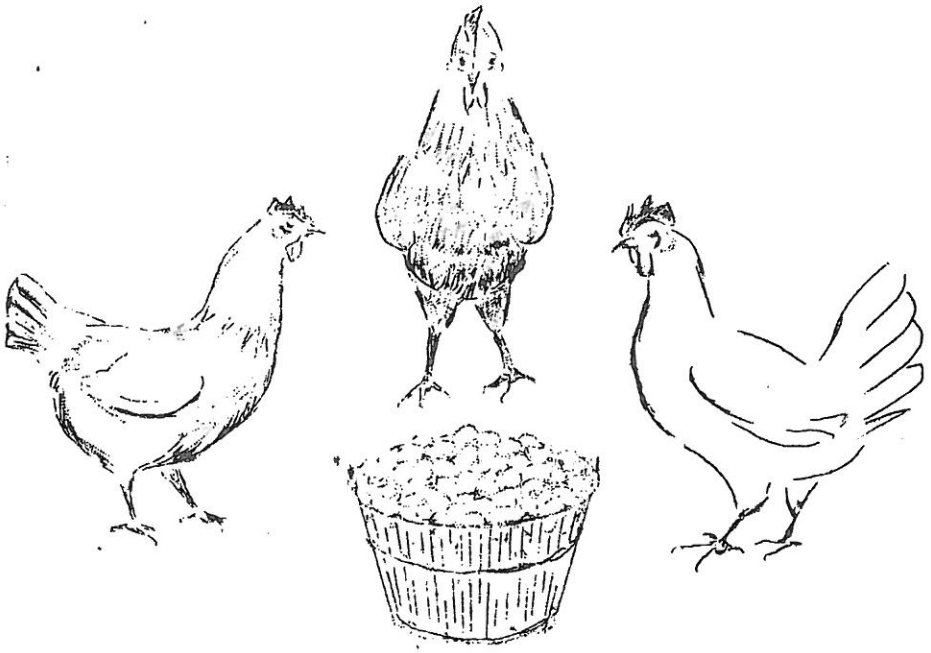
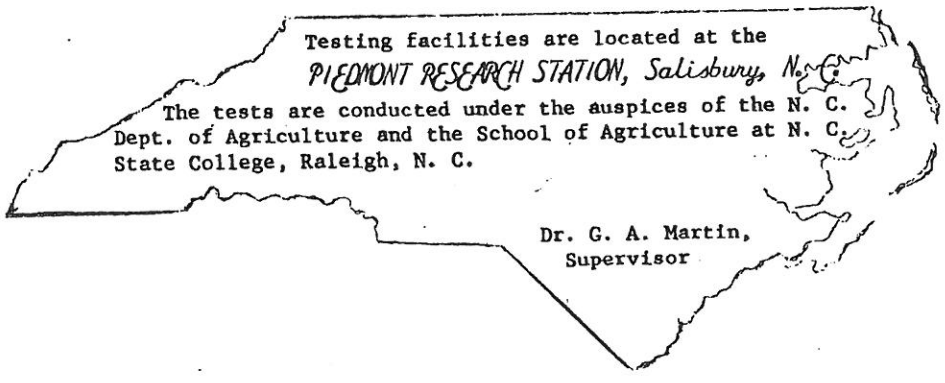
First

NORTH CAROLINA

Random Sample

egg laying test





FINAL REPORT

FIRST NORTH CAROLINA RANDOM SAMPLE EGG LAYING TEST

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

This is the final report of the 1959-60 laying test and covers performance from February 13, 1959, through June 26, 1960, when the birds reached 500 days of age.

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. Chicks were sexed and 120 pullets were wingbanded (when available) for growing in replicated pens of 60 pullets. Medium energy allmash starting, growing, and laying rations were mixed by test personnel according to formulae provided by North Carolina State College. Starting ration was fed during the first 56 days, growing ration was fed from the 57th through 150th days, and laying ration was fed from the 151st through 500th days.

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 34-days-old, fowl pox vaccination at 84-days-old, and Newcastle-Bronchitis dust at 114-days-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

Entry No. is the pen number assigned at 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 on the last page of the report.

