13	10.72	0.38	2.875
0	4	75	74	70	1.6	4.7	8.8	14.1	24.1	2.43	4.02	0.38	1.11	6.70	8.20	10.77	0.34	2.904

TABLE 20-4A-III. Egg Quality Data

Entry No.	Type Housing	Loss % (Downgrades)	% Inclusion (Break-Out)				Candled Quality Percentages					Haugh Units					Shell Score (Specific Gravity)				
			Large Bloods	Small Bloods	Large Meats	Small Meats	A or Better	B	C Quality	Chex and Cracks	Loss Eggs	October	December	March	June	Average	October	January	April	July	Average
		Phased Feed																			
1	1	2.5	2.8	1.8	17.4	16.3	95.4	2.2	0.0	1.9	0.5	83.0	76.5	71.6	72.6	75.9	2.34	2.46	1.60	1.51	1.98
2	1	3.2	0.9	0.5	0.1	0.5	94.1	3.6	0.4	1.2	0.8	84.0	75.9	75.5	72.8	77.0	3.40	3.75	2.91	1.57	2.91
3	1	5.6	2.3	2.0	11.8	10.5	89.6	2.9	0.0	6.4	1.1	88.3	79.2	75.5	73.7	79.2	1.52	1.63	1.31	1.24	1.42
4	1	5.4	0.3	1.6	0.3	0.8	89.4	6.5	0.5	2.8	0.8	82.2	76.8	73.0	70.9	75.7	2.70	2.66	1.72	1.55	2.16
5	1	4.1	2.0	1.3	0.2	0.2	91.5	4.3	0.3	3.3	0.6	87.5	75.9	78.7	73.9	79.0	2.23	2.52	1.57	1.49	1.95
6	1	2.4	1.1	1.3	0.0	0.2	95.1	3.3	0.0	1.4	0.2	83.4	74.7	68.4	67.3	73.5	2.52	3.34	2.14	1.95	2.49
7	1	6.0	1.0	1.0	0.5	0.0	88.9	5.1	0.6	4.3	1.3	84.3	77.8	73.0	72.6	65.9	2.59	2.90	1.94	1.46	2.22
8	1	3.2	0.7	0.3	0.3	0.1	93.5	3.1	0.0	3.0	0.3	86.2	77.9	72.9	70.6	76.9	2.49	3.19	2.08	1.77	2.38
9	1	3.7	3.3	1.9	12.8	7.5	93.4	2.2	0.0	3.4	1.0	88.6	80.6	79.5	76.3	81.3	1.55	2.08	1.44	1.19	1.57
10	1	4.8	0.7	0.7	0.7	0.3	90.5	6.5	0.7	1.8	0.5	85.4	80.0	74.8	71.9	78.0	3.12	3.64	2.50	2.19	2.86
0	1	4.1	1.5	1.2	4.4	3.6	92.1	4.0	0.2	3.0	0.7	85.3	77.5	74.3	72.3	77.3	2.44	2.82	1.92	1.59	2.19
		Breeders Program Feed																			
1	2	3.1	3.4	2.2	14.1	13.9	94.0	2.5	0.1	2.9	0.5	86.7	76.2	72.1	72.7	76.9	1.84	2.35	1.58	1.53	1.82
2	2	4.3	0.9	0.3	0.3	0.3	92.3	4.4	0.5	2.1	0.8	83.3	75.3	71.7	69.7	75.0	3.72	4.01	2.82	2.27	3.21
3	2	6.6	2.2	1.7	10.7	14.1	88.2	3.8	0.3	5.9	1.9	90.0	82.4	75.1	74.4	80.5	1.65	1.67	1.27	1.34	1.48
4	2	5.6	1.4	1.2	0.9	1.4	89.6	4.9	0.9	3.4	1.2	84.1	75.9	70.8	71.1	75.5	2.73	2.76	1.97	2.04	2.37
5	2	3.1	1.6	0.7	0.3	0.6	94.2	2.9	0.1	2.1	0.6	85.5	78.3	77.3	73.4	78.6	2.20	2.40	1.61	1.49	1.92
6	2	2.0	1.2	1.2	0.9	0.2	95.7	2.4	0.1	1.8	0.0	85.6	74.3	68.2	62.8	72.7	2.78	3.06	2.09	1.30	2.31
7	2	4.8	1.1	1.5	0.4	0.5	90.9	3.5	0.5	4.6	0.6	86.3	78.1	71.2	71.4	76.7	2.69	2.99	2.03	1.54	2.31
8	2	4.4	0.7	1.6	0.0	0.0	90.9	4.4	0.0	4.4	0.2	83.6	77.5	72.6	71.0	76.2	2.99	3.11	1.85	1.53	2.37
9	2	4.2	2.9	2.9	11.8	7.9	92.8	1.3	0.0	4.5	1.2	89.1	80.4	76.7	70.8	79.2	1.60	2.05	1.30	1.31	1.57
10	2	4.5	0.6	0.1	0.1	0.1	90.9	6.3	0.7	1.8	0.3	86.3	80.4	72.7	73.8	78.3	3.29	3.70	2.86	2.12	2.99
0	2	4.3	1.6	1.3	3.9	3.9	91.9	3.7	0.3	3.4	0.7	86.1	77.9	72.8	71.1	77.0	2.55	2.81	1.94	1.65	2.24

