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PULLET REARING PERIOD REPORT OF THE TWENTY-NINTH NORTH CAROLINA LAYER PERFORMANCE AND MANAGEMENT TEST

Vol. 29, No. 2
May 1991

The North Carolina Layer Performance and Management Test is conducted under the auspices of the Cooperative Extension Service at North Carolina State University and the North Carolina Department of Agriculture. The flock is maintained at the Piedmont Research Station, Salisbury, North Carolina. Mr. Raymond Coltrain is Piedmont Research Station Superintendent; Mr. Ed Radford is Resident Manager of the flock; and Dr. K. E. Anderson is Project Leader. The purpose of this program is to assist poultrymen in evaluation of commercial layer stocks and management systems.

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29th NORTH CAROLINA LAYER PERFORMANCE AND MANAGEMENT TEST
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Protocol for Pullet Rearing Period

Dates of Importance:

The eggs were set on February 13, 1990 at the Piedmont Research Station (NCDA) Poultry Unit. The flock was hatched on March 6, 1990 and moved to laying facilities on July 12, 1990 at 18 weeks of age.

Experimental Design:

The test was a factorial arrangement of treatments. Main effects were strain and pullet housing.

Strain--Samples of fertile eggs were provided from the breeders. All eggs were set and hatched concurrently. A total of seven white egg strains and seven brown egg strains were in the test. A minimum of 935 white egg pullets/strain and 725 brown egg pullets/strain were started at the initiation of the test. The chicks were divided between two separate brood-grow houses.

Pullet Housing--The white egg strains occupied approximately 1/2 of each house and brown egg strains occupied the other half of each house. All strains were assigned to be represented as equally as possible in all cage rows and cage levels in each house.

House 6 is an environmentally controlled, closed brood-grow facility with 4 banks of triple-deck cages, each side designated as a row. Each row consisted of 7 replicates. The white-egg chicks were assigned at random (one strain/row) to the replicates in rows 1 through 4, while the brown-egg strains were assigned in the same manner to rows 5 through 8. All chicks were brooded in the center level of cages within each of the 7 replicate series within each row. Each center-cage-level replicate was filled with 60 white-egg (30 per 24" x 20" cage) or 48 brown-egg (24 per 24" x 20" cage) pullets on the day of hatch. At 42 days of age, 1/3 of the birds in each brooding replicate were moved to the top cages and 1/3 will be moved to the bottom cages for a final rearing allowance of 48 sq. in. for the white-egg layers and 60 sq. in. for the brown-egg layers.

House 8 is an open-sided brood-grow facility with six rows of 48" wide by 40" deep single deck cages. Each cage was assigned a replicate number, white-egg strains were assigned to rows 1 through 3 in a restricted random manner with the

restriction being one strain-replicate group was assigned at random per block of seven consecutive cages. Forty white-egg and 30 brown-egg chicks were started and grown in each replicate.

Pullet Management and Nutrition:

Pullets were fed ad libitum by hand daily. Diet formulations , starter, grower, and developer, are outlined in Diet Formulations on page 4. Feed consumption and body weights were monitored bi-weekly beginning at 6 weeks of age. All mortality was recorded daily, but mortality occurring from hatch through 6 days of age was excluded from this summary. Starter was fed until 2.25 pounds were consumed per bird. Thereafter, all birds were placed on the grower diet until 12 weeks of age. From 12 weeks (May 30, 1990) to approximately 19 weeks (July 18, 1990) of age, all strains were provided with a developer diet.

