

## FINAL REPORT

### FOURTH NORTH CAROLINA RANDOM SAMPLE EGG LAYING TEST

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

This is the summary report of the 1962-63 laying test and covers performance from February 9, 1962 through June 23, 1963, when the flock reached 500 days of age. Copies of the report may be obtained from Mr. S. J. Childs, Jr., address above.

Chicks for each entry were hatched at the test site from a case of eggs selected by random procedure from at least 10 cases of eggs at the participating hatchery, or as a nest sample from a randomly selected supply flock. Chicks were sexed and 120 pullets were wingbanded (when available) for growing in replicated pens of 60 pullets. All mash feeds are mixed by the test personnel. The starting ration is 20% protein with 870 cal. productive energy per pound and is fed during the first 56 days. The laying ration with 16% protein and 840 calories, is fed from the 151st through 500th days. During hot weather, the laying mash formula is altered to provide an 820-calorie ration.

The disease control program during the growing period was intra-ocular Newcastle-bronchitis vaccination at 1-day-old, coccidiosis vaccination at 5 days old with subsequent feeding of a coccidiostat. Newcastle dust at 4 weeks old, fowl pox in the wing web at 13 weeks old, and Newcastle-bronchitis dust at 17 weeks old. All birds were debeaked to control cannibalism. Birds were confined to the houses throughout the test and general management was in accord with good commercial practices in North Carolina.

#### Information Concerning Data Reported

TABLE I

Entry No. is the pen number assigned to random to the particular entry in the first replication of pens.

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 is the number of pullets at one week and at housing, 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 (Candled) 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 published 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.

Total Feed and Chick Cost 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 June to the total weight of marketable survivors for the pen and dividing by the number of pullets housed. Average prices were \$.1113 for entries that averaged between 6 and 7 lbs., \$.0957 for entries between 5 and 6 lbs., and \$.0692 for entries between 4 and 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. (Sizes recommended by the USDA Standards were used.)

Average Egg Weight in ounces per dozen were obtained by mass-weighing of 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 Weight 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

Pounds of Feed - Per Dozen Eggs and - Per 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. Feed per 24 ounces of eggs is 1.5 times feed per pound of eggs. The Duncan test is explained at the end of TABLE I.

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.

TABLE IV

Candled Grade (%). Official graders, who check egg quality for the enforcement of the North Carolina egg law, candle the production of one day each month. The percentages reported are a summary of their findings.

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 Quality 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 September, December, March, and June. Since this factor undergoes seasonal changes, the quarterly averages and the annual average are given.

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.

#### 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. Babcock Farms entered their Bonnie in the third test and their B-300 in the Fourth 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 44-79-3, December, 1962.

#### FEED PRICE-EGG VALUE TABLE

Three-year average monthly feed prices and three-year average egg prices for weeks beginning in the indicated months for this report are listed below. Brown egg prices were the same as white egg prices except as indicated.

Three-Year Average Feed Prices (\$ per ton)			Three-Year Average Egg Price (¢ per doz)							
Starter	Grower	Layer	A Large		A Medium		A Small		A Pee Wee	
			Wh.	Br.	Wh.	Br.	Wh.	Br.	Wh.	Br.
July		93.00	36.1		29.5		21.2		15.3	
Aug.		93.00	41.4		31.5		20.9		14.7	
Sept.		93.00	46.4	46.6	34.9	35.1	22.0	22.5	15.2	14.6
Oct.		92.33	44.0	44.5	34.4	34.7	25.2	25.5	18.3	18.5
Nov.		92.00	46.5	46.7	34.8	35.0	27.8	28.2	22.0	22.2
Dec.		91.33	42.9	43.0	34.2	34.6	28.8	29.3	23.4	23.8
Jan.		92.33	38.1	38.4	34.1	34.3	29.9	30.1	23.2	23.4
Feb.	92.33	93.00	38.1		34.6		31.0		23.7	
Mar.	92.00	83.33	93.00	34.5	30.5		25.5		19.2	
Apr.	92.00	83.33	92.67	30.8	26.5		21.0		15.4	
May		83.33	92.67	28.1	22.2		17.8		13.6	
June		83.67	93.33	30.7	22.7		17.2		13.0	

#### COMPARATIVE DATA between TESTS

Now that the North Carolina Random Sample Egg Laying Test has completed four cycles, it may be of interest to note some trends in average performance. No major changes in management and no changes in feed formulae have been made during these tests.

