



AGRICULTURAL
EXTENSION
SERVICE

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I am enclosing the final summary of the Twenty-Fourth North Carolina Layer Production and Management Test which you have requested. We believe that the information contained herein is a useful guide in evaluating egg production stocks and management systems. Additional useful data on some of these stocks under other management systems are published in reports of laying tests in New Hampshire, USA, and Ontario, 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.

As noted in progress reports, budget limitations made it necessary to leave the high-rise laying house vacant for this flock. Sample size was retained by reducing the number of entries from 12 to 8 and placing 6 reps in each of the two remaining laying houses. Pullets housed in the light and air controlled house were grown in a similar house and those housed in the curtain-side flush-waste house were grown in a curtain-side house. Approximately two-thirds of the facility was utilized for research on stress physiology, growing cage space, pullet nutrition, and growing vs laying house type interaction. Data from these trials will be reported elsewhere. We express our gratitude to DeKalb AgResearch, Inc., Shaver Poultry Breeding Farms, Ltd., Euribrid B.U., their distributors, and other helpful individuals for providing hatching eggs for the research flock.

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

Very truly yours,

Grady A. Martin
Extension Poultry Specialist

FINAL SUMMARY REPORT
TWENTY-FOURTH NORTH CAROLINA LAYER PERFORMANCE AND MANAGEMENT TEST
March 31, 1982 through August 9, 1983

The North Carolina Layer Performance and Management 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, NC 28144, is Resident Manager of the tests and Dr. G. A. Martin, Department of Poultry Science, North Carolina State University, P.O. Box 7608, Raleigh, NC 27695-7608, is Project Leader. Mr. B. N. Ayscue is Superintendent of the Piedmont Research Station near Salisbury, North Carolina on which the flock is maintained. The purpose of the project is to assist commercial poultrymen in evaluating laying stocks and management systems for them. A committee representing various poultry interests in the state advises the Steering Committee in establishing policies and practices which best serve this purpose.

FLOCK AND MANAGEMENT INFORMATION

The flock was composed of 5 white-egg and 3 brown-egg strains of commercial layers. Samples of 1260 fresh hatching eggs from selected supply flocks of cooperating breeders or distributors were shipped to the test site where all eggs were incubated. When available, 480 sexed pullet chicks were banded and divided equally between the LAC (light and air controlled) house and the CSG (curtain-side growing) house to be grown in cages at 48 sq. in. per bird (32.3 birds/M^2). All birds were vaccinated at day-old for Marek's with cell associated live turkey herpes virus vaccine. We express our appreciation to Mr. Ben Rood, Keenum, Inc., P.O. Box 1706, Anniston, AL for providing this vaccine and to Mr. Mike Williams in the Department of Poultry Science at NCSU for supervising the storage and administration of the vaccine.

Precision beak trimming of all pullets at one week of age, with touch up at 12 weeks of age if needed, was applied. All pullets were vaccinated for Newcastle at seven days (B1), four weeks (La Sota) and 16 weeks (La Sota) 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 14 weeks of age. The flock was M.G. negative. All mash rations described by sample specifications in Table 24-F were purchased on contract from a commercial feed manufacturer and fed ad lib. Approximately 2.25 lbs. per bird of starter was followed by biweekly assignment of grower 1 or grower 2, depending upon adherence to breeder's growth charts. Lighting was 23 hours per day for 3 days and then 9 hours per day in the LAC house to 19 weeks followed by step-up light. In the CSG house the three 23-hour days were followed by a constant $15\frac{1}{2}$ hours of light daily to June 21, natural day length to 20 weeks, and then step-up lighting.

At 21-weeks of age, 210 pullets (when available) were placed in each of the LAC and CSF (curtain-side flush-waste) laying houses used for the 23rd test. They were equally divided between shallow and deep cages and between 54 and 72 sq. in. per bird cage space in each house. Feed consumption and egg production rates were determined biweekly by house and strain and feed assigned from the layer rations in Table 24-F to provide a minimum TSAA of 0.70 g for brown-egg and 0.65 g for white-egg strains daily to 40 weeks or less than 88% production, 0.65 g and 0.60 g to 75% production, and 0.60 g and 0.58 g below 75% production in general with exceptions as bird condition warranted.

Entries had to be restricted to Category I (having extensive distribution in the southeast) stocks to fill the 8 available spaces. Complete identification and entry information is recorded on another page.

DATA TABLES

We express our appreciation to Mr. Eugene Pickler and the personnel at Springdale Farms, New London, NC for providing a grading service by entries and making Part V of the table possible; to the staff of the NCDA Diagnostic Lab at Monroe for providing necropsy reports which made Part IV of the tables possible; to Mr. Edgar Ingram of the NCDA Egg Inspection Service for providing official candled egg quality data; and to members of the Piedmont Station and Poultry Department staffs who worked diligently under adverse conditions to keep this project viable.

Performance data are reported in tables which have a 3-part designation system. The first part (24) is the test number. The second part indicates the quarter of the laying year through which data is accumulated and the layer housing type of the birds reported--A = LAC house, C = CSF house, D = average of both houses, and F = feed specifications. The third part has Roman numerals to indicate data items included (e.g. III is egg quality data) and letters to designate the type of comparison in the table--C = cage type, S = cage space allowance, G = growing data, and letter absent compares entry averages only. These data are for one flock at one location. Comparison of some of the stocks may be available at Durham, New Hampshire, USA and Ottawa, Ontario, Canada.

RESULTS Part I of Tables

Entry No. is assigned at random to the particular entry, with 0 = average of entries.

Cage Code: S = shallow (18" wide X 12" deep), D = deep (12" wide X 18" deep), 3 = three birds per cage, 4 = four birds per cage, and 0 = average across treatments.

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 reported in pounds at housing and at end of test. (.454 X value reported = kg/bird)

Egg Size, Distribution (%) was obtained by crediting the weekly total up to 33 weeks and the bi-weekly thereafter to size classes proportional to those observed on the total production of one day. These weekly and bi-weekly values were totaled and converted to percentages. Individual eggs weighing 24 but less than 27 ounces per dozen (between 56.75 and 63.8 g) are classified as large; other sizes are scaled up or down from large in blocks of 3 oz. per doz. (7.05g).

Average Egg Weight was obtained by crediting all eggs for each time period as above at the average size observed on one day by mass weight (g/eggs = 2.36 X value reported).

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%.

Egg Production Rate (%) represents the daily average number of eggs produced per 100 hen-days 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 Cage Code are the same as above.

No. of Birds are the net pullets or hens retained at the specified times except that "at 1 week" is rounded to number needed to produce birds housed. 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 pounds of 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.

Values Per Pullet Housed. Chick cost charges the average of prices quoted for all stocks in the test in March, 1982 for each pullet at 1 week and divides the total among survivors at housing. Feed costs are developed from 3-year average of monthly feed prices reported by the NCDA for laying ration with quarterly adjustment for difference in ingredient prices for the particular formula being fed. Egg values are the 3-year average of Eastern cartoned values from ECI adjusted to at-farm equivalent of grades determined by candling one day of production each month. Fowl price is the 3-year average of southeast fowl prices for the week birds were sold.

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 Cage Code are the same as above.

% 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.

% Inclusion (Break-Out): Blood spots and colored meat spots were observed by breaking two days' production from each lot each quarter of 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.

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 30 eggs from each rep each quarter of the year. Since this factor undergoes seasonal change, the quarterly values 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 at bird ages indicated.

Part IV of Tables

Entry No. and Cage Code 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 the staff at the Monroe, NC Lab for providing this service to the test. The 12-point classification system was used on autopsy reports. Some categories which accounted for little mortality were combined under "Other" in the interest of saving space. Only 5 birds that died during the growing period died from causes other than miscellaneous, no

visible lesions, or no necropsy report. Consequently, causes of growing mortality are not reported.

Part V of Tables

Entry No. and Cage Code are the same as above.

Commercial Egg Gradeout was made by stocks during the weeks indicated at Springdale Farms, New London, North Carolina. Percent Grade A or Better - jumbo and extra large, large, medium, and small and pee wee are consumer grades. % Breaker combines C quality, B quality, small inclusions, and stains which constitute breaker stock with sound shells and crax which 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 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.

