

AGRICULTURAL EXTENSION SERVICE
NORTH CAROLINA STATE

OF THE UNIVERSITY OF NORTH CAROLINA
AT RALEIGH

AGRICULTURAL EXTENSION SERVICE
OFFICE OF POULTRY EXTENSION
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I am enclosing the Final Summary Report of the Sixth North Carolina Random Sample Laying Test which you have requested. We believe the information herein is a useful guide for evaluating egg production stocks. Please circulate this among your associates so that they too may study its contents.

Very truly yours,

Grady A. Martin
Grady A. Martin
Extension Poultry Specialist

FINAL SUMMARY REPORT
SIXTH NORTH CAROLINA RANDOM SAMPLE EGG LAYING TEST

The North Carolina Random Sample Poultry Tests are conducted under the auspices of the Agricultural Extension Service at North Carolina State University and the North Carolina Department of Agriculture. Mr. S. J. Childs, Jr., is Resident Manager of the tests at the Piedmont Research Station, Route 6, Salisbury, N. C., and Dr. G. A. Martin, Extension Poultry Specialist, N. C. State University, Raleigh, N. C., is Project Leader.

This summary report of the 1964-65 Laying Test covers performance from March 13, 1964, through July 25, 1965, when the flock reached 500 days of age. Copies of this report may be obtained by request from Mr. S. J. Childs, address above.

Chicks from each entry were hatched at the test site from a 360-egg sample either taken from the supply as eggs were gathered at a randomly chosen supply flock or by random procedure from at least 3,600 eggs when "nest sampling" was not possible. Public employees in agriculture served as sample takers. One hundred twenty sexed pullets per entry (when available) were wing banded for growing on litter in replicated pens of 60 pullets with 175 sq. ft. of floor space per pen. First week mortality, sexing errors, and accidental deaths were not charged against the entry.

All mash rations were mixed at the test site by the formulae shown later in this report. The Starter ration was fed for 56 days, the Grower ration was fed from the 57th through 150th days, and the Layer ration was fed from the 151st through 500th days. The vaccination program was: intraocular Newcastle-bronchitis vaccine at one day old, Newcastle booster in water at 28 days old; and Newcastle-bronchitis booster in water at 109 days old; coccidiosis vaccine at 5 days old; fowl pox in the wing web at 91 days old; and encephalomyelitis vaccine in water at 129 days old. All pullets were debeaked to control cannibalism. Birds were confined to houses with concrete floors throughout the test and general management was in accord with good commercial practices in North Carolina.



FORMULAE FOR ALL MASH RATIIONS

	<u>Starter</u> 20	<u>Grower</u> 16	<u>Layer</u> 16
Minimum Crude Protein %			
Productive energy Cal./lb.	904	870	913
Metabolizable energy Cal./lb.	1249	1238	1234
Ground Yellow Corn	993.5 lbs.	924.5 lbs.	1166.5 lbs.*
Stabilized Fat	40	20	40
Wheat Middlings or Shorts	200	300	200
Pulverized Oats	-	300	- *
Fish Meal (60% protein)	100	-	-
Meat and Bone Scraps (50% protein)	-	100	100
Soybean Meal (44% protein) Solvent	450	200	300
Alfalfa Meal (20% protein)	50	50	30
Dried Whey	50	50	25
Distillers Dried Solubles (corn)	50	-	-
Defluorinated Phosphate (Min. 31% Ca. and 18% P.)	30	30	30
Limestone (Min. 38% Ca.)	20	10	90
Iodized Salt	9.5	9.5	9.5
Manganese Sulphate	0.5	0.5	0.5
Zinc Carbonate	0.25	0.25	0.25
Butylated Hydroxytoluene (BHT)	0.25	0.25	0.25
DL Methionine	1	-	0.5
Vitamin Premix	5	5	7.5
Total	2000	2000	2000

*Substitute 150 pounds of pulverized oats for a similar quantity of ground yellow corn during hot weather in June, July, August, and September 15.

VIATMIN PREMIX ANALYSIS PER POUND

Vitamin A (U.S.P. Units)	400,000
Vitamin D ₃ (I.C. Units)	200,000
Vitamin B ₁₂ Activity mg.	1
Vitamin E (I. Units)	200
Riboflavin mgs.	400
Niacin, mgs.	3,000
Pantothenic Acid, mgs.	552
Choline, mgs.	26,037
Trace Elements, in percent:	
cobalt	0.004
copper	0.04
iodine	0.024
iron	0.4
manganese	1.2

Information Concerning Data Reported

Computing services for this project are provided under the terms of the National Institutes of Health Grant No. FR-00011.