Pullet Vaccination and Beak Trimming Schedule

Pullet vaccination and beak trimming schedules are outlined below:

Age	Event
Hatch	Marek's vaccination (HVT)
1 week	Newcastle (B1) and Bronchitis (Mass.) vaccination via aerosol spray
Day 8 through 10	Precision beak trimming
5 weeks	Newcastle (La Sota) and Bronchitis (Mass.) vaccination via aerosol spray
9 weeks	Newcastle (LaSota) and Bronchitis (Mass.) vaccination via aerosol spray
	Final beak trimming
10 weeks	Fowl pox and avian encephalomylitis vaccination via wing web stab
15 weeks	Newcastle (LaSota) and Bronchitis (Mass.) vaccination via aerosol spray

Lighting Schedule

The lighting schedule for the pullet facilities is outlined below:

Age	Photoperiod (hrs/day)	
	Controlled Environment	Open-Sided
Day 1 to 3	23	23
Day 4 through 18 weeks	15	15
19 weeks	15.5	15.5
20 weeks	16.0	16.0

On Day 4, time clocks were set to turn lights on 1/2 hour before sunrise and turn off lights 1/2 hour after sunset local daylight time for June 21.

Diet Formulations

Ingredient	Starter	Grower	Developer
	----------Pounds per Ton----------		
Corn	1114	1431.5	1285.6
Soybean meal	735	460	321.0
Wheat Midds	14	15	30.0
Limestone	20	18	16
Methionine	.4	2.0	1.4
Dical	----	----	46.0
Phosphorus	46.0	40	----
Salt	5.0	5.0	9.0
Vitamin Premix	2	2	2
Min. Premix	1	1	1
Poultry Fat	80.0	40.0	----
GV	1	1	1
Micro-Tracer [1]	1	1	1
Choline	1.0	1.5	4.0
Protein	22.1	17.4	15.5
ME kcal/kg	3085	3128	2810
Calcium, %	1.01	.95	1.10
T. Phos., %	.79	.90	.79
Lysine, %	1.27	.90	.79
TSAA, %	.78	.68	.63

[1]The use of trade names in this publication does not imply endorsement by the North Carolina Agricultural Extension Service of the products named, nor criticism of similar ones, not mentioned.

DESCRIPTION OF DATA TABLE STATISTICS

Rearing period performance of white egg and brown egg strains are shown in Tables 1-9 and 10-18, respectively. Following are the descriptions of the observations taken throughout the rearing period.

Breeder (Strain):

Short identification of the breeder and strain of the stock. See more complete information in the following data tables.

Protein per Bird to 126 Days:

Calculated cumulative protein intake per bird to 126 days.

Metabolizable Energy per Bird to 126 Days:

Calculated cumulative metabolizable energy intake per bird to 126 days.

Feed Cost per bird to 126 Days:

Calculated feed cost per bird to 126 days. Using three-year average regional feed prices; Starter $173.67/T; Grower $167.30/T; Developer $157.63/T.

Mortality 7-126 Days:

The percentage of the birds housed which died during days 7-126. Accidental deaths and males removed are excluded.

Body Weights (6, 8, 10, . . . 18 Weeks):

Bi-weekly average body weights of all birds within representative cages. Sample size for these were approximately 60 birds/strain/brood-grow house. Cages selected were, as much as possible, a representative sample from all cage levels, rows, and strains.

Feed Consumption (1-6, 7-8, . . . 17-18, 1-18):

Feed consumption per bird within the time periods indicated. The last column in the table is the cumulative feed intake per bird throughout the growing period. Estimated feed consumed by males is excluded from the calculation.

Statistical Analyses and Separation of Means:

Analyses of variance were performed on all data. Separate analyses were conducted for white and brown egg strains. Significant differences ($P<.01$) within white and brown egg strains are noted by different letters among columns of means. Significant strain effects are noted in Tables 1-3, significant interactions between strain and pullet house are noted in Tables 4-6 for the closed pullet facility, and Tables 7-9 for the open pullet facility.

Table 1. Feed Consumption of White Egg Entries in Closed Housing, 29th NCLP & MT

Breeder	(Weeks of Age) (kg per bird) 1-6	7-8	9-10	11-12	13-14	15-16	17-18	1-18
De Kalb (XL Link)	1.31^{AB}	.62^{AB}	.74	.80	.72	.73	.89^{AB}	5.81
H & N (Nick Chick)	1.22^{C}	.65^{a}	.80	.80	.72	.75	.90^{AB}	5.83
Hisex (White)	1.34^{A}	.62^{AB}	.74	.79	.70	.74	.90^{AB}	5.84
ISA/Babcock (300)	1.20^{C}	.61^{AB}	.80	.77	.67	.72	.93^{A}	5.70
Hyline (W36)	1.11^{D}	.60^{B}	.74	.80	.72	.75	.84^{B}	5.56
Shaver (SC288A)	1.24^{BC}	.60^{B}	.74	.77	.75	.76	.94^{A}	5.80
Tatum (T-100)	1.27^{ABC}	.60^{AB}	.75	.77	.70	.71	.92^{AB}	5.72
Average	1.24	.61	.76	.79	.71	.74	.90	5.75