TABLE 24-F
SOME SPECIFICATIONS OF FEEDS USED
Feed Designation

	<u>Start</u>	<u>Grow 1</u>	<u>Grow 2</u>	<u>Lay-TR</u>	<u>Lay-TS</u>	<u>Lay-TT</u>	<u>Lay-TU</u>	<u>Lay-TW</u>	<u>Lay-TX</u>
Met. Energy Kcal. 1b.	1307	1328	1329	1270	1270	1270	1280	1285	1285
Protein, %	20.7	17.4	14.6	20.5	19.0	18.0	16.0	15.5	14.7
Lysine, %	1.10	0.84	0.64	1.05	0.95	0.90	0.75	0.72	0.67
Methionine, %	0.38	0.39	0.40	0.54	0.45	0.37	0.37	0.35	0.34
TSAA, %	0.70	0.66	0.55	0.84	0.73	0.64	0.61	0.58	0.56
Avail. Phos., %	0.38	0.37	0.37	0.55	0.48	0.44	0.40	0.38	0.35
Calcium, %	0.62	0.60	0.59	3.50	3.55	3.90	3.90	3.90	3.95
Fat, %	3.13	3.34	3.52	3.44	3.48	3.37	3.51	3.51	3.51
Sodium, %				0.22	0.19	0.17	0.17	0.16	0.15
Relative Cost, 7/83				1.11	1.07	1.03	1.00	0.99	0.97

TABLE 24-4A-CI. Body Weight, Egg Size, Maturity, and Egg Production

Entry No.	Cage Code	Breeder	Average Body Weight		% Egg Size, Distribution		Age at 50% Production	Egg Production Rate - %	Eggs Per House
			47 Days	497 Days	Small	Medium			
1	S	Dekalb (Sex-Sal-Link G)	3.70	4.80	0.0	3.8	26.8	65.9	26.9
2	S	H & N (p.g./two)	3.02	3.89	0.7	15.7	13.2	30.6	24.6
3	S	Dekalb (XL Link)	2.92	3.67	0.5	17.3	16.6	39.1	24.3
4	S	Shaver (Starcross 288A)	2.90	3.90	0.7	20.2	17.7	39.8	21.6
5	S	Euribrid (Hisex Brown)	3.90	4.85	0.1	5.7	5.6	26.3	62.2
6	S	Euribrid (Hisex White)	2.99	3.67	1.2	15.5	42.8	26.9	24.3
7	S	Hubbard (Golden Comet)	3.91	4.50	0.3	8.3	6.7	30.7	54.1
8	S	Hy-Line (W-36)	2.92	3.73	0.2	19.9	17.8	36.7	25.4
0	S	Average	3.28	4.12	0.4	13.3	11.8	35.3	25.1
1	D	Dekalb (Sex-Sal-Link G)	3.78	4.90	0.0	3.6	4.6	24.8	67.0
2	D	H & N (p.g./two)	3.06	3.90	0.5	13.5	12.8	38.9	34.4
3	D	Dekalb (XL Link)	2.92	3.64	0.3	15.0	15.7	43.8	25.2
4	D	Shaver (Starcross 288A)	3.01	3.88	0.7	18.3	17.0	40.6	23.4
5	D	Euribrid (Hisex Brown)	3.83	4.96	0.1	4.9	5.7	28.8	60.4
6	D	Euribrid (Hisex White)	2.93	3.53	1.1	16.6	16.8	41.7	23.9
7	D	Hubbard (Golden Comet)	3.92	4.56	0.2	6.7	5.9	27.5	59.7
8	D	Hy-Line (W-36)	2.97	3.52	0.3	20.9	16.3	38.4	24.1
0	D	Average	3.30	4.11	0.4	12.4	11.8	35.6	39.8
1	S	Dekalb (Sex-Sal-Link G)	4.09	5.29	0.1	2.3	2.7	18.0	76.8
2	S	H & N (p.g./two)	3.19	4.03	0.6	9.2	8.0	33.0	49.2
3	S	Dekalb (XL Link)	3.19	3.95	0.3	10.0	8.0	35.4	46.4
4	S	Shaver (Starcross 288A)	3.09	4.21	0.4	12.6	8.9	39.0	39.1
5	S	Euribrid (Hisex Brown)	4.16	5.23	0.3	5.1	4.0	22.1	68.5
6	S	Euribrid (Hisex White)	3.15	3.73	1.3	10.7	9.8	38.4	39.9
7	S	Hubbard (Golden Comet)	4.13	4.79	0.3	8.0	5.1	23.9	62.7
8	S	Hy-Line (W-36)	3.11	3.84	0.3	15.6	10.9	34.2	39.0
0	S	Average	3.52	4.39	0.4	9.2	7.2	30.5	52.7
456-497 Days									
316-399 Days									
232-315 Days									
148-231 Days									
400-497 Days									
After 50% Production									

TABLE 24-4C-CI. Body Weight, Egg Size, Maturity, and Egg Production

1	S	Dekalb (Sex-Sal-Link G)	4.09	5.29	0.1	2.3	2.7	18.0	76.8	27.8	172.3	62.5	84.9	78.9	68.7	65.4	77.7	241.3
2	S	H & N (p.g./two)	3.19	4.03	0.6	9.2	8.0	33.0	49.2	25.6	160.0	77.1	86.2	78.1	69.4	67.4	79.3	265.3
3	S	Dekalb (XL Link)	3.19	3.95	0.3	10.0	8.0	35.4	46.4	25.4	162.7	76.7	90.0	81.8	71.5	66.4	82.1	271.9
4	S	Shaver (Starcross 288A)	3.09	4.21	0.4	12.6	8.9	39.0	39.1	25.0	162.3	73.7	86.8	77.3	63.8	59.8	77.2	255.3
5	S	Euribrid (Hisex Brown)	4.16	5.23	0.3	5.1	4.0	22.1	68.5	27.1	159.3	77.6	85.3	77.7	67.2	63.1	78.3	257.8
6	S	Euribrid (Hisex White)	3.15	3.73	1.3	10.7	9.8	38.4	39.9	25.0	157.0	79.3	85.4	76.7	70.2	69.2	78.5	264.9
7	S	Hubbard (Golden Comet)	4.13	4.79	0.3	8.0	5.1	23.9	62.7	26.7	157.0	78.7	83.2	73.8	66.5	63.9	76.6	246.3
8	S	Hy-Line (W-36)	3.11	3.84	0.3	15.6	10.9	34.2	39.0	25.0	164.7	72.4	86.5	76.7	66.2	64.5	78.2	254.5
0	S	Average	3.52	4.39	0.4	9.2	7.2	30.5	52.7	25.9	161.9	74.7	86.0	77.6	67.9	65.0	78.5	257.2