#### Average Performance

Test No.	1	2	3	4
IOFCC	\$1.54	\$1.73	\$1.88	\$1.93
Eggs/pullet housed	220	228	233	243
Prod. rate after 50%	71.2%	72.1%	73.7%	73.6%
Egg weight (oz/doz)	25.3	25.7	25.6	25.1
lbs. of feed/doz eggs	4.47	4.47	4.59	4.65
lbs. of feed/lb eggs	2.83	2.78	2.84	2.96
% laying mortality-Total	12.6%	10.7%	12.4%	5.0%
- Due to leukosis	2.7%	5.9%	7.1%	1.4%

## EXTENSION OF THE TEST

Birds from the second and third tests were kept for an additional 60 days and unofficial records were maintained for two blocks of 30 days each. The correlation of rate of lay during the last 30 days of the test with that for the two following 30-day periods was .999 and .977, respectively, by entries.

Changes in meat value and egg grades during the extra 60 days were small and of little consequence.

## LIST OF ENTRIES IN FOURTH N. C. RANDOM SAMPLE LAYING TEST

<u>BREEDER AND ADDRESS</u>	<u>STOCK DESIGNATION</u>	<u>SOURCE OF SAMPLE</u>
Ames In-Cross Des Moines, Iowa	IBX 505	Mid-Valley Hatchery Dayton, Virginia
Arbor Acres Farm, Inc. Glastonbury, Conn.	WL Str. X Queens	Arbor Acres Farm, Inc. Concord, N. C.
Babcock Poultry Farms Ithaca, N. Y.	WL Str. X B-300	Harrolds Hatchery Winterville, Ga.
Beamsdale Farm Lawndale, N. C.	WL Str. X 66	Beamsdale Hatchery Lawndale, N. C.
Brender's Leghorns Ferndale, N. Y.	WL 4wX "Beauty" pullets	Brender's Leghorns Ferndale, N. Y.
Cashman Leghorn Farm Webster, Ky.	WL 3wX Hi-Cash	Bowers Bros. Hatchery Albemarle, N. C.
Cornell University Ithaca, N. Y.	WL Ran. Bred	North Central Poultry Breeding Laboratory Lafayette, Ind.
DeKalb Agricultural Assoc. Sycamore, Ill.	IBX 151	All Star Mills Albemarle, N. C.
Demler Farms, Inc. Anaheim, Calif.	XB 3wX Demler KROSS	Raleigh Hatcheries, Inc. Raleigh, N. C.
Eby's Poultry Farm Carrollton, Texas	IBX 681 Hybrids	Eby's Poultry Farm Carrollton, Texas
J. O. Fletcher & Son Concord, N. C.	WL Str. X F-X-100	J. O. Fletcher & Son Hatchery, Concord, N. C.
Earl W. Garrison, Inc. Bridgeton, N. J.	WL 4wX Garrison-Stever- Hi-Bred	Joe Stever Farm Hunfington, Pa.
Ghostley's Poultry Farm Anoka, Minn.	WL 3wX Pearls	Beamsdale Hatchery Lawndale, N. C.
Harco Orchards & Poultry Farms, Inc., South Easton, Mass.	RIR PS Group I	Harco Orchards & Poultry Farms, So. Easton, Mass.
Heisdorf & Nelson Farms, Inc. Kirkland, Washington	WL Str. X "Nick Chick"	J. C. Castleberry Hatch. Apex, N. C.
Honegger Breeder Hatchery Forrest, Ill.	WL Str. X Layers	FCX Hatchery Wallace, N. C.
Hy - Line Poultry Farms Des Moines, Iowa	INX 934-H	Tar Heel Chicks Hatchery, Monroe, N. C.
Ideal Poultry Breeding Farm, Cameron, Texas	WL 3wX H-3-W	Asheville Hatcheries, Inc. Asheville, N. C.
Kimber Farms, Inc. Fremont, Calif.	WL 3wX K-137	Hubbard Farms, Inc. Statesville, N. C.
Rapp Leghorn Farm, Inc. Farmingdale, N. J.	WL Str. X Linecross	Joe K. Davis Hatchery Earl, N. C.