Net Pullets are the number of pullets at 1 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

that died after the first week. The cause of death was noted and these reports are summarized later in this report by categories in which appreciable death loss was encountered.

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

% Loss from Large Spots is the percentage of eggs that were found to contain blood or colored meat spots larger than 1/8" diameter among the eggs from one day's production each 30 days. This percentage was counted as loss and given no market value.

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.

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 price for that week and size class as reported by the North Carolina Department of Agriculture. At the close of the test, this value was discounted by the percentage of loss eggs from large spots before reporting. Small spots were not discounted.

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.

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.

Duncan Multiple 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.

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.

Average Egg Weight in ounces per dozen was obtained by mass-weighing of one day's eggs each week and calculating an average from the sum of all weights and the sum of all eggs weighed.

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

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

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

Albumen Quality in Haugh Units was measured on 30 eggs per pen in September and May and on 35 eggs per pen in December and February. 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 10. One day's production from each pen was classified in October, January, March, and June. Since this factor undergoes seasonal changes, the quarterly averages and the annual average are given.

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. Egg value discounting is discussed above.

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.

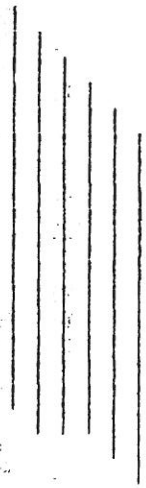
Failure to secure immunity to one species of coccidiosis during the growing period left the flock vulnerable to an outbreak of this disease during September. Treatment was begun immediately upon observation of symptoms in each pen. Some of the birds, showing advanced symptoms, were given antibiotic capsules, individually, in an attempt to minimize losses. When it became apparent that the outbreak was general, a coccidiostat was added to the feed and continued throughout the outbreak and recovery period. No pen escaped production depression from the outbreak and 60% of the pens experienced mortality attributable to this disease. The relatively heavy losses from this disease in some entries had considerable effect upon performance per pullet housed. This situation is pointed out to show the need for due consideration when examining this report.

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 multiple range test of eggs per pullet housed
			Ex. large and over	Large	Medium	Small	Pee Wee		150 days	500 days	151-240 days	241-330 days	331-420 days	421-500 days	471-500 days	After 50% prod.		
5	Kimber	168	44.1	33.9	17.0	4.2	.7	25.5	3.6	4.6	68.3	81.7	71.2	67.5	66.0	74.2	253.0	
8	DeKalb	168	33.9	36.2	22.4	6.4	1.1	24.7	3.8	4.8	68.2	81.9	73.5	69.2	67.4	75.5	247.9	
3	Ames Incross	160	35.6	37.1	21.1	4.8	1.3	25.0	4.9	6.5	71.4	78.8	68.5	64.2	59.7	72.6	245.8	
6	Heisdorf-Nelson	167	30.0	41.1	22.7	5.4	.8	24.7	3.5	4.6	65.0	79.2	72.8	65.5	65.6	73.5	242.5	
15	Cashman	172	40.2	36.8	19.0	3.5	.5	25.3	3.9	5.2	60.6	84.9	74.9	67.4	64.5	75.2	241.7	
9	Ghostley	176	42.9	35.8	17.6	3.4	.2	25.5	3.5	4.7	57.4	81.5	72.6	69.3	70.6	73.9	234.4	
18	Honegger	176	33.3	39.3	22.3	4.6	.4	25.1	3.4	4.5	60.3	78.9	73.9	72.4	72.2	75.3	232.5	
20	Harco	177	48.1	35.9	12.7	2.7	.6	26.0	4.8	6.4	51.8	77.3	70.5	63.6	61.4	69.3	224.6	
2	Fletcher	176	46.9	37.6	12.6	2.3	.5	26.0	3.5	4.6	53.0	78.8	66.0	64.2	62.8	69.2	221.2	
10	Rapp	177	35.2	39.0	20.6	4.8	.5	25.0	3.5	4.6	56.1	80.3	73.3	67.7	64.6	73.6	220.5	
16	Colonial	168	37.0	35.3	21.6	5.2	.8	25.0	3.6	4.6	59.2	80.5	69.9	64.1	63.6	71.2	219.5	
13	Hubbard	174	43.7	33.6	17.4	4.5	.8	25.7	4.9	6.4	60.9	77.7	63.5	58.4	56.5	68.5	212.4	
17	Warren	176	47.6	33.1	16.1	2.6	.5	25.9	4.5	5.7	54.8	78.0	66.5	58.9	56.1	67.4	212.0	
7	Babcock	174	42.5	36.9	17.6	2.6	.3	25.5	3.6	4.6	57.1	80.4	69.7	62.7	61.7	71.0	211.6	
19	Mt. Hope	178	42.8	35.8	18.0	3.0	.4	25.5	3.4	4.5	52.6	77.7	71.1	66.6	66.4	70.8	207.6	
4	Hy-Line	171	42.4	33.6	18.4	5.0	.7	25.4	3.4	4.3	59.6	86.9	80.2	72.7	68.9	77.6	202.7	
1	Parmenter	178	36.7	36.0	20.0	6.2	1.1	25.0	4.4	6.0	54.7	73.1	57.2	61.8	56.1	65.0	195.9	
11	Beamsdale	179	28.3	41.4	24.4	5.2	.6	24.5	3.4	4.5	50.6	79.3	69.9	68.6	67.7	71.1	195.6	
14	Cornell	175	32.1	36.7	24.7	5.5	1.0	24.6	3.7	4.9	50.9	70.6	63.3	60.5	60.2	64.0	193.4	
12	Fox-Den	174	45.4	30.1	18.5	5.0	1.1	25.5	4.6	6.2	54.9	74.6	62.5	55.6	54.6	65.0	193.1	
	Average	173	39.4	36.3	19.2	4.3	.7	25.3	3.9	5.1	58.4	79.1	69.6	65.0	63.3	71.2	220.4	