Entry No.	Cage Code	Breeder	Average Body Weight	% Egg Size, Distribution								Egg Production Rate - %						
				147 Days		497 Days		Pee Wee	Small	Medium	Large	Extra Large and Over						
1	D	Dekalb (Sex-Sal-Link G)	4.09	5.20	0.0	3.3	2.4	17.1	77.1	27.9	169.3	60.7	78.7	69.0	58.5	55.5	69.8	221.3
2	D	H & N (p.g./two)	3.16	4.03	0.5	10.6	7.3	31.5	50.1	25.6	161.3	77.9	85.2	76.1	65.3	63.1	77.8	253.4
3	D	Dekalb (XL Link)	3.20	3.86	0.7	14.2	12.0	34.9	38.3	24.9	159.0	77.1	86.4	75.2	64.8	63.3	77.3	250.0
4	D	Shaver (Starcross 288A)	3.27	4.33	0.3	10.2	11.2	39.5	38.8	25.1	165.0	71.8	88.2	75.8	65.9	64.0	77.7	255.8
5	D	Euribrid (Hisex Brown)	4.14	4.94	0.2	4.3	4.3	24.0	67.2	26.9	163.7	69.7	82.2	73.3	63.7	60.2	74.2	247.7
6	D	Euribrid (Hisex White)	3.13	3.85	1.3	10.6	7.3	31.9	48.9	25.5	155.0	82.5	85.8	78.5	69.1	66.9	79.3	262.7
7	D	Hubbard (Golden Comet)	3.78	4.61	0.3	8.0	5.2	24.3	62.2	26.4	155.3	75.7	79.3	69.0	62.6	59.4	72.2	243.4
8	D	Hy-Line (W-36)	3.15	4.00	0.6	14.5	9.8	33.3	41.9	25.1	163.7	73.9	85.8	77.3	68.3	65.0	78.7	255.2
0	D	Average	3.49	4.35	0.5	9.5	7.4	29.6	53.1	25.9	161.5	73.7	84.0	74.3	64.8	62.2	75.9	248.7
TABLE 24-4A-SI. BODY WEIGHT, EGG SIZE, MATURITY, AND EGG PRODUCTION																		
1	3	Dekalb (Sex-Sal-Link G)	3.73	4.98	0.0	3.5	3.5	24.3	68.6	27.2	175.3	62.1	83.8	75.8	63.7	59.0	76.1	245.4
2	3	H & N (p.g./two)	3.03	3.88	0.5	14.8	14.0	40.5	30.2	24.6	157.3	82.0	84.9	74.0	67.6	62.6	78.3	267.2
3	3	Dekalb (XL Link)	2.93	3.70	0.4	14.9	16.0	44.1	24.7	24.4	167.3	76.0	91.3	81.3	72.2	67.3	83.3	277.4
4	3	Shaver (Starcross 288A)	2.98	3.95	0.5	18.5	18.0	40.3	22.6	24.1	161.7	79.5	86.4	77.2	65.5	60.3	79.3	254.8
5	3	Euribrid (Hisex Brown)	3.88	5.04	0.1	4.9	5.6	27.1	62.3	26.5	169.3	67.0	80.5	73.2	59.3	53.4	73.1	235.9
6	3	Euribrid (Hisex White)	2.97	3.68	1.2	16.0	14.3	41.4	27.1	24.3	155.3	85.8	87.2	78.9	72.7	67.9	81.7	279.0
7	3	Hubbard (Golden Comet)	3.94	4.59	0.2	6.9	6.0	26.8	60.1	26.3	165.0	72.8	81.3	72.3	62.5	58.1	74.5	238.0
8	3	Hy-Line (W-36)	2.96	3.70	0.1	17.6	16.8	37.9	27.6	24.2	167.3	72.5	87.8	79.6	68.7	63.6	80.5	261.1
0	3	Average	3.30	4.19	0.4	12.1	11.8	35.3	40.4	25.2	164.8	74.7	85.4	76.5	66.5	61.5	78.4	257.3
1	4	DeKalb (Sex-Sal-Link G)	3.75	4.72	0.0	3.9	4.5	27.2	64.3	26.8	177.7	58.9	81.7	74.7	64.2	59.0	74.7	235.8
2	4	H & N (p.g./two)	3.05	3.91	0.7	14.5	12.0	38.1	34.8	24.9	159.3	79.5	83.9	75.4	69.0	64.2	78.6	259.6
3	4	DeKalb (XL Link)	2.91	3.61	0.4	17.3	16.3	38.9	27.1	24.3	164.7	76.0	89.3	79.1	70.4	65.2	81.3	268.6
4	4	Shaver (Starcross 288A)	2.93	3.83	0.8	20.0	16.7	40.1	22.4	24.0	161.3	78.6	85.3	75.7	67.3	60.2	78.4	254.6
5	4	Euribrid (Hisex Brown)	3.85	4.76	0.1	5.7	5.8	28.1	60.3	26.4	171.3	62.3	76.6	71.4	61.3	57.0	71.3	228.2
6	4	Euribrid (Hisex White)	2.95	3.52	1.1	16.1	16.0	43.1	23.7	24.2	156.3	81.3	86.8	81.0	74.5	70.4	81.7	272.8
7	4	Hubbard (Golden Comet)	3.89	4.47	0.3	8.1	6.5	31.4	53.8	26.0	163.0	71.7	82.0	73.7	64.0	62.6	75.0	249.9
8	4	Hy-Line (W-36)	2.93	3.54	0.3	23.2	17.3	37.2	21.9	23.9	169.0	69.9	85.1	75.2	67.2	62.3	77.4	251.9
0	4	Average	3.28	4.05	0.5	13.6	11.9	35.5	38.5	25.0	165.3	72.3	83.8	75.8	67.2	62.3		

TABLE 24-4C-SI. Body Weight, Egg Size, Maturity, and Egg Production

Entry No.	Cage Code	Breeder	Average Body Weight		% Egg Size, Distribution			Egg Production Rate - %										
			497 Days	147 Days	Small Egg	Medium Egg	Large Egg	Extra Large Egg and Over Large Egg	Average Egg Wt. oz./Dz.	Age at 50% Production Days	400-497 Days	316-399 Days	456-497 Days	After 50% Production Days				
1	3	DeKalb (Sex-Sal-Link G)	4.16	5.45	0.1	2.4	2.3	17.3	78.0	27.9	170.0	63.8	77.2	63.1	77.8	243.5		
2	3	H & N (P.g./two)	3.18	4.12	0.5	10.0	7.2	30.7	51.7	25.7	160.0	78.9	87.5	78.9	68.6	80.1	267.1	
3	3	DeKalb (XL Link)	3.17	4.01	0.3	10.2	9.4	36.2	44.0	25.3	163.7	75.8	88.1	79.3	70.5	67.4	80.8	265.5
4	3	Shaver (Starcross 288A)	3.18	4.30	0.3	11.1	11.3	39.5	37.8	25.1	166.0	71.3	89.1	78.4	67.5	63.9	79.2	262.1
5	3	Euribrid (Hisex Brown)	4.14	5.22	0.2	3.7	4.3	21.9	69.9	27.1	161.0	75.0	85.0	77.0	66.5	63.2	77.6	257.7
6	3	Euribrid (Hisex White)	3.10	3.84	1.2	9.9	7.6	33.3	48.1	25.4	154.7	83.7	86.7	79.9	71.8	69.7	80.8	275.9
7	3	Hubbard (Golden Comet)	4.13	4.98	0.3	8.2	5.2	24.0	62.3	26.5	155.7	79.9	83.2	73.7	65.4	62.0	76.2	252.7
8	3	Hy-Line (W-36)	3.12	4.05	0.4	14.2	10.2	31.5	43.7	25.1	164.3	72.8	86.6	77.9	69.8	66.1	79.4	258.0
0	3	Average	3.52	4.50	0.4	8.7	7.2	29.3	54.4	26.0	161.9	75.2	86.6	77.8	68.5	65.2	79.0	260.3
1	4	DeKalb (Sex-Sal-Link G)	4.02	5.05	0.1	3.3	2.8	17.8	76.0	27.9	171.7	59.4	77.1	70.7	59.2	57.8	69.7	219.1
2	4	H & N (P.g./two)	3.17	3.95	0.6	9.8	8.2	33.9	47.6	25.5	161.3	76.0	83.9	75.3	66.2	64.1	77.1	251.7
3	4	DeKalb (XL Link)	3.22	3.80	0.7	14.0	10.5	34.1	40.7	25.0	158.0	78.0	88.3	77.8	65.8	62.3	78.6	256.3
4	4	Shaver (Starcross 288A)	3.18	4.23	0.3	11.7	8.9	39.0	40.1	25.1	161.3	74.1	86.0	74.7	62.2	59.9	75.8	249.0
5	4	Euribrid (Hisex Brown)	4.16	4.96	0.3	5.7	4.0	24.2	65.8	26.9	162.0	72.3	82.6	74.0	64.4	60.1	74.9	247.8
6	4	Euribrid (Hisex White)	3.19	3.75	1.5	11.5	9.5	36.9	40.7	25.1	157.3	78.2	84.4	75.3	67.5	66.4	77.0	251.7
7	4	Hubbard (Golden Comet)	3.79	4.42	0.4	7.7	5.1	24.2	62.6	26.5	156.7	74.4	79.3	69.1	63.7	61.4	72.6	236.9
8	4	Hy-Line (W-36)	3.13	3.79	0.4	15.9	10.4	36.1	37.2	24.9	164.0	73.6	85.7	76.1	64.7	63.4	77.4	251.7
0	4	Average	3.48	4.24	0.5	9.9	7.4	30.8	51.3	25.9	161.5	73.3	83.4	74.1	64.2	61.9	75.4	245.5