TABLE 20-4C-III. Egg Quality Data

Entry No.	Type Housing	Loss % (Downgrades)	% Inclusion (Break-Out)				Candled Quality Percentages					Haugh Units					Shell Score (Specific Gravity)				
			Large Bloods	Small Bloods	Large Meats	Small Meats	A or Better	B	C Quality	Chex and Cracks	Loss Eggs	October	December	March	June	Average	October	January	April	July	Average
		Phased Feed																			
1	3	4.1	1.4	1.1	18.9	13.4	92.0	2.1	0.3	5.1	0.4	82.6	74.0	72.9	72.9	75.6	3.06	2.69	2.34	1.98	2.52
2	3	5.9	1.1	0.6	0.3	0.3	90.3	4.5	0.5	2.8	1.9	78.6	74.6	69.1	72.5	73.7	4.05	4.02	3.10	2.21	3.34
3	3	7.2	0.9	1.7	11.2	10.7	88.2	2.4	0.4	6.5	2.6	83.4	78.0	75.8	73.4	77.7	1.96	1.64	1.37	1.18	1.54
4	3	5.6	1.0	0.4	0.5	0.3	89.3	4.3	1.5	4.3	0.7	78.9	74.0	69.8	73.8	74.1	3.56	3.47	2.48	1.70	2.80
5	3	4.2	2.9	2.4	1.2	0.8	92.0	3.5	0.2	3.9	0.4	81.0	77.8	70.5	70.6	75.0	2.93	2.97	2.21	1.53	2.41
6	3	3.3	1.4	0.3	0.3	0.3	94.1	2.6	0.2	2.6	0.6	76.0	67.6	66.3	61.5	67.8	3.59	3.64	2.72	2.08	3.01
7	3	5.8	1.4	1.1	0.4	0.7	89.3	4.4	0.6	4.8	0.9	82.4	76.7	74.2	72.9	76.5	3.45	3.40	2.59	1.80	2.81
8	3	4.9	1.3	0.7	0.1	0.1	90.9	2.8	0.7	4.9	0.7	82.6	75.1	72.3	70.6	75.1	3.44	3.97	2.62	1.94	2.99
9	3	5.1	1.3	2.0	11.4	10.6	91.0	1.4	0.0	6.4	1.2	87.4	82.7	78.2	79.4	81.9	2.22	2.16	1.58	1.71	1.92
10	3	6.0	1.0	1.0	0.0	0.3	88.0	5.7	1.0	4.8	0.5	82.6	78.2	73.6	73.9	77.1	3.50	3.92	2.78	2.39	3.15
0	3	5.2	1.4	1.1	4.5	3.8	90.5	3.4	0.5	4.6	1.0	81.5	75.9	72.3	72.1	75.5	3.18	3.19	2.38	1.85	2.65
		Breeders Program Feed																			
1	4	2.8	2.1	2.4	17.9	13.5	94.5	1.7	0.0	3.3	0.5	81.1	73.7	70.7	70.6	74.0	2.62	2.76	2.26	1.79	2.36
2	4	3.8	1.5	1.1	1.5	0.6	93.1	2.9	0.2	2.9	1.0	79.1	72.5	69.5	73.0	73.5	4.07	4.21	3.44	2.21	3.48
3	4	7.2	1.4	0.7	11.6	7.7	87.5	2.1	0.3	8.5	1.7	84.1	77.1	73.7	74.1	77.3	1.87	1.83	1.49	1.40	1.65
4	4	7.5	0.8	0.6	0.3	0.6	85.3	6.6	1.1	6.1	0.9	76.8	72.6	73.4	72.4	73.8	3.57	3.06	2.32	1.65	2.65
5	4	2.8	2.0	1.0	0.9	0.4	94.7	1.8	0.4	2.7	0.4	82.5	74.9	74.8	73.3	76.4	3.05	2.91	2.06	1.69	2.43
6	4	3.4	1.4	1.2	0.5	0.5	93.4	3.0	0.0	3.3	0.3	77.6	71.6	68.7	67,0	71.2	3.30	3.79	2.97	2.12	3.04
7	4	6.3	1.5	0.3	0.2	0.8	88.5	3.3	0.3	6.8	1.1	80.5	77.8	79.7	75.1	78.3	3.39	3.37	2.37	1.89	2.75
8	4	5.1	1.1	0.4	0.1	0.6	90.6	3.1	0.8	4.5	1.0	78.1	76.3	74.6	72.4	75.4	3.30	3.61	2.66	2.20	2.94
9	4	4.0	1.4	0.7	11.1	10.4	92.2	1.6	0.0	5.9	0.3	88.5	84.5	80.2	79.6	83.2	1.93	2.49	1.46	1.44	1.83
10	4	4.7	1.0	0.8	1.3	1.3	91.5	3.3	0.7	3.8	0.8	78.7	76.1	74.8	74.4	76.0	3.36	3.68	3.71	2.40	3.29
0	4	4.8	1.4	0.9	4.5	3 6	91.1	2.9	0.4	4.8	0.8	80.7	75.7	74.0	73.2	75.9	3.05	3.17	2.47	1.88	2.64