TABLE II, Test 4-4

## MATURITY, EGG and BODY SIZE, and PRODUCTION

Entry No.	Breeder	Days to 50% Prod.	Egg Size Distribution (%)					Av. egg weight (oz/doz)	Av. Body Wt.		Hen-Day Production Percentages										Eggs per pullet housed	Duncan range test of Eggs/Pull.H.
			Ex. Lg. & over						150 days	500 days	151-240 days		241-330 days		331-420 days		421-500 days		471-500 days			
			Large	Medium	Small	Wee																
4	Hy-Line	162.0	36.9	30.9	20.4	3.5	0.3	24.9	3.4	4.5	73.4	84.7	70.0	69.7	68.4	78.1	268.9					
18	Honegger	164.5	36.8	39.4	20.2	3.4	0.2	24.9	3.5	4.6	69.4	80.3	75.8	76.2	73.9	77.8	260.0					
9	Kimber	166.5	41.8	36.3	18.8	3.0	0.1	25.3	3.6	4.7	71.4	81.7	74.1	68.2	66.8	76.4	253.2					
11	Cashman	170.5	35.9	42.6	19.4	2.0	0.2	25.0	3.5	4.8	66.1	83.8	74.7	72.0	71.1	77.4	252.6					
6	Beamsdale	169.5	31.9	42.0	21.3	4.4	0.3	24.6	3.4	4.5	66.7	80.4	75.7	69.5	68.7	75.7	252.3					
10	Dabcock	163.0	36.2	41.4	17.5	4.3	0.6	24.9	3.7	4.8	70.7	78.0	73.0	68.0	67.1	74.1	251.2					
2	Eby	171.5	43.4	34.7	18.4	3.3	0.2	25.5	3.4	4.6	64.7	79.6	74.1	68.3	65.7	74.8	247.2					
13	Ghostley	174.5	44.9	37.5	15.4	2.1	0.1	25.3	3.5	4.6	62.9	80.4	72.4	68.4	66.9	74.5	247.2					
19	Heisdorf-Nelson	166.5	35.2	41.9	20.1	2.6	0.2	24.8	3.5	4.7	65.8	80.5	72.1	66.2	63.1	73.3	245.5					
3	Ideal	172.0	48.3	33.8	15.5	2.2	0.2	25.6	3.3	4.5	65.3	80.0	68.5	63.6	62.1	72.6	238.7					
7	De Kalb	166.0	48.2	34.0	15.3	2.1	0.4	25.6	3.4	4.3	67.7	75.7	64.2	66.4	66.6	70.5	238.4					
17	Demler	167.0	32.8	38.2	23.3	5.1	0.6	24.5	3.8	5.0	66.8	75.6	70.9	63.9	60.8	71.3	237.8					
20	Arbor Acres	172.0	52.9	29.9	15.3	1.7	0.2	25.8	3.5	4.5	64.5	80.2	74.2	72.4	72.8	76.2	235.8					
5	Cornell	175.5	23.1	44.6	25.0	6.7	0.7	24.2	3.4	4.9	59.2	77.9	70.4	63.0	62.4	71.2	235.2					
12	Harco	173.5	55.1	31.8	11.9	1.2	0.0	26.2	4.9	6.5	62.5	79.5	71.3	64.7	61.7	72.9	235.0					
8	Garrison-Stever	174.0	26.5	44.1	24.1	4.9	0.4	24.4	3.2	4.4	59.3	75.1	72.0	63.4	68.2	72.0	234.6					
14	Ames	167.5	41.4	40.0	16.0	2.3	0.3	25.3	4.8	6.5	63.6	74.8	71.2	56.9	53.3	68.9	232.8					
16	Brender	173.5	34.6	44.0	18.4	2.9	0.2	24.9	3.3	4.5	58.0	78.9	72.9	64.4	62.5	71.9	232.8					
1	Fletcher	175.5	41.0	36.5	17.0	3.2	0.3	25.2	3.4	4.6	62.6	76.3	63.1	62.2	61.7	69.3	227.2					
15	Rapp	174.0	35.0	43.4	18.8	2.5	0.4	24.9	3.3	4.5	60.8	76.7	71.3	66.2	64.3	72.4	224.9					
	Average	170.0	39.1	38.8	18.6	3.2	0.3	25.1	3.6	4.8	65.1	79.0	72.0	63.5	65.4	73.6	242.6					