TABLE 24-4D-I. Body Weight, Egg Size, Maturity, and Egg Production

1	0	DeKalb (Sex-Sal-Link G)	3.92	5.05	0.0	3.3	3.3	21.7	71.7	27.4	173.7	61.1	82.3	74.6	63.8	59.7	74.6	235.9
2	0	H & N (P.g./two)	3.11	3.96	0.5	12.3	10.3	35.8	41.1	25.2	159.5	79.1	85.0	75.9	67.8	64.3	78.5	261.4
3	0	DeKalb (XL Link)	3.06	3.78	0.4	14.1	13.1	38.3	34.1	24.7	163.4	76.5	89.3	79.4	69.7	65.6	81.0	267.0
4	0	Shaver (Starcross 288A)	3.07	4.08	0.5	15.3	13.7	39.7	30.8	24.6	162.6	75.9	86.7	76.5	65.6	61.1	78.2	255.1
5	0	Euribrid (Hisex Brown)	4.01	4.99	0.2	5.0	4.9	25.3	64.6	26.7	165.9	69.2	81.2	73.9	62.9	58.4	74.2	242.4
6	0	Euribrid (Hisex White)	3.05	3.70	1.2	13.4	11.8	38.7	34.9	24.7	155.9	82.3	86.3	78.8	71.6	68.6	80.3	269.8
7	0	Hubbard (Golden Comet)	2.94	4.62	0.3	7.7	5.7	26.6	59.7	26.3	160.1	74.7	81.5	72.2	63.9	60.5	74.6	242.2
8	0	Hy-Line (W-36)	3.04	3.77	0.3	17.7	13.7	35.7	32.6	24.5	166.2	72.2	86.3	77.2	67.6	63.8	78.8	254.9
0	0	Average	3.40	4.24	0.4	11.1	9.6	32.7	46.2	25.5	163.4	73.8	84.8	76.1	66.6	62.8	77.5	253.6

TABLE 24-4A-CII. Birds, Mortality, Feed Use, Cost, and Income Data

Entry No. Cage Code	Number of Birds	Mortality	Feed Consumed	Value Per Pullet Housed													
				At One Week	At 497 Days												
				% 8-147 Days	% 148-497 Days												
				Ave. Days Lost/ Hen Housed	Per Bird 1-147 Days												
				Per 100 Bird Days	Per Lb. of Eggs												
				Per Dozen Eggs	Per Dozen Eggs												
				Chick Cost	Growing Feed Cost												
				Laying Feed Cost	Total Feed and Chick Cost												
				Value of Eggs	Value of Meat												
					IOFCC												
1 S	101	99	87	2.1	11.3	21.3	18.7	26.3	2.48	4.31	0.42	1.78	8.92	11.12	11.49	0.43	0.817
2 S	111	110	105	1.0	4.2	7.4	16.0	23.7	2.30	3.68	0.41	1.53	8.36	10.30	12.22	0.37	2.292
3 S	104	100	95	3.0	4.7	9.0	16.5	23.6	2.24	3.55	0.42	1.62	8.36	10.40	12.59	0.36	2.558
4 S	111	110	103	1.4	5.8	9.5	16.6	22.8	2.33	3.65	0.41	1.61	8.06	10.09	11.74	0.38	2.030
5 S	102	100	94	1.2	5.6	13.5	19.3	26.3	2.44	4.12	0.41	1.83	9.11	11.35	12.12	0.47	1.242
6 S	110	110	105	0.5	4.2	8.9	16.6	22.7	2.25	3.53	0.41	1.60	8.01	10.02	12.13	0.34	2.447
7 S	103	100	83	2.1	15.6	23.5	18.7	24.4	2.32	3.88	0.42	1.78	8.27	10.47	11.60	0.39	1.520
8 S	110	102	0.4	8.1	11.7	15.4	21.6	2.21	3.45	0.41	1.47	7.71	9.59	11.60	0.34	2.268	
0 S	852	839	774	1.5	7.4	13.1	17.2	23.9	2.32	3.77	0.41	1.65	8.35	10.42	11.93	0.39	1.897

TABLE 24-4C-CII. Birds, Mortality, Feed Use, Cost, and Income Data

TABLE 24-4C-CII. Birds, Mortality, Feed Use, Cost, and Income Data

Entry No.	Cage Code	Number of Birds	Mortality	Feed Consumed		Value Per Pullet Housed											
				At One Week	At 497 Days Housed	% 8-147 Days	% 148-497 Days	Ave. Days Lost/Hen Housed	Days Lost/100 Birds	Eggs Per Lb. of Eggs	Chick Cost	Growing Feed Cost	Laying Feed Cost	Total Feed Cost	Value of Eggs	Value of Meat	
1 D	111	110	98	0.9	11.1	17.1	18.8	25.4	2.63	4.59	0.41	1.78	8.70	10.90	10.47	0.44	0.015
2 D	104	100	88	3.6	11.9	16.4	16.7	24.0	2.37	3.79	0.42	1.61	8.22	10.25	11.67	0.34	1.757
3 D	111	110	98	1.3	10.8	19.3	17.1	22.6	2.30	3.59	0.41	1.65	7.78	9.84	11.22	0.33	1.705
4 D	106	100	93	6.3	6.9	9.6	16.8	23.3	2.37	3.72	0.44	1.65	8.25	10.34	11.79	0.39	1.836
5 D	110	110	104	0.5	5.8	5.8	18.9	24.4	2.42	4.07	0.41	1.79	8.63	10.83	11.60	0.45	1.213
6 D	102	100	91	1.3	8.3	16.7	16.6	23.8	2.29	3.65	0.41	1.60	8.20	10.21	11.77	0.34	1.897
7 D	110	110	101	0.4	8.3	9.3	19.1	24.0	2.45	4.04	0.41	1.82	8.50	10.73	11.23	0.41	0.901
8 D	103	100	91	2.1	8.3	14.5	15.1	22.5	2.27	3.55	0.42	1.45	7.96	9.83	11.63	0.35	2.151
0 D	857	840	764	2.0	9.0	13.6	17.4	23.7	2.39	3.88	0.42	1.67	8.28	10.37	11.42	0.38	1.435

TABLE 24-4A-SII. Birds, Mortality, Feed Use, Cost, and Income Data

1	3	91	90	86	1.7	4.4	4.8	17.2	24.8	2.47	4.20	0.42	1.64	9.13	11.18	11.61	0.46	0.886
2	3	93	90	87	3.9	3.3	2.0	15.1	23.1	2.35	3.61	0.42	1.52	8.44	10.37	12.04	0.36	2.022
3	3	91	90	89	1.6	1.1	2.7	12.8	22.8	2.25	3.42	0.42	1.25	8.48	10.13	12.40	0.35	2.621
4	3	93	90	79	2.3	12.2	18.9	12.3	22.8	2.37	3.57	0.42	1.21	8.11	9.73	11.34	0.33	1.938
5	3	94	90	80	3.8	11.1	11.6	17.1	26.0	2.70	4.47	0.42	1.66	9.15	11.23	11.16	0.43	0.363
6	3	91	90	86	1.8	4.4	5.1	12.5	21.9	2.15	3.26	0.42	1.25	8.11	9.77	12.31	0.34	2.873
7	3	90	78	0.8	13.3	19.6	17.5	24.7	2.51	4.12	0.41	1.64	8.67	10.73	11.21	0.38	0.870	
8	3	92	89	80	3.3	10.1	10.2	14.2	22.4	2.32	3.51	0.42	1.37	8.14	9.93	11.65	0.32	2.039
0	3	735	719	665	2.4	7.5	9.4	14.8	23.6	2.39	3.77	0.42	1.44	8.53	10.38	11.72	0.37	1.702
1	4	123	120	111	1.7	7.5	11.4	17.2	23.1	2.37	3.97	0.42	1.64	8.29	10.35	11.25	0.42	1.321
2	4	124	120	107	3.5	10.8	12.0	15.1	23.6	2.38	3.69	0.42	1.52	8.42	10.36	11.73	0.33	1.710
3	4	123	120	112	1.6	6.7	7.7	12.8	21.8	2.20	3.34	0.42	1.25	8.01	9.66	11.89	0.32	2.551
4	4	123	120	111	3.0	7.5	17.0	12.3	21.9	2.29	3.44	0.42	1.21	7.83	9.46	11.14	0.34	2.025
5	4	125	120	107	3.8	10.8	13.2	17.1	25.4	2.72	4.49	0.42	1.66	8.88	10.97	10.74	0.41	0.183
6	4	123	120	111	1.8	7.5	12.0	12.5	21.9	2.15	3.26	0.42	1.25	7.91	9.57	11.94	0.31	2.681
7	4	122	120	102	0.8	15.0	18.8	17.5	24.1	2.46	3.99	0.42	1.64	8.46	10.51	11.31	0.36	1.169
8	4	125	120	106	3.3	11.7	14.2	14.2	20.4	2.21	3.30	0.42	1.37	7.28	9.07	10.97	0.30	2.199
0	4	988	960	867	2.5	9.7	13.3	14.8	22.8	2.35	3.69	0.42	1.44	8.14	9.99	11.37	0.35	1.730