^{ABCD}Different letters denote significant differences within column (P<.01)

Table 2. Feed Cost and Mortality of White Egg Entries in Closed Housing, 29th NCLP & MT

Breeder	Protein (kg)	Met. Energy (kcal)	Feed Cost ($)	Mortality (8-126 d) (%)
	(per bird to 126 days)			
De Kalb (XL Link)	1.02	17373	1.05	2.50
H & N (Nick Chick)	1.02	17485	1.06	2.94
Hisex (White)	1.02	17479	1.06	4.32
ISA/Babcock (300)	1.00	17069	1.03	1.34
Hyline (W36)	.98	16707	1.01	3.25
Shaver (SC288A)	1.02	17362	1.05	3.58
Tatum (T-100)	1.00	17118	1.04	4.67
Average	1.01	17228	1.04	3.23

Table 3. Body Weight of White Egg Entries in Closed Housing, 29th NCLP & MT

Breeder	Weeks of Age						
	6	8	10	12	14	16	18
	(kg)						
DeKalb (XL-Link)	.46^{AB}	.66	.85	1.01	1.02	1.09^{AB}	1.27
H & N (Nick Chick)	.46^{BC}	.65	.86	1.03	1.07	1.13^{A}	1.29
Hisex (White)	.48^{A}	.66	.84	.95	1.01	1.03^{B}	1.22
ISA/Babcock (300)	.46^{AB}	.64	.84	1.00	1.02	1.04^{B}	1.23
Hyline (W36)	.43^{C}	.61	.82	.97	1.04	1.11^{A}	1.26
Shaver (SC288A)	.47^{AB}	.67	.86	1.03	1.05	1.12^{A}	1.31
Tatum (T-100)	.49^{A}	.67	.87	1.01	1.06	1.09^{AB}	1.31
Average	.46	.65	.85	1.00	1.04	1.09	1.27

^{ABC}Different letters denote significant differences within columns (P<.01)

Table 4. Feed Consumption of White Egg Entries in Open Housing, 29th NCLP & MT

Breeder	(Weeks of Age) 1-6	7-8	9-10	11-12	13-14	15-16	17-18	1-18
	(kg per bird)							
DeKalb (XL-Link)	1.06	.70	.86	.85	.80	.71	.80	5.79
H & N Chick (Nick Chick)	1.00	.65	.77	.81	.78	.68	.77	5.47
Hisex (White)	1.06	.67	.82	.74	.81	.67	.78	5.56
ISA/Babcock (300)	1.00	.65	.81	.77	.78	.67	.78	5.47
Hyline (W36)	1.02	.62	.78	.76	.77	.70	.73	5.37
Shaver (SC288A)	1.02	.66	.84	.82	.81	.70	.76	5.62
Tatum (T-100)	1.02	.67	.82	.83	.81	.71	.77	5.64
Average	1.03	.66	.81	.80	.79	.69	.77	5.56

Table 5. Feed Cost and Mortality of White Egg Entries in Open Housing, 29th NCLP & MT

Breeder	Protein (kg)	Met. Energy (kcal)	Feed Cost ($)	Mortality (8-126 d) (%)
	(per bird to 126 days)			
DeKalb (Nick Chick)	1.01	17354	1.05	1.25
H & N (Nick Chick)	.96	16393	.99	1.67
Hisex (White)	.98	16677	1.01	1.26
ISA/Babcock (300)	.96	16401	.99	1.67
Hyline (W36)	.95	16127	.98	2.08
Shaver (SC288A)	.99	16845	1.02	.84
Tatum (T-100)	.99	16933	1.02	0
Average	.98	16676	1.01	1.25