TABLE I

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

Breeder is the name used to distinguish entries. Complete stock identification, breeder's address, and address of the sample source are given elsewhere in the report.

Net Pullets or Hens is the number of pullets at one week, at housing, and at 500 days, with sexing errors, first week mortality, and accidental deaths excluded.

% Mortality is the percentage of the net pullets that died during the specified periods. A veterinarian was retained to perform autopsies upon all birds (except as noted) that died after the first week. The cause of death was noted and these findings are summarized in TABLE III by categories.

Feed Consumed was calculated in such a manner as to make it independent of mortality and to reflect feed consumption per bird for a 150-day growing period and a 350-day laying period.

% Loss (downgrades) is the percentage by which total egg value was reduced below Grade A egg value due to downgrades from candling. We express our appreciation to Mr. Carl Tower of the N. C. Department of Agriculture and his co-workers for providing candling service on one day of production each month. Market value of all eggs is calculated on the basis of the candling reports.

Chick Price is the 3-year average price per sexed pullet in lots of 1,000 as calculated from price lists.

Feed Cost - 1-150 days and 151-500 days - was calculated by charging the feed per pullet housed each month at the 3-year average of monthly feed prices reported by the North Carolina Department of Agriculture. Prices are tabulated elsewhere in this report.

Cost of Feed and Chicks charges the net pullets at one week against the survivors at 150 days at the reported chick price. This figure was added to the two feed cost figures for the total.

Value of Eggs was calculated by crediting the weekly egg production at the 3-year weekly average Grade A price for that week and size class as reported by the Federal-State Market News Service at Raleigh. At the close of each quarter, this value was discounted by the percentage reduction below Grade A value due to downgrades (except dirties) from candling of three days of production during the quarter.

Value of Meat was calculated by applying the 3-year average price of that class of fowl during the last week of July to the total weight of marketable survivors for the pen and dividing by the number of pullets housed. Average prices were \$.1033 for entries that averaged between 5 and 7 lbs. and \$.0667 for entries averaging less than 5 lbs.

I.O.F.C.C. is Income over Feed and Chick Cost per pullet housed. This does not represent profit since costs of brooding, vaccines, medicants, oyster shells,

grit, depreciation on equipment, insurance, interest on investment, labor, etc., are not deducted from income. Three-year average prices by months are tabulated later. This figure is applicable only to the cost, price, and environment combination of this test.

Duncan Range Test of I.O.F.C.C. This may have little meaning to those who have not used statistical procedures. Basically, this test indicates that differences greater than those spanned by any one of the vertical lines would not be expected to occur more than five times out of 100 tests if all birds had the same ability to produce. Few of us can insure 19 to 1 odds in our favor on the daily business transactions in which we are involved. It is, therefore, better to observe the performance of a stock in more than one test or in the same test for more than a single year to ascertain its value relative to other stocks.

TABLE II

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

Egg Size Distribution (%) was obtained by crediting the weekly total egg production to size classes proportional to those observed on the total production of one day. The sums of these weekly totals were converted to percentages at the end of the test. Individual eggs weighing between 23 and 26 ounces per dozen are classified as large. Other size classes are scaled up or down from large in blocks of 3 oz./doz.

Average Egg Weight in ounces per dozen was obtained by mass weighing one day's eggs each week. The average weight for this day was multiplied by the weekly production and the weekly products were accumulated for the test. The total weight of eggs was divided by the number of eggs laid to determine average weight.

Average Body Wt. was the average of individual weights of all birds in the pens on 150th and 500th days.

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

Eggs per Pullet Housed is the total number of eggs produced divided by the number of pullets housed. The Duncan test is explained at the end of TABLE I.

TABLE III

Cause of Mortality as determined by autopsy is reported as percentages of net pullets at one week for the growing period and of net pullets housed for the laying period.

Hen-Days Lost to Mortality per Bird represents the average number of days by which the entry failed to provide 350 hen-days per pullet housed. This has the advantage of counting less loss for birds that die late in the year than for early mortality.

Pounds of Feed Per - Dozen Eggs and Pound of Eggs were calculated by dividing the total feed consumed in the last 350 days by the total dozens and pounds of eggs laid. The Duncan test is explained at the end of TABLE I.

TABLE IV

Colored Inclusions (Breakout): Blood Spots and Meat Spots were observed by breaking one day's production from each pen at about 30-day intervals throughout the year. Spots exceeding 1/8 inch were classified as large and those of lesser size as small. Breakout data was not used for egg value calculations.

Candled Quality %. Official graders, who check egg quality for the enforcement of the North Carolina egg law, candled the production of one day each month. The percentages reported are a summary of their findings and were used to determine the value of eggs.