TABLE 24-4C-SII. Birds, Mortality, Feed Use, Cost, and Income Data

Entry No. Cage Code	Number of Birds	Mortality	Feed Consumed	Value Per Pullet Housed															
				At One Week Housed		% 8-147 Days		% 148-497 Days		Ave. Days Lost/ Hen Housed	Per Bird 1-147 Days	Per 100 Bird Days	Per Lb. of Eggs	Per Dozen Eggs	Chick Cost				
1	1	3	92	90	82	1.8	8.9	19.1	18.7	26.6	2.50	4.35	0.42	1.78	9.08	11.27	11.68	0.48	0.878
2	2	3	94	90	83	3.6	7.8	8.7	16.7	24.5	2.34	3.76	0.42	1.61	8.59	10.62	12.32	0.36	2.059
3	3	3	93	90	85	3.0	5.6	10.6	16.5	23.3	2.27	3.59	0.42	1.62	8.23	10.27	12.23	0.36	2.326
4	4	3	95	90	86	6.3	4.4	6.2	16.8	23.5	2.36	3.70	0.44	1.65	8.39	10.47	12.08	0.39	2.000
5	5	3	91	90	85	1.2	5.6	8.9	19.3	26.1	2.45	4.15	0.41	1.83	9.15	11.39	12.12	0.47	1.204
6	6	3	91	90	87	1.3	3.3	6.2	16.6	23.9	2.26	3.59	0.41	1.60	8.49	10.50	12.52	0.36	2.374
7	7	3	92	90	82	2.1	8.9	14.1	18.7	24.2	2.33	3.87	0.42	1.78	8.46	10.67	11.87	0.43	1.644
8	8	3	92	90	82	2.1	8.9	13.2	15.1	22.6	2.26	3.55	0.42	1.45	8.05	9.92	11.38	0.35	2.210
0	0	3	740	720	672	2.7	6.7	10.9	17.3	24.3	2.34	3.82	0.42	1.66	8.55	10.64	12.07	0.40	1.837
1	1	4	120	119	103	1.2	13.5	19.4	18.8	25.1	2.61	4.55	0.41	1.79	8.54	10.74	10.28	0.39	-0.047
2	2	4	121	120	110	1.0	8.3	15.1	16.0	23.2	2.33	3.71	0.41	1.53	7.99	9.93	11.57	0.35	1.990
3	3	4	122	120	108	1.3	10.0	17.6	17.1	22.8	2.27	3.56	0.41	1.65	7.91	9.97	11.58	0.33	1.938
4	4	4	122	120	110	1.4	8.3	12.9	16.6	22.6	2.34	3.67	0.41	1.61	7.93	9.95	11.44	0.37	1.867
5	5	4	121	120	113	0.5	5.8	10.4	18.9	24.6	2.41	4.04	0.41	1.79	8.59	10.79	11.60	0.45	1.251
6	6	4	121	120	109	0.5	9.2	19.3	16.6	22.6	2.28	3.59	0.41	1.60	7.72	9.73	11.38	0.33	1.970
7	7	4	121	120	102	0.4	15.0	18.7	19.1	24.1	2.45	4.05	0.41	1.82	8.31	10.54	10.96	0.36	0.777
8	8	4	121	120	111	0.4	7.5	13.0	15.4	21.5	2.22	3.46	0.41	1.47	7.62	9.51	11.38	0.34	2.210
0	0	4	969	959	866	0.8	9.7	15.8	17.3	23.3	2.36	3.83	0.41	1.66	8.08	10.15	11.27	0.36	1.494

TABLE 24-4D-II. Birds, Mortality, Feed Use, Cost, and Income Data

1	0	426	419	382	1.6	8.6	13.6	18.0	24.9	2.49	4.27	0.42	1.71	8.76	10.89	11.21	0.44	0.760
2	0	432	420	387	3.0	7.6	9.4	15.7	23.6	2.35	3.69	0.42	1.54	8.36	10.32	11.92	0.35	1.945
3	0	429	420	394	1.9	5.8	9.6	14.8	22.7	2.25	3.48	0.42	1.44	8.16	10.01	12.02	0.34	2.359
4	0	433	420	386	3.2	8.1	13.8	14.5	22.7	2.34	3.59	0.42	1.42	8.06	9.90	11.50	0.36	1.957
5	0	431	420	385	2.3	8.3	11.0	18.1	25.5	2.57	4.29	0.42	1.73	8.94	11.09	11.40	0.44	0.750
6	0	426	420	393	1.4	6.1	10.7	14.5	22.6	2.21	3.43	0.41	1.42	8.06	9.89	12.04	0.33	2.475
7	0	425	420	364	1.1	13.1	17.8	18.2	24.3	2.43	4.01	0.41	1.72	8.48	10.61	11.34	0.39	1.115
8	0	430	419	379	2.3	9.5	12.6	14.7	21.7	2.25	3.45	0.42	1.42	7.77	9.61	11.44	0.33	2.164
0	0	3432	3358	3070	2.1	8.4	12.3	16.1	23.5	2.36	3.78	0.42	1.55	8.32	10.29	11.61	0.37	1.691

TABLE 24-4A-C III. Egg Quality Data

Entry No.	Cage Code	Loss % (Downgrades)	Candled Quality		Haugh Units		Shell Score (Specific Gravity)	
			Large Bloods	Small Bloods	Large Meats	Small Meats	27 Weeks Old	38 Weeks Old
1 S	1.6	2.3	2.1	8.5	11.9	96.3	0.3	0.0
2 S	1.4	0.6	0.5	0.2	0.6	96.4	0.6	0.0
3 S	2.6	0.2	0.8	0.2	0.8	95.1	1.0	0.0
4 S	1.5	1.8	0.4	0.9	0.0	97.2	0.7	0.0
5 S	1.9	1.5	2.6	10.1	12.8	96.1	0.2	0.0
6 S	3.1	1.5	0.7	1.0	0.6	44.4	1.7	0.0
7 S	1.5	2.1	3.1	17.1	17.0	96.9	0.0	0.0
8 S	1.8	0.0	0.7	0.2	0.5	96.5	0.9	0.0
0 S	1.9	1.3	1.4	4.8	5.5	96.1	0.7	0.0
1 D	2.9	1.7	3.9	12.0	8.8	95.2	0.1	0.0
2 D	2.1	0.6	0.2	0.2	0.4	95.6	1.5	0.0
3 D	2.4	1.3	1.5	0.0	0.2	95.7	0.6	0.0
4 D	2.2	1.3	2.8	0.0	0.4	95.7	1.4	0.0
5 D	2.3	3.0	4.8	10.7	7.6	95.0	0.3	0.0
6 D	2.5	0.8	0.6	0.0	1.3	94.7	1.7	0.0
7 D	1.3	2.2	3.3	13.9	15.5	97.6	0.0	0.0
8 D	1.2	0.5	0.2	0.0	1.0	97.5	0.5	0.0
0 D	2.1	1.4	2.2	4.6	4.4	96.0	0.8	0.0
1 S	2.6	2.3	3.3	11.6	9.8	95.7	0.0	0.0
2 S	2.3	0.0	0.6	1.0	0.4	95.9	1.5	0.0
3 S	1.8	0.2	1.1	0.0	0.4	96.6	0.7	0.0
4 S	1.6	1.7	1.8	0.6	0.2	97.1	0.6	0.0
5 S	2.5	1.9	3.5	11.6	8.8	95.5	0.8	0.0
6 S	1.4	0.2	0.8	0.2	0.6	97.1	0.9	0.0
7 S	1.1	2.3	3.8	17.1	12.2	98.0	0.0	0.0
8 S	1.9	0.4	1.2	0.0	0.2	95.6	0.7	0.0
0 S	1.9	1.1	2.0	5.3	4.1	96.4	0.7	0.0
						93.1	0.3	0.3
						92.7	87.8	86.1
						3.41	3.00	3.41