NUMBERS, MORTALITY, FEED CONSUMPTION, AND INCOME

Entry No.	Breeder	Net Pullets at 1 week	Net Pullets housed	% Mortality 8-150 days	% Mortality 151-500 days	Feed Consumed (bird-day basis) 1-150 days	Feed Consumed (bird-day basis) 151-500 days	% loss eggs from large spots	Chick price $	Cost and Income per Pullet Housed: Feed Cost 1-150 days $	Feed Cost 151-500 days	Total feed & chick cost	Value of eggs	Value of meat	IOFCC $	Duncan multiple range Test of IOFCC
5	Kimber	118	100	0	0	19.8	88.4	3.5	.470	.982	4.205	5.656	7.779	.437	2.559	
6	Heisdorf-Nelson	117	100	6.0	5.0	19.2	85.6	2.4	.453	.978	3.957	5.418	7.346	.408	2.336	
9	Ghostley	120	100	0	10.0	19.6	88.6	3.2	.410	.972	4.064	5.445	7.254	.399	2.208	
18	Honegger	118	100	1.7	11.0	19.1	85.2	4.3	.453	.956	3.782	5.198	6.960	.380	2.142	
8	DeKalb	120	100	5.0	5.0	20.1	86.4	4.9	.587	1.010	3.967	5.596	7.288	.432	2.124	
2	Fletcher	104	100	1.0	8.0	19.6	86.4	4.0	.400	.974	3.963	5.342	6.921	.400	1.979	
15	Cashman	120	99	0.8	6.0	20.4	93.0	6.8	.430	1.018	4.238	5.689	7.100	.460	1.871	
10	Rapp	119	100	0	14.0	19.1	87.0	4.8	.413	.950	3.770	5.132	6.588	.375	1.831	
7	Babcock	118	100	2.5	16.0	19.3	86.7	4.5	.469	.966	3.692	5.139	6.523	.365	1.749	
4	Hy-Line	120	100	0	27.0	19.5	86.8	2.7	.590	.966	3.232	4.789	6.180	.294	1.688	
19	Mt. Hope	117	100	1.7	20.0	19.1	85.8	4.4	.433	.956	3.630	5.027	6.344	.337	1.654	
16	Colonial	118	100	2.5	15.0	19.4	88.2	6.1	.440	.970	3.842	5.264	6.444	.370	1.550	
11	Beamsdale	119	99	1.7	30.3	19.1	85.2	5.6	.367	.950	3.420	4.743	5.725	.297	1.279	
3	Ames Incross	116	100	6.9	5.0	22.9	93.9	18.8	.545	1.158	4.363	6.106	6.259	1.002	1.155	
20	Harco	115	100	9.6	4.0	23.7	93.6	15.4	.410	1.248	4.338	6.045	6.148	.998	1.101	
17	Warren	120	99	10.0	11.1	22.0	87.6	18.5	.415	1.110	3.905	5.426	5.681	.827	1.082	
14	Cornell	117	100	1.7	15.0	19.7	85.1	5.6	.455	.982	3.658	5.104	5.630	.388	0.914	
13	Hubbard	120	100	5.0	18.0	24.0	93.9	17.8	.385	1.202	4.141	5.748	5.590	.860	0.704	
1	Parmenter	118	99	5.9	17.2	22.2	87.8	19.9	.310	1.122	3.776	5.227	4.919	.806	0.498	
12	Fox-Den	120	100	0.8	15.0	22.4	90.2	20.7	.353	1.114	3.825	5.296	4.831	.862	0.398	
	Average	118	99.8	3.1	12.6	20.5	88.3	8.7	.439	1.029	3.888	5.370	6.376	.530	1.541	