Albumen Quality in Haugh Units was measured on an equal number of eggs from each pen and approximately one day's production per quarter. 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 value of 0, those between 1.068 and 1.072 a value of 1, etc., with those exceeding a specific gravity of 1.100 receiving a value of 9. One day's production from each pen was classified in October, January, April, and July. Since this factor undergoes seasonal changes, the quarterly averages and the annual average are given.

Two Year Summary - TABLE V

Selected items have been averaged over the two years of testing. The entries are arranged in descending order of eggs per pullet housed. These are averages of the stocks as entered and in some cases are not the same breeding combination; e.g. Hy-Line entered their 934-H in the Fifth test and their 934-D in the Sixth test. Nevertheless, these averages should be better indicators of future performance in this test than a single-year summary would be. For an excellent presentation of average performance in all tests, the reader is referred to the USDA Agricultural Research Service publications 44-79-5, January, 1965, which presents a 2-year average regressed mean for each stock.

FEED PRICE - EGG VALUE TABLE

Three-year average monthly feed prices and three-year average egg prices for weeks beginning in the indicated months of this report are listed on the following page.

	Three-Year Average Feed Prices (\$ per ton)			Three-Year Average Egg Price (¢ per doz.)			
	Starter	Grower	Layer	A Large	A Medium	A Small	A PeeWee
Aug.			94.00	39.0	28.6	18.3	14.3
Sept.			93.67	40.2	31.5	19.7	16.1
Oct.			93.67	37.0	28.2	22.3	16.6
Nov.			93.33	39.2	28.3	23.1	16.4
Dec.			93.33	36.9	30.1	25.5	17.7
Jan.			93.67	34.7	31.0	27.8	16.7
Feb.			94.00	33.1	29.8	26.8	17.3
Mar.	90.80		94.67	32.4	28.3	24.5	20.6
Apr.	90.26		93.33	29.4	25.4	21.1	17.1
May		87.06	93.67	27.1	21.4	17.7	13.5
June		87.40	93.67	29.9	22.3	17.1	12.8
July		90.96	94.00	33.0	24.0	17.6	12.5

COMPARATIVE DATA between TESTS

Now that the North Carolina Random Sample Egg Laying Test has completed six cycles, it may be of interest to note some trends in average performance. Beginning with the Sixth Test, the productive energy level of rations was increased by 34 Cal./lb. for Starter, 10 Cal./lb. for Grower, and 73 Cal./lb. for Layer ration. Also, the chicks were hatched one month later after the Fifth Test.

AVERAGE PERFORMANCE

Test No.:	1	2	3	4	5	6
IOFCC	\$1.54	\$1.73	\$1.88	\$1.93	\$0.98	\$1.05
Eggs/pullet housed	220	228	233	243	222	236
Prod. rate after 50%	71.2%	72.1%	73.7%	73.6%	73.3%	73.0%
Egg weight (oz./doz.)	25.3	25.7	25.6	25.1	25.0	25.4
lbs. of feed/ doz. eggs	4.47	4.47	4.59	4.65	4.53	4.45
lbs. of feed/lb. eggs	2.83	2.78	2.84	2.96	2.89	2.81
% laying mortality - Total	12.6%	10.7%	12.4%	5.0%	18.0%	10.2%
- Due to leukosis	2.7%	5.9%	7.1%	1.4%	12.8%	6.9%

TABLE I, Test 6-4: a. Numbers, Mortality, Feed & Loss; b. Cost and Income per Pullet

a. Entry No.	Breeder	Net Pullets or Hens			% Mortality		Feed Consumed		% Loss (down-grades)
		at 1. Week	Housed	Sold	8-150 days	151-500 days	1-150 days	151-500 days	
13	Babcock	115	100	99	0	1.0	19.3	96.6	2.5
7	Shaver	114	100	92	0	8.0	19.0	97.9	3.5
8	Hubbard	91	89	83	2.2	6.7	21.3	92.8	2.0
4	Kimber	115	100	97	0	3.0	18.6	90.5	2.8
19	DeKalb	113	100	96	0.9	4.0	18.6	85.7	1.4
11	Cameron	118	100	94	0	5.0	19.1	99.0	3.5
20	Demler	117	100	94	0.9	6.0	18.4	89.1	2.5
2	Harco	119	100	98	1.7	2.0	22.3	97.4	2.1
1	Honegger	118	100	91	3.4	9.0	20.3	90.3	2.0
14	Arbor Acres	116	100	79	1.7	21.0	17.8	90.3	3.2
3	Hy-Line	118	100	89	2.5	11.0	18.0	90.7	1.6
17	Davis	119	100	90	1.7	10.0	22.4	100.9	2.2
5	Ideal	112	100	88	3.6	12.0	17.8	92.8	2.7
9	H & N	119	100	95	0.8	5.0	18.8	90.3	2.4
18	Garr-Stev.	117	100	89	0.9	11.0	17.8	89.0	2.7
15	Pa. Farm	115	100	85	4.3	15.0	18.2	87.6	2.8
6	Fox Den	119	100	93	1.7	7.0	19.4	85.4	3.9
12	Beamsdale	113	100	83	0.9	17.0	18.2	94.3	2.1
16	Cashman	114	100	66	3.5	35.0	18.6	87.3	2.9
10	Ghostley	113	100	84	2.5	16.0	18.8	94.6	2.7
Average		114.8	99.4	89.2	1.7	10.2	19.1	92.1	2.6