TABLE I, Test 4-4

## NUMBERS, MORTALITY, FEED CONSUMPTION, AND INCOME

Entry No.	Breeder	Net Pullets at 1 wk. housed	% Mortality		Feed Consumed (bird-day basis)		% Loss (candled)	Chick price	Cost and Income Per Pullet Housed in Dollars				Duncan range test of IOFCC	
			8-150 days	151-500 days	1-150 days				Total feed & chick cost	Value of eggs	Value of meat			
					1-150 days	151-500 days								
4	Hy-Line	118	1.7	0.0	18.4	92.4	3.3	.573	.790	4.277	5.649	7.888	.307	2.545
9	Kimber	118	2.6	4.0	18.5	96.4	3.8	.437	.813	4.354	5.615	7.474	.313	2.171
19	Heisdorf-Nelson	117	2.6	4.0	18.4	93.3	2.0	.450	.793	4.244	5.499	7.362	.305	2.168
18	Honegger	113	2.7	4.0	18.4	97.8	4.0	.443	.800	4.411	5.666	7.524	.306	2.163
11	Cashman	117	2.6	6.0	18.4	98.8	3.1	.447	.804	4.444	5.707	7.508	.313	2.114
6	Beamsdale	108	1.9	3.0	18.4	97.4	2.5	.400	.788	4.430	5.626	7.380	.298	2.051
17	Demler	115	2.6	7.0	18.8	90.5	2.8	.390	.812	4.086	5.299	6.891	.451	2.043
2	Eby	118	0.8	7.0	18.4	98.2	3.0	.350	.790	4.467	5.610	7.327	.296	2.014
10	Babcock	119	1.7	3.0	18.9	94.9	4.9	.423	.817	4.333	5.580	7.231	.322	1.974
13	Ghostley	114	0.9	3.0	18.4	98.8	2.9	.450	.797	4.540	5.791	7.432	.311	1.953
16	Brender	117	0.8	5.0	17.8	90.3	3.3	.427	.766	4.050	5.246	6.885	.296	1.936
7	De Kalb	116	0.9	2.0	18.1	92.2	2.5	.560	.784	4.232	5.581	7.196	.285	1.901
20	Arbor Acres	112	1.8	14.0	18.3	101.1	2.7	.373	.801	4.319	5.500	7.112	.270	1.881
8	Garrison-Stever	117	0.9	5.0	17.4	89.9	3.1	.385	.749	4.060	5.197	6.743	.286	1.832
3	Ideal	115	3.5	5.1	18.0	98.1	3.6	.380	.781	4.453	5.628	7.165	.294	1.830
15	Rapp	119	2.5	14.0	17.6	91.4	3.1	.393	.770	3.955	5.128	6.681	.269	1.823
14	Ames	118	0.8	2.0	21.8	97.9	3.7	.500	.935	4.495	5.935	6.960	.708	1.734
12	Harco	116	0.9	6.0	22.8	103.6	5.6	.410	.975	4.619	6.008	7.003	.679	1.674
5	Cornell	110	1.8	4.0	18.2	94.4	4.6	.420	.784	4.331	5.543	6.626	.325	1.409
1	Fletcher	113	0.9	2.0	18.4	99.5	2.8	.363	.798	4.520	5.685	6.782	.304	1.401
	Average	115	1.7	5.0	18.7	95.8	3.4	.429	.807	4.331	5.575	7.158	.347	1.931