TABLE 20-4A&D-IV. . Causes of Mortality-Laying Period

Entry No.	Type Housing	Lymphoid Leukosis	Repro-ductive Disorders	Other Causes	No Visible Lesions	No Necropsy Report	% Total Mortality
			Phased Feed				
1	1	-	4.4	5.6	1.1	-	11.1
2	1	1.1	1.1	4.4	-	-	6.7
3	1	-	2.2	-	-	-	2.2
4	1	-	1.1	4.4	1.1	1.1	7.8
5	1	1.2	1.2	4.9	1.2	-	8.6
6	1	15.6	1.1	5.6	2.2	-	24.4
7	1	-	2.2	2.2	-	-	4.4
8	1	2.2	3.3	1.1	-	-	6.7
9	1	1.1	-	1.1	1.1	-	3.3
10	1	-	-	-	1.1	-	1.1
AV	1	2.1	1.7	2.9	0.8	0.1	7.6
			Breeder Program Feed				
1	2	1.1	2.2	3.3	-	1.1	7.8
2	2	-	-	2.2	-	-	2.2
3	2	1.2	1.2	1.2	1.2	-	4.9
4	2	-	2.2	4.4	-	1.1	7.8
5	2	1.1	-	5.9	-	-	7.0
6	2	12.2	1.1	4.4	-	1.1	18.9
7	2	-	2.2	3.3	3.3	1.1	10.0
8	2	1.1	3.3	2.2	1.1	-	7.8
9	2	-	2.2	4.4	2.2	-	8.9
10	2	-	2.2	4.4	2.2	-	8.9
AV	2	1.7	1.7	3.6	1.0	0.4	8.4
			4 Treatment Means				
1	0	0.3	2.0	2.9	0.3	0.3	5.7
2	0	1.6	0.6	2.0	0.6	-	4.8
3	0	0.3	0.9	0.7	0.7	-	2.6
4	0	0.6	1.5	2.5	0.6	0.6	5.8
5	0	1.0	0.7	4.0	0.7	-	6.5
6	0	11.1	1.2	3.1	1.2	0.3	16.9
7	0	0.6	2.4	1.4	1.2	0.6	6.2
8	0	1.2	2.3	1.2	0.9	-	5.5
9	0	0.3	1.2	1.4	0.8	-	3.7
10	0	0.7	1.2	2.2	1.5	-	5.6
AV	0	1.8	1.4	2.1	0.9	0.2	6.3