b. Entry No.	Chick Price	Feed Cost		Cost of Feed & Chicks	Value of Eggs	Value of Meat	IOFCC	Duncan test of IOFCC
		1-150 days	151-500 days					
13	.390	.884	4.487	5.761	7.031	.521	1.791	
7	.392	.869	4.354	5.616	6.723	.477	1.584	
8	.350	.989	4.222	5.569	6.414	.548	1.393	
4	.443	.848	4.181	5.472	6.530	.305	1.363	
19	.543	1.396	3.959	5.355	6.403	.302	1.350	
11	.320	.868	4.469	5.657	6.483	.502	1.328	
20	.357	1.200	3.984	5.184	6.105	.284	1.205	
2	.403	1.015	4.527	5.953	6.682	.624	1.153	
1	.397	.936	3.977	5.324	5.956	.511	1.143	
14	.323	.803	3.776	4.903	5.627	.238	.962	
3	.520	.840	3.974	5.348	6.039	.248	.940	
17	.340	1.023	4.496	5.865	6.181	.616	.932	
5	.380	.825	4.061	5.280	5.945	.266	.931	
9	.410	.861	4.141	5.416	6.031	.297	.911	
18	.372	.822	3.990	5.187	5.773	.248	.834	
15	.387	.845	3.703	4.952	5.505	.268	.821	
6	.340	.893	3.893	5.132	5.530	.391	.790	
12	.360	.840	4.067	5.271	5.706	.252	.688	
16	.450	.873	3.072	4.412	4.631	.205	.425	
10	.380	.881	4.096	5.368	5.424	.355	.411	
Avg.	.393	.926	4.071	5.351	6.036	.372	1.047	

TABLE II, Test 6-4: a. Maturity and Egg Size; b. Body Weight and Egg Production

a. Entry No.	Breeder	Days to 50% Production	Egg Size Distribution (%)					Avg. Egg Weight (oz./doz.)
			Pee Wee	Small	Medium	Large	Extra Large and over	
13	Babcock	154.5	1.4	4.7	19.1	28.1	46.7	25.6
7	Shaver	155.5	0.9	4.8	21.6	31.6	41.1	25.4
2	Harco	162.0	0.6	3.7	19.9	31.0	44.8	25.7
4	Kimber	162.5	0.8	4.8	21.4	32.6	40.4	25.4
11	Cameron	166.0	0.6	4.0	19.6	32.3	43.6	25.7
8	Hubbard	162.0	0.9	4.4	21.7	31.4	41.5	25.3
19	DeKalb	164.5	0.9	4.6	21.2	28.9	44.4	25.5
20	Demler	161.0	1.6	6.0	24.0	33.5	34.9	24.9
1	Honegger	159.5	1.6	7.1	24.4	31.2	35.7	25.0
9	H & N	161.5	0.8	5.4	25.7	34.0	34.1	25.0
3	Hy-Line	164.0	0.6	3.9	23.1	29.0	43.3	25.5
17	Davis	166.5	0.2	2.8	14.9	24.8	57.4	26.8
5	Ideal	163.5	0.6	4.1	21.4	28.7	45.2	25.6
18	Garr-Stev.	176.5	0.7	5.0	27.3	35.4	31.6	24.9
12	Beamsdale	166.0	1.4	6.0	23.4	32.6	36.5	25.0
14	Arbor Acres	176.5	1.0	4.3	22.5	32.6	39.7	25.3
15	Pa. Farm Bu.	166.0	1.1	6.0	26.9	33.9	32.1	24.8
6	Fox Den	173.0	0.9	4.4	24.1	28.0	42.6	25.5
10	Ghostley	166.5	0.6	5.5	24.7	31.6	37.6	25.2
16	Cashman	178.0	0.3	3.3	27.9	33.4	35.1	25.2
Averages		165.3	1.1	4.7	22.7	31.2	40.4	25.4