Table 6. Body Weight of White Egg Entries in Open Housing, 29th NCLP & MT

Breeder	(Weeks of Age) 6	8	10	12	14	16	18
	(kg)						
DeKalb (XL-Link)	.41	.65	.86	1.01	1.07	1.17	1.28
H & N (Nick Chick)	.41	.64	.84	1.01	1.10	1.18	1.27
Hisex (White)	.41	.63	.80	.97	1.03	1.09	1.21
ISA/Babcock (300)	.40	.63	.83	.98	1.06	1.15	1.26
Hyline (W36)	.39	.60	.80	.97	1.04	1.16	1.23
Shaver (SC288A)	.39	.62	.81	.99	1.09	1.18	1.27
Tatum (T-100)	.42	.63	.82	1.01	1.06	1.17	1.26
Average	.40	.63	.82	.99	1.06	1.16	1.25

Table 7. Feed Consumption of White Egg Entries in All Housing, 29th NCLP & MT

Breeder	(Weeks of Age) 1-6	7-8	9-10	11-12	13-14	15-16	17-18	1-18
	(kg per bird)							
DeKalb (XL-Link)	1.18	.66	.80	.83	.76	.72	.85	5.80
H & N (Nick Chick)	1.11	.65	.78	.80	.75	.72	.83	5.65
Hisex (White)	1.20	.65	.78	.76	.76	.71	.84	5.70
ISA/Babcock (300)	1.10	.63	.81	.77	.73	.70	.85	5.59
Hyline (W36)	1.06	.61	.76	.78	.74	.72	.78	5.46
Shaver (SC288A)	1.13	.63	.79	.79	.78	.73	.85	5.71
Tatum (T-100)	1.14	.64	.79	.80	.75	.71	.85	5.68
Average	1.13	.64	.79	.79	.75	.72	.84	5.66

Table 8. Feed Cost and Mortality of White Egg Entries in All Housing, 29th NCLP & MT

Breeder	Protein (kg)	Met. Energy (kcal)	Feed Cost ($)	Mortality (8-126 d) (%)
	----------(per bird to 126 days)----------			
DeKalb (XL-Link)	1.02[A]	17364	1.05[A]	1.87
H & N (Nick Chick)	.99[AB]	16939	1.03[AB]	2.30
Hisex (White)	1.00[AB]	17078	1.03[AB]	2.79
ISA/Babcock (300)	.98[AB]	16735	1.01[AB]	1.50
Hyline (W36)	.96[B]	16417	.99[B]	2.66
Shaver (SC288A)	1.00[AB]	17103	1.04[AB]	2.21
Tatum (T-100)	1.00[AB]	17026	1.03[AB]	2.33
Average	.99	16952	1.03	2.24

[AB]Different letters denote significant differences within columns (P<.01)

Table 9. Body Weight of White Egg Entries in All Housing, 29th NCLP & MT

Breeder	(Weeks of Age) 6	8	10	12	14	16	18
	(kg)						
DeKalb (XL-Link)	.44	.65^{A}	.86	1.01^{AB}	1.05^{AB}	1.13	1.27^{AB}
H & N (Nick Chick)	.43	.65^{A}	.85	1.02^{A}	1.08^{A}	1.15	1.28^{A}
Hisex (White)	.45	.64^{A}	.82	.96^{C}	1.02^{B}	1.06	1.22^{B}
ISA/Babcock (300)	.43	.64^{AB}	.84	.99^{ABC}	1.04^{AB}	1.09	1.24^{AB}
Hyline (W36)	.41	.60^{B}	.81	.97^{BC}	1.04^{AB}	1.14	1.24^{AB}
Shaver (SC288A)	.43	.64^{A}	.84	1.01^{ABC}	1.07^{A}	1.15	1.29^{A}
Tatum (T-100)	.45	.65^{A}	.84	1.01^{ABC}	1.06^{AB}	1.13	1.28^{A}
Average	.43	.64	.84	1.00	1.05	1.12	1.26

