HATCH AND SEROLOGY REPORT OF THE THIRTY FOURTH NORTH CAROLINA LAYER PERFORMANCE AND MANAGEMENT TEST

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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. David Joyce is Resident Manager of the flock; Mrs. Pamela Jenkins is coordinator of data compilation and statistical analysis; 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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Entries:

Nine entries were accepted or acquired in accordance with the rules and regulations of the test. Six white egg strains and four brown egg strains are participating in the current test.

Hatch and Serology Report of the Thirty Fifth North Carolina Layer Performance and Management Test

Strain Letter	Computer Code	Strain Name
A	1	Hy-Line (W-36)
B	2	Hy-Line (W-98)
C	3	Hy-Line Brown
D	4	Bovans Brown
E	5	DeKalb Brown
F	6	Bovans White
G	7	DeKalb White
H	8	DeKalb Sigma
I	9	Bovans "White Experimental"

Dates of Importance:

The eggs were set on December 18, 2002 and hatched on January 8, 2003. The chicks were all sexed according to their genetics (feather, color or vent), vaccinated for Marek's disease, and wing banded for identification before transfer to the brood/grow houses.

Data Collection:

The analysis of fertility and embryonic mortality was conducted on the eggs remaining in the hatch tray and on eggs removed at time of transfer. Tables 1 and 2 indicate the percentage of total eggs set. Table 1 shows the percent usable chicks, cull chicks, and residue of total eggs set. Table 2 shows the distribution of the residue by each embryonic category.

The serology report was obtained by collecting a blood sample from male chicks

obtained from each strain at hatch. Serum samples were collected and packaged and refrigerated until delivery to the NCDA & CS Rollins Diagnostic Laboratory. The attached laboratory report gives the viral serology for the samples provided from each strain.

Hatch and Serology Report of the Thirty Fourth North Carolina Layer Performance and Management Test

Hatch Comments:

The eggs arrived at the Research Station in good condition. All of the strains were shipped ground freight. There were few broken eggs and the number of dirty eggs was minimal among all the eggs from the represented strains. The eggs were set and allowed to come to room temperature prior to placement in the incubation. At time of transfer, the eggs were transferred to the hatching tray and place in the hatchers.

Serology Comments:

We were able to get adequate serum from each of the 10 strains. The IBD titers were present in all the strains and the titer levels for the individual samples appeared to have a normal distribution, indicating a good breeder vaccination program. The chicks were MG negative and the IBD antibody levels were indicative of a good vaccination program in the breeder flocks of all strains.

Table 1. Analysis of hatch by percent usable chicks and eggs in residue from total eggs set

Strain	Usable Chicks	Female Chicks[1]	Cull Chicks	Eggs in Residue
	%			
Hy-Line (W-36)	91.52	48.58	0.41	8.08
Hy-Line (W-98)	91.14	47.91	0.38	8.48
Hy-Line Brown	86.02	53.11	0.52	13.46
Bovans Brown	75.27	42.17	0.70	24.03
Bovans “DeKalb Brown”	69.10	43.22	0.41	30.49
Bovans White	81.17	49.16	0.60	18.23
Bovans “DeKalb White”	79.92	52.57	0.79	19.29
Bovans “DeKalb Sigma”	75.28	48.86	0.42	24.30
Bovans “White Experimental”	79.68	49.51	0.62	19.70

[1]Calculated as a percentage of usable chicks.

Table 2. Analysis of breakout on eggs set to determine cause of embryo mortality as percent of residue

Strain Letter	Infertile Eggs	Early Dead Membrane	Early Dead Blood	Mid Dead	Pre Air Cell	Air Cell Broken	Pip Live	Pip Dead	Contam.[1]	Other Causes	Cracked Egg
	%										
A	63.44	13.98	8.96	3.94	4.30	1.08	1.08	0.72	1.08	0.00	1.43
B	30.50	21.00	14.00	6.00	17.50	1.00	1.50	4.00	1.00	1.50[2]	2.00
C	35.37	20.36	16.28	4.58	13.74	0.76	1.27	4.58	2.54	0.00	0.51
D	44.85	21.14	7.72	3.93	11.52	2.17	1.22	5.56	1.22	0.00	0.68
E	38.03	19.46	7.43	4.61	17.80	2.69	1.02	4.87	1.79	0.00	2.30
F	52.78	17.22	8.15	4.07	9.44	0.19	0.19	2.04	1.11	0.00	4.81
G	30.63	21.80	5.95	8.11	21.26	1.44	1.44	2.16	3.60	0.18[2]	3.42
H	39.20	30.50	11.46	4.50	3.99	0.72	2.35	1.33	5.12	0.00	0.82
I	54.94	12.10	7.17	5.57	6.21	0.96	1.11	3.34	2.87	0.16[3]	5.57

[1]Contaminated eggs.
[2]Abnormal shell structure.
[3]Eggs set with the small end up.