b. Entry No.	Av. Body Wt.		Hen-Day Production Percentages						Eggs/ Pullet Housed	Duncan test of Eggs/P.H.
	150 days	500 days	151-240 days	241-330 days	331-420 days	421-500 days	471-500 days	After 50%		
13	3.9	5.1	81.2	82.0	77.3	71.2	68.8	78.5	273.9	
7	3.9	5.1	81.7	83.7	78.7	71.4	68.2	79.7	264.8	
2	5.0	6.2	75.9	80.0	72.6	64.1	61.6	74.7	256.4	
4	3.6	4.7	76.2	81.2	71.3	63.6	61.0	74.8	254.3	
11	3.8	5.1	73.1	83.4	73.3	68.7	66.8	76.9	252.8	
8	4.6	5.6	74.6	78.7	73.1	62.4	59.7	73.9	247.8	
19	3.7	4.8	70.9	78.5	69.2	65.9	62.6	72.8	247.3	
20	3.6	4.7	73.7	78.0	72.0	64.2	61.6	73.4	242.6	
1	4.3	5.6	72.3	77.8	70.9	63.7	60.9	72.5	236.6	
9	3.7	4.8	76.3	78.8	62.7	53.7	50.7	69.7	235.7	
3	3.3	4.2	72.9	80.8	68.5	59.0	54.5	72.4	232.0	
17	5.1	6.6	70.4	78.7	68.5	57.2	53.4	71.1	230.4	
5	3.5	4.6	74.2	79.2	63.5	60.7	60.6	71.4	229.2	
18	3.5	4.3	61.4	82.2	68.6	60.2	55.8	72.3	229.1	
12	3.5	4.6	69.6	76.0	66.4	64.6	63.4	71.2	224.4	
14	3.4	4.6	63.4	81.6	71.1	67.7	66.7	75.2	221.9	
15	3.6	4.8	68.9	78.8	67.3	61.8	60.8	71.7	219.9	
6	4.0	4.9	64.2	73.3	61.9	56.0	56.0	66.6	219.1	
10	3.7	5.0	68.9	75.2	60.9	53.3	51.8	67.2	211.8	
16	3.6	4.8	56.4	80.7	74.6	66.6	63.9	74.5	180.7	
Avg.	3.9	5.0	71.3	79.4	69.6	62.8	60.4	73.0	235.5	

TABLE III, Test 6-4: a.Cause of Mortality; b.Cause, Days lost, and Feed Conversion

a.		Leukosis		Respir-	Coccidiosis		Perito-	Reproduc-
Entry	Breeder	8-150	151-500	atory	8-150	151-500	nititis	tive
No.		days %	days %	days %	days %	days %	151-500	151-500
							days %	days %
19	DeKalb	-	4.0	0.9	-	-	-	-
13	Babcock	-	1.0	-	-	-	-	-
4	Kimber	-	2.0	-	-	-	-	1.0
7	Shaver	-	5.0	-	-	-	-	2.0
20	Demler	-	4.0	-	-	-	-	-
3	Hy-Line	2.5	10.0	-	-	-	-	1.0
14	Arbor Acres	-	16.0	0.8	-	-	-	2.0
16	Cashman	1.8	26.0	0.9	-	-	1.0	3.0
1	Honegger	-	-	1.7	-	-	-	2.0
8	Hubbard	-	5.6	-	1.1	-	1.1	-
15	Pa. Farm Bu.	0.9	14.0	1.7	-	-	-	1.0
11	Cameron	-	5.0	-	-	-	-	-
2	Harco	-	-	-	1.9	-	-	-
5	Ideal	-	8.0	-	2.7	-	-	3.0
6	Fox Den	-	6.0	-	0.8	-	1.0	-
18	Garr-Stev.	0.9	5.0	-	-	-	-	2.0
9	H & N	-	3.0	-	-	-	1.0	-
12	Beamsdale	0.9	5.0	-	-	1.0	2.0	3.0
17	Davis	-	10.0	-	-	-	-	-
10	Ghostley	1.7	9.0	-	-	-	-	3.0
Average		0.4	6.9	0.3	0.3	.05	0.3	1.2