TABLE 20-4C-IV. Causes of Mortality-Laying Period

Entry No.	Type Housing	Lymphoid Leukosis	Repro-ductive Disorders	Other Causes	No Visible Lesions	No Necropsy Report	% Total Mortality
			Phased Feed				
1	3	-	1.3	1.3	-	-	2.6
2	3	2.6	-	-	1.3	-	3.8
3	3	-	-	1.5	-	-	1.5
4	3	1.3	-	-	1.3	-	2.6
5	3	-	-	5.1	-	-	5.1
6	3	10.3	1.3	2.6	1.3	-	15.4
7	3	-	1.3	-	-	1.3	2.6
8	3	1.3	2.6	-	-	-	3.8
9	3	-	2.6	-	-	-	2.6
10	3	-	2.7	2.9	-	-	5.6
AV	3	1.6	1.2	1.3	0.4	0.1	4.6
			Breeder Program Feed				
1	4	-	-	1.3	-	-	1.3
2	4	2.6	1.3	1.3	1.3	-	6.4
3	4	-	-	-	1.7	-	1.7
4	4	1.3	2.6	1.3	-	-	5.1
5	4	1.7	1.8	-	1.7	-	5.1
6	4	6.4	1.3	-	1.3	-	9.0
7	4	2.6	3.8	-	1.3	-	7.7
8	4	-	-	1.3	2.6	-	3.8
9	4	-	-	-	-	-	0.0
10	4	2.7	-	1.3	2.6	-	6.6
AV	4	1.7	1.1	0.6	1.2	0.0	4.7

TABLE 20-4A,C,&D-IV. Causes of Mortality-Growing Period

Entry No.	Type Housing	Lymphoid Leukosis	Repro-ductive Disorders	Other Causes	No Visible Lesions	No Necropsy Report	% Total Mortality
1	1 & 2	-	-	-	-	-	0.0
2	"	-	-	0.2	0.2	-	0.4
3	"	-	-	1.8	-	-	1.8
4	"	-	0.1	0.3	0.1	-	0.5
5	"	0.6	-	0.6	-	0.6	1.8
6	"	0.5	-	0.5	0.4	0.3	1.7
7	"	-	-	0.2	0.4	0.2	0.7
8	"	-	-	-	0.2	-	0.2
9	"	-	-	0.4	-	-	0.4
10	"	-	-	0.3	0.3	0.3	0.8
AV	"	0.1	0.0	0.4	0.2	0.1	0.8
1	3 & 4	-	-	0.3	0.7	0.3	1.3
2	"	-	-	-	0.6	0.6	1.1
3	"	-	-	2.3	-	2.3	4.5
4	"	-	-	1.2	-	-	1.2
5	"	-	-	0.8	-	3.2	4.0
6	"	0.3	-	0.3	-	-	0.6
7	"	-	-	1.1	-	-	1.1
8	"	-	-	-	0.6	-	0.6
9	"	-	-	-	-	0.3	0.3
10	"	-	-	-	-	-	0.0
AV	"	0.0	-	0.6	0.2	0.7	1.5
1	0	-	-	0.2	0.3	0.2	0.7
2	0	-	-	0.1	0.4	0.3	0.7
3	0	-	-	2.0	-	1.1	3.2
4	0	-	0.1	0.7	0.1	-	0.9
5	0	0.3	-	0.7	-	1.9	2.9
6	0	0.4	-	0.4	0.2	0.1	1.1
7	0	-	-	0.6	0.2	0.1	0.9
8	0	-	-	-	0.4	-	0.4
9	0	-	-	0.2	-	0.2	0.4
10	0	-	-	0.1	0.1	0.1	0.4
AV	0	0.1	0.0	0.5	0.2	0.4	1.2