EGG QUALITY AND FEED CONVERSION

Entry No.	Breeder	Albumen Quality in Haugh Units					Shell Quality (Specific gravity)					Blood Spots (%)		Colored Meat Spots (%)		Lbs. of Feed per		Duncan multiple range test of feed per lb. of eggs
		Sept.	Dec.	Feb.	May	Ave.	Oct.	Jan.	March	June	Ave.	Large	Small	Large	Small	doz. eggs	lb. of eggs	
4	Hy-Line	85.2	76.9	71.8	68.2	75.6	3.90	4.00	3.49	3.12	3.64	2.6	1.9	0.1	1.4	4.03	2.54	
8	DeKalb	89.4	82.8	78.2	74.9	81.3	3.99	3.90	3.44	2.74	3.52	2.8	4.0	2.0	1.9	4.04	2.62	
18	Honegger	90.9	79.9	76.2	71.8	79.7	3.96	4.01	3.76	3.10	3.70	3.4	3.1	0.9	1.8	4.10	2.62	
5	Kimber	91.2	82.1	78.2	73.0	81.1	4.72	4.21	3.38	3.14	3.86	2.9	2.8	0.6	1.6	4.20	2.63	
6	Heisdorf-Nelson	91.5	84.5	79.0	78.3	84.1	4.08	4.40	3.64	2.82	3.74	2.0	4.7	0.4	0.9	4.12	2.67	
9	Ghostley	90.6	80.9	77.4	71.6	80.1	4.48	4.21	3.42	2.82	3.61	2.8	3.6	0.5	1.2	4.33	2.72	
10	Rapp	89.8	79.2	74.5	69.2	78.2	4.14	3.84	3.17	2.40	3.39	3.7	3.9	1.1	0.8	4.32	2.76	
7	Babcock	90.9	82.1	74.3	70.4	79.4	4.42	4.02	3.38	3.06	3.72	3.5	1.3	0.9	1.3	4.41	2.76	
19	Mt. Hope	88.2	82.4	77.3	71.9	79.9	4.14	3.88	3.56	2.80	3.60	3.7	3.9	0.7	1.8	4.40	2.77	
2	Fletcher	90.6	82.3	75.8	71.4	80.0	4.35	4.38	3.71	3.46	3.98	3.4	4.4	0.6	1.8	4.52	2.79	
15	Cashman	85.4	78.1	71.7	69.1	77.0	3.94	3.80	3.22	2.43	3.35	5.2	6.1	1.6	2.1	4.43	2.80	
16	Colonial	90.2	81.7	76.1	71.6	79.9	3.94	4.11	3.40	2.84	3.58	5.2	3.8	0.9	1.2	4.42	2.83	
17	Warren	91.3	82.4	75.4	70.6	79.9	2.80	2.48	2.28	2.12	2.42	2.9	4.5	15.6	22.3	4.65	2.87	
3	Ames Incross	88.0	79.2	71.3	66.0	76.1	3.94	3.38	3.00	2.72	3.26	3.0	5.1	15.8	36.8	4.50	2.88	
11	Beamsdale	91.8	82.8	79.8	73.5	82.0	3.95	3.70	3.14	2.54	3.34	4.1	5.7	1.6	2.2	4.41	2.88	
20	Harco	89.6	81.5	75.0	69.6	79.8	2.70	2.58	1.97	1.88	2.28	2.2	6.4	13.3	26.5	4.89	3.01	
13	Hubbard	92.2	81.4	76.2	71.3	81.5	3.32	2.50	1.85	1.56	2.30	3.4	3.8	14.4	31.0	4.92	3.07	
1	Parmenter	90.4	82.8	78.2	73.4	81.2	3.22	3.18	2.86	2.16	2.86	2.6	5.3	17.3	24.1	4.87	3.11	
14	Cornell	88.0	80.2	73.8	71.2	79.2	4.30	4.12	3.38	2.28	3.52	4.7	3.2	0.8	1.9	4.78	3.11	
12	Fox-Den	87.8	79.2	74.7	69.8	77.9	3.64	3.10	2.31	2.43	2.88	4.1	3.7	16.6	28.3	5.01	3.14	
	Average	89.6	81.1	75.7	71.3	79.7	3.90	3.69	3.12	2.62	3.33	3.4	4.1	5.3	9.5	4.47	2.83	