b.		Cause of Mortality				Hen-Days	Pounds of		Duncan
Entry		Miscellaneous		No Autopsy		lost to	Feed Per:		Range
No.		8-150	151-500	8-150	151-500	Mortality	Doz.	Lb. of	Test
		days %	days %	days %	days %	Per Bird	Eggs	Eggs	Feed/Lb.
19	-	-	-	-	-	5.0	4.12	2.58	
13	-	-	-	-	-	3.2	4.24	2.65	
4	-	-	-	-	-	4.8	4.23	2.66	
7	-	1.0	-	-	-	18.0	4.24	2.67	
20	0.9	1.0	-	1.0	-	16.2	4.23	2.71	
3	-	-	-	-	-	22.6	4.40	2.76	
14	0.8	3.0	-	-	-	37.6	4.37	2.76	
16	-	5.0	0.9	-	-	87.3	4.36	2.77	
1	0.9	-	0.8	-	-	21.0	4.33	2.77	
8	1.1	-	-	-	-	53.6	4.39	2.77	
15	0.9	-	0.9	-	-	34.1	4.32	2.78	
11	-	-	-	-	-	13.0	4.54	2.83	
2	-	-	-	-	-	2.8	4.55	2.83	
5	0.9	1.0	-	-	-	34.2	4.55	2.85	
6	0.9	-	-	-	-	9.7	4.56	2.86	
18	-	4.0	-	-	-	15.0	4.47	2.87	
9	-	1.0	0.8	-	-	7.3	4.53	2.90	
12	-	6.0	-	-	-	27.8	4.66	2.98	
17	1.7	-	-	-	-	17.5	5.01	2.98	
10	-	4.0	0.8	-	-	26.6	4.97	3.16	
Avg.	0.4	1.3	0.2	.05		22.9	4.45	2.81	

TABLE IV, Test 6-4: a. Spots and Canded Quality; b. Albumen and Shell Quality

a. Entry No.	Breeder	Colored Inclusions (Breakout)				Canded Quality, %				
		Blood Spots %		Meat Spots %		A &	B	C	Crax	Loss
		Large	Small	Large	Small	Over			& Chx.	
1	Honegger	2.7	2.7	0.3	0	95.2	3.0	0.1	0.9	0.8
2	Harco	0.7	0.8	4.3	35.7	93.0	5.4	0.5	0.8	0.3
3	Hy-Line	1.0	2.1	0	0	94.3	4.5	0.4	0.6	0.1
4	Kimber	1.9	2.3	0.1	0	91.2	6.4	0.4	1.3	0.8
5	Ideal	1.6	3.4	0	0.1	92.3	5.0	0.6	1.5	0.6
6	Fox Den	0.5	0.7	5.4	34.1	86.6	11.2	0.8	0.7	0.8
7	Shaver	2.3	1.9	0	0	91.0	5.9	0.5	1.7	1.0
8	Hubbard	0.3	0.3	4.6	41.0	94.7	2.7	0.9	1.4	0.3
9	H & N	2.2	2.4	0	0.1	93.1	4.7	0.6	1.2	0.4
10	Ghostley	2.2	3.9	0	0.1	93.7	3.7	0.3	1.4	1.0
11	Cameron	2.6	3.0	0.1	0.2	93.3	2.3	0.8	2.0	1.6
12	Beamsdale	2.4	2.3	0	0	94.3	4.0	0.3	0.9	0.5
13	Babcock	2.9	2.6	0	0.1	93.4	4.0	0.5	1.2	0.9
14	Arbor Acres	4.4	3.8	0	0	94.9	2.0	0.3	0.5	2.3
15	Pa. Farm Bu.	4.3	3.5	0	0	93.5	4.2	0.5	0.4	1.4
16	Cashman	2.2	3.1	0.2	0	91.5	5.6	1.0	1.4	0.5
17	Davis	0.6	1.7	3.4	35.2	93.5	4.2	0.9	1.2	0.3
18	Garr-Stev.	2.2	4.1	0	0	92.7	4.7	0.6	1.4	0.8
19	DeKalb	1.6	2.3	0.1	0	95.9	2.5	0.5	0.9	0.2
20	Demler	1.4	3.4	0	0.1	92.8	5.0	0.4	1.2	0.6
Average		2.0	2.5	0.9	7.3	93.0	4.6	0.5	1.3	0.8