TABLE 20-4D-V. Commercial Egg Gradeout

Entry No.	Type Housing	% A Large & Over	% A Medium	& A Small & Pee Wee	% Breaker (Sound)	% Crax (Breaker)	% Farm Loss	% Other Loss
			January - 44 Weeks Old					
1	0	86.7	6.3	-	0.2	3.3	0.5	3.0
2	0	76.0	15.0	0.1	1.0	2.3	1.9	3.7
3	0	83.9	1.4	-	0.1	9.4	1.9	3.3
4	0	74.3	16.7	0.2	0.9	4.7	0.5	2.7
5	0	81.0	12.5	-	0.6	3.6	0.4	1.9
6	0	73.9	20.7	0.4	0.8	2.6	0.2	1.4
7	0	85.6	4.6	-	0.9	6.4	0.3	2.2
8	0	74.6	16.9	0.2	0.7	4.1	1.9	1.6
9	0	90.0	0.1	-	0.1	4.7	2.2	3.0
10	0	74.9	17.2	0.1	0.5	4.0	1.4	1.9
AV	0	80.1	11.1	0.1	0.6	4.5	1.1	2.4
			April - 56 Weeks Old					
1	0	85.4	3.4	0.1	1.0	6.7	2.5	0.9
2	0	81.6	7.9	0.9	0.0	5.3	1.9	3.3
3	0	80.8	1.0	-	1.1	8.2	3.9	5.0
4	0	73.6	14.1	0.1	5.5	2.6	1.9	2.2
5	0	82.2	4.7	-	2.4	4.6	4.2	2.0
6	0	69.8	17.4	-	3.2	3.0	1.1	5.6
7	0	82.6	1.5	-	6.7	3.6	2.0	3.5
8	0	75.5	9.1	-	3.7	4.8	3.0	3.9
9	0	82.9	4.2	-	1.0	3.7	3.1	5.0
10	0	77.1	12.0	0.3	1.9	4.9	0.4	3.5
AV	0	79.2	7.5	0.1	2.6	4.7	2.4	3.5
			July - 69 Weeks Old					
1	0	82.4	3.8	0.0	0.9	7.5	1.2	4.0
2	0	73.8	4.9	0.1	5.0	4.2	4.3	7.6
3	0	73.8	0.6	-	0.3	10.4	4.2	10.6
4	0	64.2	11.6	0.2	4.6	10.2	3.6	5.6
5	0	77.3	5.0	0.3	3.2	6.3	2.1	5.8
6	0	77.8	4.5	0.0	5.1	7.7	3.6	1.3
7	0	75.0	1.8	-	4.4	13.1	1.0	4.8
8	0	73.1	5.8	0.0	2.8	10.7	3.4	4.2
9	0	79.7	3.3	-	0.5	8.2	2.2	6.0
10	0	73.3	8.1	0.4	2.7	6.8	2.0	6.7
AV	0	75.0	4.9	0.1	3.0	8.5	2.8	5.7

TABLE 20-4D-III. Egg Quality Data

Entry No.	Type Housing	Loss % (Downgrades)	% Inclusion (Break-Out)				Candled Quality Percentages					Haugh Units					Shell Score (Specific Gravity)				
			Large Bloods	Small Bloods	Large Meats	Small Meats	A or Better	B	C Quality	Chex and Cracks	Loss Eggs	October	December	March	June	Average	October	January	April	July	Average
		4 Treatment Means																			
1	0	3.1	2.4	1.9	17.1	14.3	94.0	2.1	0.1	3.3	0.5	83.3	75.1	71.8	72.2	75.6	2.46	2.57	1.95	1.70	2.17
2	0	4.3	1.1	0.6	0.7	0.4	92.4	3.8	0.4	2.3	1.1	81.3	74.6	71.4	72.0	74.8	3.81	4.00	3.07	2.06	3.23
3	0	6.7	1.7	1.5	11.3	10.7	88.3	2.8	0.2	6.8	1.8	86.4	79.2	75.0	73.9	78.6	1.75	1.69	1.36	1.29	1.52
4	0	6.0	0.9	0.9	0.5	0.8	88.4	5.6	1.0	4.2	0.9	80.5	74.8	71.7	72.0	74.8	3.14	2.99	2.12	1.73	2.50
5	0	3.6	2.1	1.3	0.6	0.5	93.1	3.1	0.2	3.0	0.5	84.1	76.7	75.3	72.8	77.2	2.60	2.70	1.86	1.55	2.18
6	0	2.8	1.3	1.0	0.4	0.3	94.6	2.8	0.1	2.3	0.3	80.7	72.1	67.9	64.7	71.3	3.05	3.46	2.48	1.86	2.71
7	0	5.7	1.2	1.0	0.4	0.5	89.4	4.1	0.5	5.1	1.0	83.4	77.6	74.5	73.0	77.1	3.03	3.16	2.23	1.67	2.52
8	0	4.4	1.0	0.8	0.1	0.2	91.5	3.4	0.4	4.2	0.6	82.6	76.7	73.1	71.2	75.9	3.05	3.47	2.30	1.86	2.67
9	0	4.2	2.2	1.9	11.8	9.1	92.4	1.6	0.0	5.1	0.9	88.4	82.1	78.6	76.5	81.4	1.83	2.20	1.44	1.41	1.72
10	0	5.0	0.8	0.7	0.5	0.5	90.2	5.5	0.8	3.0	0.5	83.2	78.7	74.0	73.5	77.3	3.32	3.74	2.96	2.28	3.07
0	0	4.6	1.5	1.2	4.3	3.7	91.4	3.5	0.4	3.9	0.8	83.4	76.8	73.3	72.2	75.4	2.80	3.00	2.18	1.74	2.43

