

IMPACT STUDY

AGRICULTURE AND NATURAL RESOURCES

Animal and Poultry Performance Testing Program

Random Sample Layer Test

North Carolina Agricultural Extension Service
North Carolina State University
Raleigh, NC

1988

Preface

The North Carolina Agricultural Extension Service has been providing the leadership for many years for four animal and poultry performance testing programs: BCIP, DHIA, N.C. Swine Evaluation Station, and the Random Sample Layer Test.

The Task Forces were charged with the following tasks:

1. Describe and document results of the four testing programs.
2. Describe similarities and dissimilarities in the support of the four programs.
3. Delineate and describe the delivery structure(s) of these programs.
4. Study and describe the input and result data files for each program.
5. Delineate and describe processing of data in each program.
6. Describe the public-private interface in boar and bull performance testing.
7. Emphasize the costs vs. benefits associated with each program.
8. What were the objectives of each program, and to what degree were these objectives attained?

Members of the Poultry Task Force were Grady Martin, John Carey, D.G. Harwood, R.E. Cook, Geoff Benson, and David Mustian. We are grateful to the Task Force and to Grady Martin and John Carey who provided most of the material for this report.

R. David Mustian
State Leader of Evaluation

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Introduction

The North Carolina Agricultural Extension Service has provided the leadership for many years for the poultry performance testing program, i.e., the Random Sample Layer Test.

This impact study report is based on the following guidelines:

1. Describe and document the current program objectives. Review the original program objectives, if different, and the justification given for creating the program, for example, the conditions that existed or the opportunities envisioned. Describe chronologically any major changes in the program objectives, whether stated explicitly or implied by program changes.
2. Describe the specific resources currently used by the program, including land, facilities and equipment, and personnel. Describe the sources and amounts of money used to purchase these resources, both capital items and operating funds. This would include N.C. Extension Service funds directly allocated to the program., the cost of specialists time supervising the program, the cost of facilities provided by NCDA, the contribution made by user payments and commodity groups, and uncompensated contributions of volunteers.
3. Describe how the performance testing program is conducted. This would include: the source of the animal or poultry to be tested; the design of the test; the number of animals or

poultry tested; the mechanics of feeding and handling the animals under test (if appropriate); the data collected and the mechanism for data collection; the method(s) of data storage and analysis; and the organization or procedures for program guidance and supervision.

4. Describe the program output, including: reports and publications; disposition of test animals; sales and field days; awards and public recognition.
5. Describe the users of the program output, including the types and numbers of people receiving reports and publications, and the people receiving tested animals. The users include people such as the dairy farmer who receives DHIA reports, the county extension agent who uses the DHIA reports in working with individual farmers and in his county program, the dairy specialists and extension economists who use the information in their programs, and administrators who use these data to justify additional funding for dairy research and extension activities, i.e. the direct and indirect users of the results.
6. Describe the recipients of program benefits and costs, if different from the users, both direct and indirect. For example, a participating dairy farmer benefits from his DHIA reports but all dairy farmers might benefit from the publication of management standards based on all N.C. DHIA participants' performance. Furthermore, on an industry wide basis improved animal performance has an effect on input suppliers, such as feed companies, and the volume of output

and therefore on processors and consumers. Defining the program beneficiaries requires careful thought.

7. Describe the program benefits and costs, in general terms. Benefits might include improved net returns to producers individually in the short run, lower production costs and lower prices to consumers in the long run. Care is required in defining benefits net of associated costs. For example, faster growth rates for top hogs allows more rapid turnover and a larger number of hogs sold per year but the benefits depend on the profitability of hog production. Also, not all program participants may benefit from the program; some may neglect to use their records and others may misuse the records and suffer lower net incomes.
8. Identify the sources of information used in preparing the report and identify existing studies which might be useful in completing the impact study, for example, research studies of program benefits, studies that demonstrate a sound method or design.

Background Of The Poultry Performance Program

Poultry Testing For Egg Production

With the rediscovery of Mendell's laws of inheritance near the turn of the century, poultry breeders had the tools to proliferate exotic breeds. The relatively short generation and high fecundity attracted many artists and fledgling scientists to the challenge of producing new breeds and varieties of chickens. Poultry shows, that provided prizes and recognition for the most successful breeders, expanded and were popular with producers.

Development of the trap nest opened an avenue for selecting the most prolific layers as parents. The progress was less striking than color purification, but was of sufficient magnitude to establish economic demarcation between flocks within the breeds. The Standard Egg Laying Contests were established to recognize and reward the breeders who were most successful in improving egg production. No complete listing of these contests was found, but Connecticut and Missouri initiated the first two in 1911 and over the next 38 years at least 23 Standard Egg Laying Tests operated under uniform rules at some time.