b. Entry No.	Albumen Quality in Haugh Units					Shell Score (Specific Gravity)				
	Sept.	Dec.	Mar.	June	Average	Oct.	Jan.	Apr.	July	Average
1	81.4	76.1	71.0	67.7	74.0	4.35	3.46	2.00	1.22	2.76
2	84.5	78.3	72.6	65.3	75.2	3.02	2.72	1.01	0.50	1.81
3	82.1	74.6	70.2	65.8	73.2	4.56	3.89	2.54	1.34	3.08
4	89.9	82.0	76.0	74.0	80.4	5.55	4.68	3.12	1.78	3.78
5	84.6	76.0	71.8	70.2	75.6	4.94	4.11	2.96	1.92	3.48
6	85.3	77.5	70.7	66.3	74.9	3.62	2.99	1.08	0.45	2.04
7	81.9	74.8	69.2	68.4	73.5	4.59	3.86	2.50	1.62	3.14
8	85.9	81.0	73.9	68.7	77.4	3.64	3.09	1.97	1.09	2.44
9	88.9	80.7	75.7	72.7	79.5	4.50	3.88	2.10	0.98	2.86
10	89.6	81.8	77.2	73.9	80.6	4.26	3.83	2.29	1.30	2.92
11	85.1	77.9	73.2	69.4	76.4	4.46	3.89	1.97	1.04	2.84
12	85.0	78.2	71.8	70.5	76.4	4.66	3.51	2.32	1.44	2.98
13	82.3	76.0	71.0	69.0	74.6	4.65	3.86	2.50	1.20	3.05
14	88.6	80.2	73.4	72.0	78.6	4.56	3.78	2.46	1.31	3.02
15	87.3	81.5	76.9	72.8	79.6	4.44	3.84	2.54	1.76	3.14
16	81.7	77.4	68.3	65.1	73.1	4.38	3.65	1.98	1.24	2.81
17	84.1	78.0	72.5	67.8	75.6	3.42	2.49	1.03	0.42	1.84
18	86.7	80.0	75.2	70.1	78.0	4.35	3.86	2.14	0.84	2.80
19	83.9	77.5	71.9	68.2	75.4	4.47	3.74	2.06	1.06	2.83
20	84.6	78.7	73.2	71.0	76.8	4.72	4.08	2.09	1.30	3.04
Av.	85.2	78.3	72.8	69.4	76.4	4.36	3.66	2.13	1.19	2.83

TABLE V. Tests 5 and 6: Two-Years Summary

Line No.	Breeder	Stock Designation		Lbs. Body Wt.		% Prod. after 50%	IOFCC	Eggs/ Pullet Housed
		1963-64	1964-65	150 days	500 days			
1	Babcock	B-300	same	3.8	5.0	77.0	1.322	255.0
2	Shaver	#288	same	3.8	5.0	78.9	1.392	249.6
3	Harco	PS,RIR	same	5.0	6.2	75.1	1.212	248.0
4	Hy-Line	934-H	934-D	3.4	4.4	75.0	1.230	241.6
5	Kimber	K-137	same	3.6	4.8	72.8	1.138	240.8
6	Hubbard	Comet	same	4.6	5.7	74.6	1.313	239.4
7	DeKalb	#151	#131	3.6	4.7	72.5	1.102	235.0
8	Pa. Farm Bu.	# 55	same	3.6	4.8	73.9	1.242	232.8
9	Honegger	H-62	H-80	4.0	5.3	73.4	1.053	231.6
10	Cameron	#924	same	3.7	5.1	74.4	1.066	230.0
11	Davis	Combiner	same	5.1	6.6	72.4	.967	229.8
12	Garrison	X 300	same	3.4	4.4	72.0	1.047	228.4
13	Heisdorf & N	Nick Chick	same	3.6	4.7	70.8	.736	221.4
14	Demler	Regal	same	3.5	4.6	70.1	.897	220.2
15	Beamsdale	#66	same	3.4	4.5	70.6	.614	215.0
16	Cashman	Hi-Cash	same	3.8	5.0	77.8	.806	212.9
17	Ideal	H3W-2	same	3.4	4.6	71.2	.854	212.9
18	Ghostley	Pearl	Pearl 63	3.6	4.8	69.9	.554	208.4
19	Arbor Acres	Queen	same	3.4	4.5	72.8	.860	207.1
Average				3.8	5.0	73.4	1.021	229.5