^{ABC}Different letters denote significant differences within columns (P<.01)

Table 10. Feed Consumption of Brown Egg Entrties in Closed Housing, 29th NCLP & MT

Breeder	(Weeks of Age) 1-6	7-8	9-10	11-12	13-14	15-16	17-18	1-18
	(kg per bird)							
Hyline (Brown)	1.28[AB]	.79	.94	1.00	1.04	.88	1.02[B]	6.95
Hisex (Brown)	1.27[AB]	.82	.92	1.04	1.02	.99	1.10[AB]	7.16
ISA/Babcock (Brown)	1.29[A]	.80	1.01	1.04	1.08	.89	1.05[AB]	7.18
H & N (Brown Nick)	1.22[B]	.76	.94	1.01	1.04	.89	1.10[A]	6.97
DeKalb (Sex-Sal-Link)	1.29[A]	.83	1.01	1.07	.99	.94	1.04[AB]	7.17
Tatum (T-173)	1.26[AB]	.80	1.01	1.03	1.05	.94	1.05[AB]	7.14
Arbor Acres (Brown)	1.22[AB]	.82	1.03	1.03	1.05	.99	1.13[A]	7.27
Average	1.26	.80	.98	1.03	1.04	.93	1.07	7.12

[AB]Different letters denote significant differences within columns (P<.01)

Table 11. Feed Cost and Mortality of Brown Egg Entries in Closed Housing, 29th NCLP & MT

Breeder	Protein	Met. Energy	Feed Cost	Mortality (8-126 d)
	----------(per bird to 126 days)----------			
	(kg)	(kcal)	($)	(%)
Hyline (Brown)	1.20	20692	1.25	4.88
Hisex (Brown)	1.23	21335	1.29	3.40
ISA/Babcock (Brown)	1.23	21370	1.29	2.60
H & N (Brown Nick)	1.20	20789	1.26	6.83
DeKalb (Sex-Sal-Link)	1.23	21375	1.29	2.56
Tatum (T-173)	1.23	21273	1.29	3.26
Arbor Acres (Brown)	1.25	21649	1.31	3.76
Average	1.22	21212	1.28	3.90

Table 12. Body Weight of Brown Egg Entries in Closed Housing, 29th NCLP & MT

Breeder	(Weeks of Age) 6	8	10	12	14	16	18
	(kg)						
Hyline (Brown)	.57^{AB}	.84	1.12^{C}	1.33^{B}	1.44	1.49	1.72^{B}
Hisex (Brown)	.60^{A}	.87	1.17^{AB}	1.36^{B}	1.48	1.58	1.81^{A}
ISA/Babcock (Brown)	.58^{AB}	.84	1.17^{AB}	1.35^{B}	1.49	1.54	1.70^{B}
H & N (Brown Nick)	.57^{B}	.83	1.13^{BC}	1.37^{B}	1.49	1.57	1.76^{AB}
DeKalb (Sex-Sal-Link)	.60^{A}	.86	1.17^{ABC}	1.38^{B}	1.42	1.55	1.70^{B}
Tatum (T-173)	.57^{B}	.82	1.12^{C}	1.37^{B}	1.43	1.52	1.73^{B}
Arbor Acres (Brown)	.60^{A}	.88	1.20^{A}	1.46^{A}	1.53	1.59	1.84^{A}
Average	.58	.85	1.15	1.37	1.47	1.55	1.75

^{ABC}Different letters denote significant differences within columns (P<.01)

Table 13. Feed Consumption of Brown Egg Entries in Open Housing, 29th NCLP & MT

Breeder	(Weeks of Age) 1-6	7-8	9-10	11-12	13-14	15-16	17-18	1-18
	(kg per bird)							
Hyline (Brown)	1.18	.83	1.05	1.05	.98	.84	.92	6.87
Hisex (Brown)	1.21	.82	.99	1.02	.99	.88	.96	6.88
ISA/Babcock (Brown)	1.19	.86	1.04	1.09	1.00	.90	.94	7.03
H & N (Brown Nick)	1.22	.80	.96	.99	1.00	.96	.93	6.85
DeKalb (Sex-Sal-Link)	1.24	.84	1.05	1.09	1.07	.89	.98	7.15
Tatum (T-173)	1.17	.82	1.02	1.04	1.01	.87	.91	6.85
Arbor Acres (Brown)	1.22	.85	1.07	1.10	1.01	.96	.95	7.17
Average	1.20	.83	1.03	1.05	1.01	.90	.94	6.97