TABLE 24-4C-C III. Egg Quality Data

Entry No.	Cage Code	Loss % (Downgrades)	Candled Quality		Haugh Units		Shell Score (Specific Gravity)	
			Large Bloods	Small Bloods	Large Meats	Small Meats	27 Weeks Old	38 Weeks Old
1 S	2.6	2.3	2.1	8.5	11.9	96.3	0.3	0.0
2 S	2.3	0.0	0.6	1.0	0.4	95.9	1.5	0.0
3 S	1.8	0.2	1.1	0.0	0.4	96.6	0.7	0.0
4 S	1.6	1.7	1.8	0.6	0.2	97.1	0.6	0.0
5 S	2.5	1.9	3.5	11.6	8.8	95.5	0.8	0.0
6 S	1.4	0.2	0.8	0.2	0.6	97.1	0.9	0.0
7 S	1.1	2.3	3.8	17.1	12.2	98.0	0.0	0.0
8 S	1.9	0.4	1.2	0.0	0.2	95.6	0.7	0.0
0 S	1.9	1.1	2.0	5.3	4.1	96.4	0.7	0.0
						93.1	0.3	0.3
						92.7	87.8	86.1
						3.41	3.00	3.41

TABLE 24-4C-CIII. Egg Quality Data

Entry No.	Cage Code	% Inclusions (Breakout)				Candled Quality Percentages				Haugh Units				Shell Score (Specific Gravity)							
		Large Bloods	Small Bloods	Large Meats	Small Meats	A or Better	B	Sound	Breaker	Chex and Cracks	Loss Eggs	29 Weeks Old	41 Weeks Old	53 Weeks Old	66 Weeks Old	27 Weeks Old	38 Weeks Old	50 Weeks Old	54 Weeks Old		
1	D	3.2	2.3	3.9	10.4	6.2	93.4	1.2	0.0	4.9	0.6	96.2	95.6	86.6	81.9	90.1	3.26	1.99	1.12	1.15	1.88
2	D	2.0	0.7	0.4	0.0	0.0	96.0	1.2	0.0	2.6	0.2	92.8	92.6	86.9	74.9	86.8	5.12	4.46	2.91	2.19	3.67
3	D	2.7	1.4	0.4	0.0	0.2	95.2	1.0	0.0	3.2	0.7	93.7	94.4	88.9	74.2	87.8	4.37	3.05	1.79	2.11	2.83
4	D	1.9	1.3	2.3	0.2	0.2	96.2	1.0	0.0	2.4	0.5	91.1	94.2	86.2	74.4	86.5	4.82	3.98	2.42	2.23	3.36
5	D	3.3	3.3	6.0	8.8	10.5	94.1	0.9	0.0	4.6	0.5	92.7	94.1	86.1	75.2	87.0	3.55	2.73	1.73	1.85	2.46
6	D	3.8	1.9	0.6	0.0	1.1	92.7	1.6	0.0	5.2	0.5	91.4	94.8	87.1	73.3	86.7	4.65	3.58	1.85	1.53	2.90
7	D	2.9	2.2	5.4	13.2	12.5	94.5	0.2	0.0	4.7	0.6	91.7	91.0	86.8	76.8	86.6	3.84	2.79	1.59	1.51	2.43
8	D	1.5	0.2	1.1	0.7	0.2	97.1	1.0	0.0	1.9	0.0	89.7	90.2	82.9	68.2	82.7	4.56	3.50	2.02	2.17	3.06
0	D	2.7	1.7	2.5	4.2	3.9	94.9	1.0	0.0	3.7	0.4	92.4	93.4	86.4	74.9	86.8	4.27	3.26	1.93	1.84	2.82
1	3	2.7	1.3	3.7	11.1	11.7	95.3	0.2	0.0	3.8	0.6	92.9	95.6	88.4	72.0	87.2	1.88	2.09	1.14	0.77	1.47
2	3	1.8	0.5	0.5	0.2	0.2	96.1	0.7	0.0	3.0	0.2	91.3	97.4	84.1	72.1	86.2	3.62	3.92	3.04	2.40	3.24
3	3	2.5	1.1	1.5	0.0	0.0	95.7	0.7	0.0	2.9	0.8	92.5	96.0	87.9	72.2	87.2	2.97	3.35	2.24	1.26	2.45
4	3	1.5	1.6	1.6	0.5	0.2	96.8	1.1	0.0	1.7	0.4	91.3	92.8	87.3	70.8	85.6	3.32	3.53	2.58	1.95	2.85
5	3	2.0	2.6	4.3	9.5	9.5	96.3	0.3	0.0	2.8	0.7	93.2	94.8	89.2	73.2	87.6	2.29	3.04	2.14	1.56	2.26
6	3	2.5	0.9	0.9	0.0	0.7	95.4	1.3	0.0	2.7	0.7	92.7	94.1	88.8	73.9	87.4	2.87	3.74	2.06	1.26	2.48
7	3	1.4	2.3	3.4	15.8	17.4	97.2	0.0	0.0	2.5	0.3	93.0	94.1	88.6	79.7	88.8	1.97	2.46	1.57	1.42	1.85
8	3	2.0	0.5	0.7	0.2	0.7	96.2	0.8	0.0	2.9	0.2	92.6	96.4	86.8	68.7	86.1	2.43	3.58	2.54	1.95	2.63
0	3	2.0	1.3	2.1	4.7	5.1	96.1	0.6	0.0	2.8	0.5	92.4	95.1	87.6	72.8	87.0	2.67	3.21	2.16	1.57	2.40
1	4	1.8	2.7	2.3	9.4	9.0	96.2	0.2	0.0	3.2	0.4	94.2	98.5	90.6	74.5	89.5	1.32	1.86	0.92	1.36	1.36
2	4	1.7	0.8	0.2	0.2	0.8	95.9	1.4	0.0	2.4	0.2	94.5	94.2	86.9	75.2	87.7	3.32	4.50	2.81	2.30	3.23
3	4	2.5	0.4	0.8	0.2	1.0	95.1	1.0	0.0	3.4	0.5	93.5	95.5	86.8	69.5	86.3	3.03	3.21	2.49	1.28	2.50
4	4	2.2	1.4	1.6	0.4	0.2	96.1	1.0	0.0	2.2	0.7	89.9	94.0	84.6	70.5	84.7	3.14	3.67	2.38	1.89	2.77
5	4	2.2	1.9	3.1	11.3	11.0	95.8	0.3	0.0	3.4	0.5	93.1	97.0	87.3	75.2	88.2	2.21	2.39	2.04	1.50	2.04
6	4	3.0	1.4	0.4	1.0	1.2	93.8	2.1	0.0	3.6	0.6	93.0	93.6	88.2	76.0	87.7	2.38	4.07	1.70	1.34	2.37
7	4	1.3	2.0	2.9	15.3	15.2	97.3	0.0	0.0	2.6	0.1	94.5	97.3	87.9	76.9	89.2	1.71	2.13	1.56	1.30	1.68
8	4	1.1	0.0	0.2	0.0	0.8	97.8	0.7	0.0	1.4	0.1	90.7	95.5	82.3	67.4	84.0	2.64	3.76	2.58	1.84	2.70
0	4	2.0	1.3	1.4	4.7	4.9	96.0	0.8	0.0	2.8	0.4	92.9	95.7	86.8	73.1	87.2	2.47	3.20	2.06	1.60	2.33