# FEDERAL BUREAU OF INVESTIGATION

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TABLE IV, Test 4-4

## EGG QUALITY

Entry No.	Breeder	Candled Grade (%)				Crax & Chex	Albumen Quality in Haugh Units				Shell Quality (Specific Gravity)			Colored Inclusions (Breakout)						
		A & over	B	C	Loss		Aug.	Nov.	Jan.	May	Average	Sept.	Dec.	Mar.	June	Average	Blood Spots (%)		Meat Spots (%)	
																	Large	Small	Large	Small
1	Fletcher	90.9	7.8	1.0	0	0.3	83.3	79.3	77.4	76.0	79.0	4.44	4.24	3.42	1.81	3.47	2.3	2.8	0	0.4
2	Eby	88.6	9.9	1.0	0.2	0.2	76.0	74.4	76.9	74.6	75.5	4.03	4.07	2.80	1.32	3.08	1.6	2.4	0	0.4
3	Ideal	98.4	7.0	2.2	0.9	0.6	81.6	78.8	77.4	75.6	78.4	4.32	4.04	3.02	1.68	3.26	3.1	4.3	0.3	0.2
4	Hy-Line	90.5	7.0	1.7	0.1	0.7	75.9	75.0	75.8	71.5	74.6	4.04	4.05	2.87	1.39	3.09	1.6	1.7	0.1	0.1
5	Cornell	87.0	9.0	2.4	0.5	1.0	82.9	78.7	79.2	74.4	78.8	4.32	4.03	3.43	1.71	3.38	3.5	3.7	0.1	0.4
6	Beamsdale	92.5	5.4	1.1	0.4	0.6	81.4	80.7	79.9	74.6	79.2	4.30	4.04	3.00	1.40	3.18	1.9	3.1	0.6	2.3
7	De Kalb	92.3	6.0	1.0	0.1	0.5	88.0	84.8	83.7	79.6	84.0	4.10	4.17	3.34	1.83	3.36	2.2	2.1	0.2	2.2
8	Garrison-Stever	90.4	7.3	1.7	0.2	0.4	78.5	76.1	75.8	74.6	76.2	4.65	4.14	3.46	1.73	3.50	1.5	2.9	0.2	0.2
9	Kimber	88.3	8.5	2.7	0	0.5	84.7	82.6	81.5	77.9	81.7	4.89	4.72	3.53	1.92	3.78	1.8	2.7	0.2	0.1
10	Babcock	87.6	8.0	3.0	0.1	1.3	78.0	77.3	76.3	70.2	75.4	4.66	4.24	3.57	1.47	3.48	3.5	2.8	0	0.1
11	Cashman	90.2	7.3	1.5	0.4	0.6	79.5	78.3	74.9	72.1	76.2	4.38	4.20	3.07	1.39	3.26	3.4	3.2	0.2	0
12	Harco	85.8	8.7	3.7	0.7	1.2	80.3	78.2	76.3	73.8	77.1	3.32	2.63	1.77	0.41	2.03	0.9	1.6	11.4	34.2
13	Ghostley	92.4	5.2	1.5	0	0.9	82.6	80.1	76.9	76.0	78.9	4.75	4.25	3.63	1.76	3.60	1.8	3.2	0.2	0.1
14	Ames	90.2	6.1	2.9	0	0.8	81.1	79.5	76.4	70.9	77.0	4.22	4.02	3.03	1.50	3.20	0.9	1.4	11.6	50.0
15	Rapp	91.8	5.4	1.5	0.4	0.9	81.4	78.8	76.4	73.9	77.6	4.27	4.07	2.83	1.44	3.15	2.4	4.4	0.6	4.0
16	Brender	90.2	6.3	1.7	0.8	0.5	81.3	78.4	77.3	73.4	77.6	4.60	4.37	3.53	1.68	3.54	1.6	1.8	0.2	0
17	Demler	91.0	7.1	1.7	0	0.1	77.9	76.4	76.6	72.3	75.8	4.44	3.95	3.15	0.91	3.12	2.8	3.7	0	0
18	Honegger	91.1	6.9	0.9	0.4	0.7	81.5	82.0	79.3	75.6	79.6	3.93	4.08	3.31	1.36	3.18	2.0	3.9	0.1	0
19	Heisdrf-Nelson	93.6	4.5	0.9	0.6	0.4	83.7	82.3	79.1	77.2	80.6	4.30	4.13	3.53	1.47	3.37	2.2	2.8	0.4	0.1
20	Arbor Acres	89.6	8.3	1.9	0	0.1	84.8	81.3	79.8	77.6	80.9	4.20	3.91	3.32	1.66	3.27	3.0	4.1	0.3	0
Average		90.2	7.1	1.8	0.3	0.6	81.2	79.1	77.8	74.6	78.2	4.31	4.07	3.19	1.49	3.27	2.2	2.9	1.3	4.8