Line No.	Age at 50% Prod.	Mortality		Days Lost/ Layer	Av. Egg Weight oz./doz.	Lbs. Feed Per Eggs		% Loss (down-grades)	Albumen Quality (H.U.)	Shell Score (s.g.)
		8-150 days	151-500 days %			doz.	Lbs.			
1	157.0	11.6	9.3	18.8	25.4	4.30	2.70	2.8	76.6	3.44
2	161.8	10.0	12.6	28.8	25.6	4.38	2.73	2.6	75.4	3.61
3	166.2	7.8	4.9	11.2	26.0	4.63	2.84	2.4	77.7	2.26
4	163.2	4.2	11.5	21.7	25.1	4.26	2.74	1.4	73.6	3.55
5	162.5	7.9	7.4	14.6	25.3	4.42	2.79	2.4	81.3	4.24
6	163.8	5.8	12.6	44.8	25.2	4.46	2.83	2.2	78.0	2.56
7	166.0	4.2	9.5	17.7	25.4	4.30	2.70	1.6	77.9	3.28
8	164.2	8.8	11.8	27.7	24.8	4.22	2.72	1.8	81.0	3.46
9	162.8	8.0	11.8	28.7	24.8	4.41	2.85	2.0	77.6	3.04
10	168.0	6.9	13.2	32.0	25.5	4.71	2.96	2.4	79.1	3.35
11	165.5	7.5	13.6	25.2	26.4	4.98	3.00	2.2	77.6	2.40
12	170.5	4.0	10.5	19.8	24.8	4.40	2.84	2.2	77.2	3.59
13	164.8	8.4	12.4	28.8	24.8	4.56	2.93	2.4	79.4	3.34
14	162.8	8.2	14.0	31.8	24.6	4.34	2.83	2.2	77.9	3.52
15	164.5	6.8	22.6	39.6	24.4	4.56	2.98	2.0	77.4	3.43
16	170.2	8.4	27.3	64.8	24.8	4.30	2.77	2.8	75.0	2.76
17	165.0	7.8	20.7	48.8	25.4	4.58	2.88	2.1	76.4	3.92
18	169.5	8.0	19.4	40.2	25.1	4.82	3.08	2.0	80.8	3.64
19	173.5	3.5	25.5	50.2	25.6	4.61	2.88	2.6	80.0	3.47
Av.	165.4	7.3	14.2	31.3	25.2	4.49	2.84	2.2	77.9	3.26

LIST OF ENTRANTS IN SIXTH N. C. RANDOM SAMPLE EGG LAYING TEST

<u>BREEDER AND ADDRESS</u>	<u>STOCK DESIGNATION</u>	<u>SOURCE OF SAMPLE</u>
Arbor Acres Farm, Inc. Glastonbury, Conn.	WL StrX Queens	Arbor Acres Farm, Inc. Concord, N. C.
Babcock Poultry Farm, Inc. Ithaca, New York	WL 3wX B-300	Harrold's Chicks, Inc. Winterville, Ga.
Beamsdale Farm Lawndale, N. C.	WL StrX 66	Beamsdale Hatchery Lawndale, N. C.
Cameron Leghorn Research Farm Beaver Springs, Pa.	WL StrX 924	Cameron Leghorn Research Farm, Beaver Springs, Pa.
Cashman Leghorn Farms Webster, Ky.	WL 3wX Hi-Cash	Ridgeway Poultry Farm Knoxville, Tenn.
Joe K. Davis Hatchery Earl, N. C.	XB RIR x BPR Combiner Sex-Link	Joe K. Davis Hatchery Earl, N. C.
DeKalb Agricultural Asso. Sycamore, Ill	INX 131	All Star Mills, Inc. Albemarle, N. C.
Demler Farms, Inc. Anheim, Calif.	WL 3wX Regal	Raleigh Hatcheries, Inc. Raleigh, N. C.
Fox Den Farms Cary, N. C.	RIR StrX Little Red Hens	Fox Den Farms Cary, N. C.
Earl W. Garrison, Inc. Bridgeton, N. J.	WL StrX Garrison- Stever X 300	Stever Poultry Farm Huntingdon, Pa.
Ghostley's Poultry Farms Anoka, Minn.	WL StrX Pearl 63	Beamsdale Hatchery Lawndale, N. C.
Harco Orch. & Poultry Farms, Inc. South Easton, Mass.	RIR PS Group I	Harco Orchard & Poultry Farms, S. Easton, Mass.
Heisdorf & Nelson Farms, Inc. Kirkland, Wash.	WL StrX "Nick Chick"	J. C. Castlebury Hatchery, Apex, N.C.
Honegger Farms Co., Inc. Forrest, Ill.	XB Syn.x WL H-80	FCX Hatchery Wallace, N. C.
Hubbard Farms, Inc. Walpole, N. H.	XB Syn.x NH Comet	Hubbard Farms, Inc. Statesville, N. C.
Hy-Line Poultry Farms Des Moines, Iowa	INX 934-D	Tar Heel Chicks Hatchery, Monroe, N. C.
Ideal Poultry Breeding Farms, Inc. Cameron, Texas	WL StrX H3W-2	Ideal Poul. Breed. Farms, Cameron, Texas
Kimber Farms, Inc. Fremont, Calif.	WL StrX K-137	Hubbard Farms, Inc. Statesville, N. C.
Pa.-Ind. Farm Bureau Grantville, Pa.	WL StrX Princess 55	Pa. Farm Bureau Hatchery, Grantville, Pa.
Shaver Poultry Breeding Farms, Ltd. Galt, Ontario, CANADA	WL 3wX Starcross 288	Mid-Valley Hatchery, Inc., Dayton, Va.