Table 14. Feed Cost and Mortality of Brown Egg Entries in Open Housing, 29th NCLP & MT

Breeder	Protein	Met. Energy	Feed Cost	Mortality (8-126 d)
	----------(per bird to 126 days)----------			
	(kg)	(kcal)	($)	(%)
Hyline (Brown)	1.20	20610	1.25	1.04
Hisex (Brown)	1.20	20631	1.25	1.61
ISA/Babcock (Brown)	1.23	21052	1.27	2.08
H & N (Brown Nick)	1.20	20559	1.24	6.26
DeKalb (Sex-Sal-Link)	1.25	21415	1.30	1.05
Tatum (T-173)	1.20	20540	1.24	3.68
Arbor Acres (Brown)	1.25	21487	1.30	3.65
Average	1.22	20899	1.26	2.77

Table 15. Body Weight of Brown Egg Entries in Open Housing, 29th NCLP & MT

	(Weeks of Age)						
	6	8	10	12	14	16	18
	(kg)						
Hyline (Brown)	.51	.79	1.07	1.29[AB]	1.44	1.53	1.63
Hisex (Brown)	.49	.79	1.09	1.24[B]	1.46	1.53	1.69
ISA/Babcock (Brown)	.51	.81	1.09	1.32[AB]	1.46	1.55	1.66
H & N (Brown Nick)	.50	.80	1.09	1.31[AB]	1.47	1.58	1.69
DeKalb (Sex-Sal-Link)	.52	.83	1.13	1.37[A]	1.50	1.59	1.69
Tatum (T-173)	.50	.79	1.10	1.32[AB]	1.47	1.53	1.67
Arbor Acres (Brown)	.53	.83	1.12	1.37[A]	1.50	1.61	1.71
Average	.51	.81	1.10	1.32	1.47	1.56	1.68

[AB]Different letters denote significant differences within columns (P<.01)

Table 16. Feed Consumption of Brown Egg Entries in All Housing, 29th NCLP & MT

Breeder	(Weeks of Age) 1-6	7-8	9-10	11-12	13-14	15-16	17-18	1-18
	(kg per bird)							
Hyline (Brown)	1.23	.81[AB]	1.00	1.03	1.01	.86	.97	6.91
Hisex (Brown)	1.24	.82[AB]	.96	1.03	1.01	.94	1.03	7.02
ISA/Babcock (Brown)	1.24	.83[A]	1.03	1.06	1.04	.90	1.00	7.10
H & N (Brown Nick)	1.22	.78[B]	.95	1.00	1.02	.93	1.01	6.91
DeKalb (Sex-Sal-Link)	1.26	.84[A]	1.03	1.08	1.03	.92	1.01	7.16
Tatum (T-173)	1.22	.81[AB]	1.02	1.03	1.03	.90	.98	6.99
Arbor Acres (Brown)	1.22	.84[A]	1.05	1.07	1.03	.97	1.04	7.22
Average	1.23	.82	1.01	1.04	1.02	.92	1.01	7.05

[AB]Different letters denote significant differences within columns (P<.01)

Table 17. Feed Cost and Mortality of Brown Egg Entries in All Housing, 29th NCLP & MT

Breeder	Protein	Met. Energy	Feed Cost	Mortality (8-126 d)
	(per bird to 126 days)			
	(kg)	(kcal)	($)	(%)
Hyline (Brown)	1.20	20651	1.25	2.56
Hisex (Brown)	1.22	20983	1.27	2.50
ISA/Babcock (Brown)	1.23	21211	1.28	2.34
H & N (Brown Nick)	1.20	20674	1.25	6.55
DeKalb (Sex-Sal-Link)	1.24	21395	1.29	1.81
Tatum (T-173)	1.21	20906	1.26	3.47
Arbor Acres (Brown)	1.25	21568	1.31	3.70
Average	1.22	21055	1.27	3.33