TABLE 24-4A-SIII. Egg Quality Data

TABLE 24-4C-S III. Egg Quality Data

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Entry No.	Cage Code	Loss % (Downgrades)	% Inclusions (Breakout)		Candled Quality		Haugh Units		Shell Score (Specific Gravity)	
			Large Bloods	Small Bloods	Large Meats	Small Meats	Sound Breaker	Cheeks and Cracks	Loss Eggs	66 Weeks Old
1	3	2.0	2.0	3.2	11.1	8.1	96.2	0.1	0.0	95.7
2	3	2.0	0.9	0.2	0.2	96.1	1.3	0.0	0.2	93.5
3	3	2.1	0.2	1.1	0.0	0.4	96.2	0.7	0.0	94.4
4	3	1.7	1.4	1.4	1.6	0.0	0.2	97.3	0.6	0.5
5	3	3.0	2.8	3.6	11.0	11.6	94.7	0.6	0.0	96.9
6	3	2.9	1.1	0.6	0.2	1.1	94.3	1.6	0.0	91.2
7	3	1.1	2.9	4.0	15.8	13.6	97.9	0.0	0.1	93.6
8	3	1.6	0.2	1.0	0.5	0.2	96.9	0.8	0.0	88.4
0	3	2.1	1.4	2.0	4.9	4.4	96.2	0.7	0.0	93.1
1	4	3.8	2.7	4.0	10.9	7.9	92.9	1.0	0.0	95.9
2	4	2.3	0.2	0.2	0.8	0.2	95.7	1.3	0.0	92.9
3	4	2.3	1.4	0.4	0.0	0.0	95.6	1.0	0.0	92.3
4	4	1.8	1.8	1.6	2.6	0.8	95.9	1.0	0.0	92.4
5	4	2.8	2.4	6.0	9.4	7.6	94.8	1.1	0.0	89.8
6	4	2.3	1.0	0.8	0.0	0.6	95.5	0.9	0.0	92.5
7	4	2.9	1.6	5.2	14.4	11.2	94.5	0.2	0.0	91.6
8	4	1.9	0.4	1.4	0.2	0.2	95.8	1.0	0.0	92.4
0	4	2.5	1.4	2.6	4.6	3.5	95.1	0.9	0.0	92.5
1	0	2.6	2.2	3.3	10.6	9.2	95.2	0.4	0.0	94.7
2	0	2.0	0.5	0.4	0.4	96.0	1.2	0.0	2.6	93.1
3	0	2.4	0.8	1.0	0.1	0.4	95.6	0.8	0.0	93.2
4	0	1.8	1.5	1.5	1.9	0.4	0.2	96.5	0.9	0.0
5	0	2.5	2.4	4.2	10.3	9.9	95.4	0.6	0.0	93.3
6	0	2.7	1.1	0.7	0.3	0.9	94.7	1.5	0.0	92.3
7	0	1.7	2.2	3.9	15.3	14.3	96.7	0.1	0.0	93.2
8	0	1.6	0.3	0.8	0.2	0.5	96.7	0.8	0.0	91.0
0	0	2.1	1.4	2.0	4.7	4.5	95.9	0.8	0.0	92.7

TABLE 24-4D-III. Egg Quality Data

27 Weeks Old	38 Weeks Old	50 Weeks Old	54 Weeks Old	Average
1	0	2.6	2.0	1.92
2	0	2.0	1.72	3.72
3	0	2.4	1.71	2.85
4	0	1.8	2.19	3.40
5	0	2.5	2.17	2.34
6	0	1.7	2.19	2.29
7	0	1.7	2.39	2.29
8	0	1.6	2.57	2.81
0	0	2.1	2.17	2.55

TABLE 24-4D-SIV and 24-4D-IV. Causes of Mortality - Laying Percentages

Entry No.	Cage Code	Lymphoid Leukosis	Reproductive Disorders	Other Causes	No Visible Lesions	No Necropsy Report	% Total Mortality
1	3	--	1.1	1.1	2.2	2.2	6.7
2	3	1.1	0.6	1.1	1.1	1.7	5.6
3	3	0.6	1.1	1.1	0.6	--	3.3
4	3	3.3	1.1	2.2	1.1	0.6	8.3
5	3	--	2.2	2.8	1.7	1.7	8.3
6	3	--	1.1	1.1	1.1	0.6	3.9
7	3	--	1.1	6.1	3.3	0.6	11.1
8	3	1.1	1.1	4.5	--	2.8	9.5
AV	3	0.8	1.2	2.5	1.4	1.3	7.1
1	4	0.4	3.8	1.7	2.5	2.1	10.5
2	4	0.4	4.2	2.1	1.7	1.2	9.6
3	4	0.8	5.0	0.4	1.2	0.8	8.3
4	4	2.5	2.9	1.2	0.4	0.8	7.9
5	4	0.4	2.1	1.7	3.3	0.8	8.3
6	4	0.4	3.8	1.7	1.7	0.8	8.3
7	4	0.4	6.7	4.6	1.7	1.7	15.0
8	4	1.2	2.1	2.1	1.7	2.5	9.6
AV	4	0.8	3.8	1.9	1.8	1.4	9.7
1	0	0.2	2.4	1.4	2.4	2.2	8.6
2	0	0.8	2.4	1.6	1.4	1.5	7.6
3	0	0.7	3.1	0.8	0.9	0.4	5.9
4	0	2.9	2.0	1.7	0.8	0.7	8.1
5	0	0.2	2.2	2.2	2.5	1.2	8.3
6	0	0.2	2.4	0.4	1.4	0.7	6.1
7	0	0.2	3.9	5.3	2.5	1.1	13.1
8	0	1.2	1.6	3.3	0.8	2.6	9.5
AV	0	0.8	2.5	2.2	1.6	1.3	8.4

TABLE 24 - 4A - C IV & 24-4C-C IV Causes of Mortality - Laying Percentages

Entry No.	Cage Code	Lymphoid Leukosis	Reproductive Disorders	Other Causes	No Visible Lesions	No Necropsy Report	% Total Mortality
1	S	0.9	1.8	2.7	1.8	-	7.3
2	S	-	3.0	1.0	-	2.0	6.0
3	S	0.9	1.8	0.9	0.9	-	4.5
4	S	5.0	2.0	2.0	-	1.0	10.0
5	S	0.9	3.6	2.7	4.5	0.9	12.7
6	S	-	1.0	1.0	2.0	2.0	6.0
7	S	0.9	5.5	6.4	1.8	1.8	16.4
8	S	2.0	-	4.0	-	3.0	9.1
AV	S	1.3	2.3	2.6	1.4	1.3	9.0
1	D	-	2.0	-	1.0	2.0	5.0
2	D	0.9	2.7	1.8	1.8	1.8	9.1
3	D	-	3.0	-	1.0	-	4.0
4	D	3.6	1.8	0.9	1.8	0.9	9.1
5	D	-	1.0	5.0	3.0	-	9.0
6	D	-	1.8	3.6	0.9	-	6.4
7	D	-	3.0	6.0	3.0	-	12.0
8	D	-	2.7	0.9	1.8	3.6	9.1
AV	D	0.6	2.2	2.3	1.8	1.0	8.0
1	S	-	3.0	2.0	3.0	4.0	12.1
2	S	-	2.7	1.8	-	-	4.5
3	S	1.0	3.0	1.0	-	-	5.0
4	S	1.8	1.8	1.8	0.9	-	6.4
5	S	-	2.0	1.0	2.0	1.0	6.0
6	S	-	2.7	-	0.9	0.9	4.5
7	S	-	5.0	6.0	4.0	2.0	17.0
8	S	1.8	1.8	2.7	-	0.9	7.3
AV	S	0.6	2.8	2.0	1.4	1.1	7.8
1	D	-	3.6	0.9	3.6	2.7	10.9
2	D	2.0	2.0	2.0	4.0	2.0	12.0
3	D	0.9	5.5	0.9	1.8	1.8	10.9
4	D	1.0	3.0	2.0	-	1.0	7.0
5	D	-	1.8	-	0.9	2.7	5.5
6	D	1.0	5.0	1.0	2.0	-	9.0
7	D	-	3.6	2.7	0.9	0.9	8.2
8	D	1.0	1.0	4.0	1.0	2.0	9.0
AV	D	0.7	3.2	1.7	1.8	1.6	9.1