TABLE 20-4D-VI. Duncan Range Test and Range Groups

Range	Entry	Eggs Per Pullet Housed	Duncan Test	Range	Entry	% Production After 50%	Duncan Test	Range	Entry	Feed Per Lb. of Eggs	Duncan Test	Range	Entry	Days Lost to Mortality	Duncan Test
1	4	269.8		1	8	80.7		1	8	2.26		1	3	4.8	
1	8	263.4		1	7	80.3		1	4	2.31		1	9	5.4	
2	7	258.9		1	4	79.8		1	2	2.31		1	4	7.7	
2	3	257.1		2	3	78.5		1	6	2.31		2	2	8.2	
2	10	255.9		2	9	78.3		1	7	2.32		2	8	8.3	
2	2	253.4		Mean		77.7		Mean		2.39		2	1	8.4	
Mean		251.6		3	10	77.0		3	10	2.40		2	10	8.5	
3	9	245.4		3	2	76.4		3	1	2.45		2	5	9.6	
3	1	244.5		3	6	76.3		3	5	2.45		Mean		11.0	
3	5	244.2		4	1	75.8		3	3	2.45		3	7	11.7	
4	6	223.5		4	5	74.5		4	9	2.62		4	6	36.9	

SOME SPECIFICATIONS OF FEEDS USED

	Feed Designation						
	Start	Grow	Lay-TA	Lay-TB	Lay-TC	Lay-TD	Lay-TE
Met. Energy, Kcal./lb.	1328	1325	1275	1285	1315	1325	1285
Protein, %	20.8	14.8	20.5	18.0	16.0	15.0	16.0
Lysine, %	1.10	0.65	1.04	0.90	0.75	0.68	0.78
Methionine, %	0.34	0.26	0.43	0.37	0.38	0.32	0.37
TSAA, %	0.66	0.50	0.74	0.65	0.63	0.55	0.62
Total Phosphorus, %	0.54	0.55	0.70	0.68	0.64	0.61	0.66
Avail. Phos., %	0.38	0.37	0.50	0.48	0.46	0.43	0.46
Calcium, %	0.62	0.59	3.60	3.55	3.55	3.74	3.55
Fat, %	3.13	3.52	3.40	3.10	3.50	3.50	3.00

Breeder	Stock Identification	Entry Category	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
DeKalb AgResearch, Inc. Sycamore Road DeKalb, IL 60115	DeKalb XL-Link WL 4wSX	I-A YES	Clay's Hatchery Route 1 Blackstone, VA 23824
DeKalb AgResearch, Inc. Sycamore Road DeKalb, IL 60115	DeKalb Amber-Link RIRxSYN BX	I-A YES	Hillcrest Hatcheries Route 2, Box 163 Bogart, GA 30622
Euribrid B.U. Entry by Pilch-Hisex, Box 438 Troutman, NC 28677	Hisex White WL 4wSX	I-A YES	Grassy Knoll Hatchery P. O. Box 6036 Charlottesville, VA 22906
H & N, Inc. 15305 N.E. 40th St. Redmond, WA 98052	H & N "Nick Chick" WL 4wSX	I-A YES	Walter Wheelock Hatchery Route 8 Chambersburg, PA 17201
Hubbard Farms, Inc. Walpole, NH 03608	Hubbard Golden Comet NHxSYN BX	I-A YES	Bowers Brothers Hatchery Albemarle, NC 28001
Hy-Line International 1206 Mulberry Des Moines, IA	Hy-Line W-36 INX	I-C NO	Not Applicable
Shaver Poultry Breeding Farms, Ltd. Box 400 Galt, Cambridge Ontario, CANADA N1R 5W6	Starcross 288 WL SX	I-A YES	Delta Hatcheries P. O. Box 769 Lake City, FL 32055
Tatum Farms Route 3 Dawsonville, GA 30534	Tatum T-100 WL SX	II YES	Tatum Farms Route 3 Dawsonville, GA 30534