Table 18. Body Weight of Brown Egg Entries in All Housing, 29th NCLP & MT

Breeder	(Weeks of Age) 6	8	10	12	14	16	18
	(kg)						
Hyline (Brown)	.54	.82	1.10	1.31	1.44	1.51	1.68
Hisex (Brown)	.55	.83	1.13	1.30	1.47	1.56	1.75
ISA/Babcock (Brown)	.55	.83	1.13	1.34	1.48	1.55	1.68
H & N (Brown Nick)	.53	.81	1.11	1.34	1.48	1.58	1.72
DeKalb (Sex-Sal-Link)	.56	.85	1.15	1.37	1.46	1.57	1.70
Tatum (T-173)	.53	.81	1.11	1.34	1.45	1.53	1.70
Arbor Acres (Brown)	.56	.85	1.16	1.41	1.51	1.60	1.77
Average	.54	.83	1.13	1.34	1.47	1.56	1.71

Stock Suppliers and Categories

Breeder	Stock	Category*	Source
Dekalb Ag Research, Inc. 3100 Sycamore Rd. Dekalb, IL 60115	XL Link	I-A	Brickland Breeder Farms Rt. 1 Box 308 Kenbridge, VA 23944
H & N International 3825 154th Ave., NE Redmond, WA 98052	H & N "Nick Chick"	II-A	Wheelock Hatchery 2170 Wayne Rd. Chambersburg, PA 17201
Hisex Division Pilch, Inc. Box 438 Troutman, NC 28166	Hisex White	I-A	Euribred, Inc. P. O. Box 719 Troutman, NC 28166
ISA-Babcock, Inc. P. O. Box 280 Ithaca, NY 14851	B-300	I-A	American Selected Products 615 Copeland Mill Rd. Suite 1-B Westerville, OH 43081
Hy-Line International P. O. Box 310 Dallas Center, IA 50063	W-36	I-A	Hy-Line International 1005 4th Ave., SE Spencer, IA 51301
Shaver Poultry Breeding Farms, Ltd. Box 400 Ontario, Canada N1R 5V9	288A (Shaver White)	I-A	American Selected Products, Inc 209 Grove St. Silver Lake, MN 55381
Tatum Farms Route 3 Dawsonville, GA 30534	T-100	II-A	Tatum Farms Route 3 Dawsonville, GA 30534
Hy-Line International P. O. Box 310 Dallas Center, IA 50063	Hy-Line Brown	II-A	Lakeview Farms Rt. 3 Box 818 Searcy, AR 72143
Hisex Division Pilch, Inc. Box 438 Troutman, NC 28166	Hisex Brown	I-A	Euribred, Inc. P. O. Box 719 Troutman, NC 28166
ISA Babcock P. O. Box 280 Ithaca, NY 14851	Babcock Brown	II-A	Clock & De Cloux 1609 Trumansburg Rd. Ithaca, NY 14850
H & N International 3825 154th Ave., NE Redmond, WA 98052	Brown Nick	I-A	Wheelock Hatchery 2170 Wayne Rd. Chambersburg, PA 17201

Dekalb Ag Research, Inc. 3100 Sycamore Rd. Dekalb, IL 60115	Sex-Sal-Link	I-A	Heartland Hatcheries, Inc. 509 S. Wayne St. P. O. Box 911 Portland, IN 47371
Tatum Farms Route 3 Dawsonville, GA 30534	T-173	II-A	Tatum Farms Route 3 Dawsonville, GA 30534
Arbor Acres Marlborough Rd. Glastonbury, CT 06033-6501	Brown	II-A	Clock and De Cloux 1609 Trumansburg Rd. Ithaca, NY 14850

*I = Extensive distribution in southeast United States.
II = Little or no distribution in southeast United States.
A = Entry requested.
C = Entry not requested.