TABLE 24-4A-SIV and 24-4C-SIV. Causes of Mortality - Laying Percentages

Entry No.	Cage Code	Lymphoid Leukosis	Reproductive Disorders	Other Causes	No Visible Lesions	No Necropsy Report	% Total Mortality
1	3	--	1.1	--	1.1	2.2	4.4
2	3	--	1.1	1.1	--	1.1	3.3
3	3	--	--	--	1.1	--	1.1
4	3	5.6	1.1	3.3	2.2	--	12.2
5	3	--	2.2	5.6	3.3	--	11.1
6	3	--	--	1.1	2.2	1.1	4.4
7	3	--	2.2	6.7	4.4	--	13.3
8	3	1.1	1.1	3.4	--	4.5	10.1
AV	3	0.8	1.1	2.6	1.8	1.1	7.5
1	4	0.8	2.5	2.5	1.7	--	7.5
2	4	0.8	4.2	1.7	1.7	2.5	10.8
3	4	0.8	4.2	0.8	0.8	--	6.7
4	4	3.3	2.5	--	--	1.7	7.5
5	4	0.8	2.5	2.5	4.2	0.8	10.8
6	4	--	2.5	3.3	0.8	0.8	7.5
7	4	0.8	5.8	5.8	0.8	1.7	15.0
8	4	0.8	2.5	2.5	2.5	3.3	11.7
AV	4	1.0	3.3	2.4	1.6	1.4	9.7
1	3	--	1.1	2.2	3.3	2.2	8.9
2	3	2.2	--	1.1	2.2	2.2	7.8
3	3	1.1	2.2	2.2	--	--	5.6
4	3	1.1	1.1	1.1	--	1.1	4.4
5	3	--	2.2	--	--	3.3	5.6
6	3	--	2.2	1.1	--	--	3.3
7	3	--	--	5.6	2.2	1.1	8.9
8	3	1.1	1.1	5.6	--	1.1	8.9
AV	3	0.7	1.2	2.4	1.0	1.4	6.7
1	4	--	5.0	0.8	3.4	4.2	13.4
2	4	--	4.2	2.5	1.7	--	8.3
3	4	0.8	5.8	--	1.7	1.7	10.0
4	4	1.7	3.3	2.5	0.8	--	8.3
5	4	--	1.7	0.8	2.5	0.8	5.8
6	4	0.8	5.0	--	2.5	0.8	9.2
7	4	--	7.5	3.3	2.5	1.7	15.0
8	4	1.7	1.7	1.7	0.8	1.7	7.5
AV	4	0.6	4.3	1.4	2.0	1.4	9.7

TABLE 24-4D-V. Commercial Egg Gradeout

Entry No.	Housing Type	Percent Grade A or Better			% Breaker		% Loss Eggs	
		Ex. Large & Jumbo	Large	Medium	Small & Pee Wee	Sound	Crax	Farm Other
<u>November - 32 Weeks</u>								
1	0	34.5	49.5	9.1	--	0.7	4.0	0.7 1.4
2	0	4.6	45.2	42.6	1.7	1.5	3.8	0.0 0.6
3	0	5.1	36.0	45.5	6.3	1.7	3.7	0.3 1.4
4	0	3.3	34.6	49.1	7.3	1.3	2.1	0.7 1.6
5	0	26.4	53.5	14.5	0.5	0.7	2.9	0.2 1.4
6	0	5.6	40.4	42.4	4.2	1.6	4.1	1.0 0.8
7	0	17.4	53.7	23.0	0.5	0.4	2.9	1.6 0.5
8	0	2.4	24.3	54.3	11.9	3.4	2.8	0.0 0.9
AV	0	12.4	42.2	35.1	4.0	1.4	3.3	0.6 1.1
<u>February - 44 Weeks</u>								
1	0	64.1	21.9	1.0	1.0	0.8	4.8	1.0 5.5
2	0	29.4	49.8	12.7	--	2.1	4.4	1.2 0.4
3	0	19.4	47.9	20.4	0.2	2.6	5.8	1.2 2.4
4	0	18.7	51.4	20.7	0.3	2.2	4.5	0.8 1.4
5	0	57.1	31.3	3.3	--	0.6	1.4	1.2 5.2
6	0	23.3	50.6	15.4	0.1	1.8	6.1	1.7 1.0
7	0	55.9	35.4	2.8	--	1.0	2.7	1.5 0.8
8	0	18.9	48.0	19.8	0.4	2.1	2.9	2.9 5.0
AV	0	35.8	42.0	12.0	0.3	1.6	4.1	1.4 2.7
<u>May - 56 Weeks</u>								
1	0	68.8	19.5	2.4	--	0.4	3.4	0.8 4.8
2	0	37.4	35.1	6.3	--	3.0	4.0	0.0 14.2
3	0	29.4	47.2	11.2	0.3	4.9	4.8	0.4 1.9
4	0	26.2	51.8	11.0	0.2	4.1	3.5	1.4 1.7
5	0	66.0	24.2	1.2	--	0.7	3.2	1.4 3.4
6	0	32.1	47.4	7.3	--	2.4	5.5	1.3 3.9
7	0	63.8	26.9	1.2	--	1.4	3.0	2.6 1.1
8	0	28.7	51.6	9.4	0.6	4.4	2.9	0.8 1.6
AV	0	44.0	38.0	6.3	0.1	2.7	3.8	1.1 4.1
<u>August - 70 Weeks</u>								
1	0	73.6	16.5	0.8	--	0.7	4.2	1.1 3.1
2	0	52.3	34.9	4.9	--	1.9	4.2	0.4 1.5
3	0	36.5	40.8	8.3	0.1	2.7	7.2	1.4 3.0
4	0	35.4	44.2	8.5	--	2.5	5.6	1.4 2.3
5	0	62.7	23.0	2.4	--	2.0	2.6	2.0 5.4
6	0	36.9	43.1	6.3	--	2.3	7.2	0.9 3.3
7	0	62.4	23.8	2.2	0.7	2.0	3.0	1.9 4.0
8	0	40.6	36.6	8.6	--	3.3	3.9	6.4 0.6
AV	0	50.0	32.9	5.2	0.1	2.2	4.7	1.9 2.9

TABLE 24-4D-VI. Duncan Range Test and Range Groups

Range	Entry	Housed	Pullet	Duncan Test	% Pro- duction			Feed per Lb. of Duncan Eggs			Days Lost to Mor- tality			Duncan Test	
					After 50%	Duncan Test	Range	Entry	Range	Entry	Range	Entry	Range	Entry	
1	6	269.8			1	3	81.0		1	6	2.21		1	2	9.4
1	3	267.0			1	6	80.3		1	3	2.25		1	3	9.6
2	2	261.4			2	8	78.8		1	8	2.25		1	6	10.7
2	4	255.1			2	2	78.5		2	4	2.34		2	5	11.0
2	8	254.9			2	4	78.2		2	2	2.35		Mean		
Mean		253.6			Mean	77.5			2.36		3	8	12.3		
4	5	242.4			4	1	74.6		3	7	2.43		3	1	13.6
4	7	242.2			4	7	74.6		4	1	2.49		3	4	13.8
4	1	235.9			4	5	74.2		4	5	2.57		4	7	17.8

TWENTY-FOURTH NORTH CAROLINA LAYER PERFORMANCE AND MANAGEMENT TEST

Breeder	Stock Identification	Entry Category*	Source of Sample
DeKalb AgResearch, Inc. Sycamore Road DeKalb, IL 60115	DeKalb XL-Link WL 4w INX	I-A YES	Clay's Hatchery Route 1 Blackstone, VA 23824
DeKalb AgResearch, Inc. Sycamore Road DeKalb, IL 60115	DeKalb Sex-Sal-Link "G" RIR x SYN BX	I-A YES	Pee Dee Hatchery Box 156 Hartsville, SC 29550
Euribrid B.U., Entry by Pilch, Inc., Box 438 Troutman, NC 28677	Hisex White WL 4w INX	I-A YES	Gulf Coast Hatchery P.O. Box 1170 Quincy, FL 32351
Euribrid B.U., Entry by Pilch, Inc., Box 438 Troutman, NC 28677	Hisex Brown RIR x SYN BX	I-A YES	Grimes Poultry and Egg Co. Route 3 Monroe, GA 30655
H & N, Inc. 15305 N.E. 40th St. Redmond, WA 98052	H & N p.g./two WL 4w SX	I-A YES	Walter E. Wheelock Hatchery 2170 Wayne Road Chambersburg, PA 17201
Hubbard Farms Walpole, NH 03608	Hubbard Golden Comet NH x SYN BX	I-A YES	Bowers Brothers Hatchery Route 4 Albemarle, NC 28001
Hy-Line International Johnston, IA 50131	Hy-Line W-36	I-C	Not Applicable
Shaver Poultry Breeding Farms, Ltd., Box 400 Cambridge, Ontario CANADA NIR 5V9	Starcross 288A WL SX	I-A YES	Martin's Hatchery P.O. Box 299 Gettysburg, OH 45328

*I-A = Extensive distribution in the southeast and entry requested.

YES = Supporting and fully cooperating with test.

I-C = Extensive distribution in the southeast and entry neither requested or supported.