CAUSE OF MORTALITY AS PERCENTAGES

ntry No.	Breeder	Coccidiosis		Leucosis		Respiratory Disorders		Hemorrages		Reproductive Disorders	Cannibalism		Miscellaneous		Unknown	
		8-150 days	151-500 days	8-150 days	151-500 days	8-150 days	151-500 days	8-150 days	151-500 days	151-500 days	8-150 days	151-500 days	8-150 days	151-500 days	8-150 days	151-500 days
1	Parmenter	1.7	2.0	0	8.1	1.7	1.0	0	0	0	2.6	1.0	0	2.0	0	3.0
2	Fletcher	0	1.0	0	3.0	1.0	1.0	0	1.0	1.0	0	0	0	1.0	0	0
3	Ames Incross	2.6	0	0	0	0.9	0	0	2.0	0	0	0	1.7	2.0	1.7	1.0
4	Hy-Line	0	24.0	0	1.0	0	0	0	0	0	0	0	0	0	0	2.0
5	Kimber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Heisdorf-Nelson	0	2.0	0.8	1.0	1.7	0	2.5	0	0	0	0	0.9	1.0	0	1.0
7	Babcock	0	7.0	0	2.0	0.8	1.0	0.8	1.0	1.0	0	0	0	4.0	0.9	0
8	DeKalb	0.8	3.0	0	0	1.7	0	0.8	1.0	0	0	0	0.8	1.0	0.8	0
9	Ghostley	0	0	0	4.0	0	0	0	0	2.0	0	0	0	2.0	0	2.0
0	Rapp	0	5.0	0	3.0	0	0	0	0	3.0	0	0	0	3.0	0	0
1	Beamsdale	0	6.1	0	6.1	0.8	3.1	0.8	2.0	2.0	0	4.0	0	3.0	0	4.0
2	Fox-Den	0	6.0	0	3.0	0.8	0	0	0	0	0	0	0	6.0	0	0
3	Hubbard	3.3	1.0	0	11.0	0.8	0	0.8	1.0	1.0	0	0	0	3.0	0	1.0
4	Cornell	0	4.0	0	1.0	0	0	0	1.0	2.0	0	0	0.8	5.0	0.8	2.0
5	Cashman	0	1.0	0	0	0.9	0	0	1.0	1.0	0	0	0	1.0	0	2.0
6	Colonial	0	4.0	0	2.0	1.7	1.0	0	0	2.0	0	1.0	0	3.0	0.8	2.0
7	Warren	4.2	2.0	0	4.1	1.7	0	1.7	0	3.0	0	0	1.7	0	0.8	1.0
8	Honegger	0	1.0	0	4.0	0.9	1.0	0.8	1.0	1.0	0	0	0	3.0	0	0
9	Mt. Hope	0	7.0	0	1.0	0	0	0.9	0	2.0	0	4.0	0.9	3.0	0	3.0
0	Harco	3.6	0	0	0	5.4	1.0	0	0	0	0	1.0	0.8	0	0	2.0