TABLE V, Tests 3 and 4

## TWO YEAR SUMMARY

Breeder	Stock Designation	Age at 50% Prod.	% Mortality		Av. Body Wt.		% Prod. after 50%	% Loss (candled)	Albumen Quality (H.U.)	Shell Quality (S.G.)	Av. Egg weight (oz/doz)	Lbs. of Feed per doz. eggs	IOFCC	Eggs per Pullet Housed
			8-150 days	151-500 days	150 days	500 days								
	1961-62	1962-63												
Hy-Line	934-H	934-H	164.8	1.3	4.0	3.4	4.4	76.6	2.6	74.2	24.8	4.12	2.65	257.0
Honegger	Layers	Layers	167.2	1.4	5.0	3.5	4.6	77.2	2.7	78.0	25.2	4.35	2.76	256.7
Babcock	Bonnie	B-300	162.5	1.2	3.0	3.8	4.9	75.6	2.4	75.5	25.0	4.42	2.80	255.2
Kimber	K-137	K-137	165.0	1.3	5.5	3.7	4.8	75.8	3.1	82.0	25.5	4.45	2.79	251.0
Beamsdale	#66	#66	170.5	3.1	7.0	3.4	4.4	76.8	1.9	78.7	25.0	4.58	2.92	250.6
Heisdorf-	"Nick	"Nick												
Nelson	Chick"	Chick"	165.8	1.3	5.0	3.6	4.6	74.2	1.6	80.8	24.6	4.36	2.82	247.3
De Kalb	#151	#151	166.2	1.3	7.5	3.4	4.4	72.2	1.8	83.1	25.8	4.52	2.80	238.6
Ghostley	Pearl	Pearl	173.2	0.8	10.5	3.5	4.6	75.0	2.7	79.2	25.7	4.65	2.89	236.6
Cashman	Hi-Cash	Hi-Cash	169.5	1.8	15.5	3.6	5.0	77.4	2.6	77.2	24.8	4.44	2.86	236.1
Arbor Acres	Queen	Queen	171.8	1.3	14.5	3.5	4.4	76.2	2.5	80.0	26.0	4.80	2.96	235.4
Harco	Sex-Links	Group I, RIR	168.2	1.7	8.0	5.1	6.7	72.6	4.2	77.9	26.8	5.12	3.06	233.6
Cornell	Ran-Bred	Ran-Bred	174.2	2.6	9.0	3.6	5.0	71.6	3.5	78.0	24.4	4.62	3.03	231.4
Rapp	Linecross	Linecross	174.5	2.1	11.5	3.4	4.6	72.8	2.4	78.6	25.0	4.69	2.92	228.3
Ames Incross	#505	#505	166.2	0.4	8.0	4.8	6.6	69.0	3.0	77.4	25.4	4.98	3.14	226.2
Brender	Money-maker	I. Beauty	173.5	0.3	9.0	3.4	4.6	71.2	2.7	77.2	25.3	4.58	2.85	225.4
Fletcher	F-X-100	F-X-100	173.8	3.4	7.5	3.5	4.6	70.2	1.9	79.0	25.3	4.93	3.12	224.0
Average			169.2	1.6	8.2	3.7	4.9	74.0	2.1	78.6	25.4	4.60	2.90	239.6