ENTRANTS IN FIRST NORTH CAROLINA RANDOM SAMPLE EGG LAYING TEST

Stock Identification*	Breeder	Source of Sample
IBX, # 505	Ames In-Cross, 504½ Grand Ave. Des Moines, Iowa	Suffolk Chick Hatchery Suffolk, Virginia
WL Str. X, Bessies	Babcock Poultry Farm, Inc. Box 286, Ithaca, N. Y.	Harrold's Hatchery, Inc. Winterville, Georgia
WL Str. X, # 66	Beamsdale Farm, Route 2 Lawndale, N. C.	Beamsdale Farm Lawndale, N. C.
WL 3W Str. X, HI-Cash	Cashman Leghorn Farms Webster, Ky.	Bowers Brothers Hatchery Albemarle, N. C.
WL 4W Str. X, True-Line # 365	Colonial Poultry Farms, Inc. Pleasant Hill, Mo.	Colonial Poultry Farms, Inc. Pleasant Hill, Mo.
WL, Random-Bred	Poultry Department, Cornell University, Ithaca, N. Y.	Cornell University Ithaca, N. Y.
IBX, # 131	DeKalb Agricultural Assn. 111 State St., Sycamore, Ill.	DeKalb Hatchery York, Pa.
WL Str. X, F-X-100	J. O. Fletcher & Son Leghorn Breeding Farm, Box 548, Concord	J. O. Fletcher & Son Hatchery Concord, N. C.
XB, Black Diamond	Fox-Den Farms Cary, N. C.	Fox-Den Farms Cary, N. C.
WL Str. X, Pearl	Ghostley's Poultry Farm Anoka, Minn.	Kelly Poultry Farm Garner, N. C.
RIR, (Pure Str.)	The Harco Orchards & Poultry Farms, Inc., South Easton, Mass.	Harco Orchards & Poultry Farms South Easton, Mass.
WL Str. X, Nick Chick	Heisdorf & Nelson Farms, Inc. Box 428, Kirkland, Wash.	J. C. Castlebury Hatchery Apex, N. C.
WL Str. X, Layers	Honegger Breeder Hatchery Forrest, Ill.	FCX Hatchery Wallace, N. C.
XB, # 496	Hubbard Farms Walpole, N. H.	Hubbard Farms, Inc. Statesville, N. C.
IBX, # 934-C	Hy-Line Poultry Farms, 1206 Mulberry, Des Moines, Iowa	Belk Poultry Farm Monroe, N. C.
WL Str. X, K 137	Kimber Farms, Inc., Box 8 Niles, Calif.	Asheville Hatcheries, Inc. Asheville, N. C.
WL Str. X, Queen	Mount Hope Poultry Farms, Inc. Williamston, Mass.	Farmers Federation Asheville, N. C.
RIR, (certified)	Parmenter Reds, Inc., 466 King St., Franklin, Mass.	Wake Farmer's Coop. Raleigh, N. C.
WL Str. X, "Linecross"	Rapp Leghorn Farm Farmingdale, N. J.	Quinn Hatchery Murphy, N. C.
XB, Sex-Sal-Link	J.J. Warren North Brookfield, Mass.	J. J. Warren, South, Inc. Greenville, S. C.

WL = White Leghorn

RIR = Rhode Island Red

XB = Crossbred

IXB = Incrossbred

Str. X = Strain Cross

(3W = 3 way and 4W = 4 way)