Individual production records were maintained and totals for 12-bird pens recorded. The all-time high individual records ranged from 122 eggs for White Laced Red Cornish breeds to 353 eggs for Single Comb White Leghorn breeds in the 1955 report. In 1954-55, 141 breeder-breed combinations were entered in the Standard Laying Contests with 3 to 47 thirteen-bird pens per

combination with only the 12 best records counted. Average production for these 141 groups ranged from 165.9 eggs for one breeder's crossbred lot to 267.8 eggs for one breeder's S.C. White Leghorns.

Contest winners recounted their honors in ads in poultry journals and increased demand for their strains of layers. However, contest pullets were selected from the best that could be produced on the breeding farm of origin and customers found little correlation between contest records and performance of commercial flocks from the same source. An unbiased record of strain performance as commercial flocks was needed.

Another approach to the establishment of official records of egg production was the Record of Performance and Register of Merit portion of the National Poultry Improvement Plan that was established in 1935. This program provided for poultry breeders to select pullets on their farm, have each officially identified and checked for compliance with breed characteristics, and trapnested for egg production for one year. An official of the supervising agency visited the farm at irregular intervals and trapnested for a day at each visit, checked the records at the farm, and compiled them at the end of the year. He certified those birds that produced at least 2000 standard sized eggs and those with a specified number of progeny qualifying for ROP as ROM breeders. Both the ROP-ROM program and Standard Egg Laying Tests gave official status to production records of individual birds, but these birds were produced under the best management

In 1954-55 the six random sample tests accepted 169 entries of commercial layers. Length of the tests ranged from 500 to 560 days. Eggs per bird housed ranged from 103.5 to 277.0 for entries and from 168.4 to 245.0 eggs test average. These results were more in line with commercial experience than the 234.0 eggs per bird average of the Standard Egg Laying Contests the same year. In 1955-56 the Standard Egg Laying Contests averaged 243.0 eggs per bird compared to the 7 random sample test average of 212.2 eggs (Utah opened a test that year). North Carolina initiated the fifteenth Random Sample Laying Test in the U.S. with the setting of eggs from 19 commercial strains and a random bred control at the Piedmont Research Station on January 22, 1959.

Whereas the Standard Egg Laying Contests were conducted according to mutually agreed-upon rules, the random sample tests were quite diverse in duration, sample size, traits measured, etc. A National Random Sample Test Committee was established to work with the USDA through the Council of American Official Poultry Tests to establish better means of comparing performance between tests. Neither facilities, sponsorship, nor local supervision offered any inclination to have one set of rules for all random sample laying tests. Assigning one entry space to a random-bred control was a recommendation accepted by most tests. A sub-committee composed of statisticians from industry, the Council, and the USDA did an in-depth study of repeatability of performance between years within tests and between tests and proposed statistical procedures for calculating regressed means

for each strain. The USDA provided statistical services and publication of Combined Summary reports utilizing all data from all random sample laying tests in North America over a two year period. Each mean had an LSD range associated with it in the publication.

The first combined summary was published for the 1958-59 data of the 14 random sample tests in the U.S. A total of 380 entries of 167 stocks from 129 breeders were included. Regressed mean eggs per bird was less than 200 for 22 stocks and 230 or greater for 7 stocks. Also 138 stocks were between 200 and 230 eggs regressed means. Addition of two more US tests brought the number of entries up to 415 of 164 strains from 124 breeders in 1959-60. Five stocks had regressed means below 200 and 19 stocks had means above 230 eggs per bird with a range of 195.2 to 238.5 eggs and over-all-tests regressed mean of 213.1 eggs per bird. In 1960-61 one more U.S. test and three Canadian tests were added to the combined summary and one U.S. test closed, bringing the total tests contributing data to 22. Thirty-four breeders dropped off the list of entrants between these years but 13 U.S. and 28 Canadian breeders were added. A total of 487 entries of 182 stocks were made by 136 North American breeders. The random sample test regressed means were for barely more than 50 weeks from housing. When these were adjusted to the approximate equivalent of the 365 days from maturity of the Standard Contests, the strains that were in the 1958-61 Standard Contest averages and the 1959-61 regressed means were credited with an

average of 18.2 more eggs per bird in the Standard Contests.

The initial planning for random sample tests attempted to foster an environment which would measure the maximum genetic production potential of the stocks. The increasing recognition of a genetic component of response to environmental stress stimulated rethinking of this goal, resulting in a trend toward providing both cage and floor housing environments in the tests and bird densities more closely resembling those in commercial use. This trend over the next decade more than countered the genetic progress of selection among strains entered by the breeders and the real genetic progress so that regressed mean eggs per bird was 11 less in 1970-71 than in 1960-61.

Use of Marek's Vaccine over the next two years resulted in a large jump of 20.5 eggs in the regressed mean eggs per bird. The 20 entries in the N.C. Random Sample Test in 1970-71 had an average of 3.7% growing mortality and 22.3% laying mortality with an average of 48.6 days per bird lost to mortality. Average eggs per bird housed was 187.7. Marek's Vaccine was used for the 1971-72 flock of the test. The 20 entries of this flock averaged 2.6% growing mortality, 11.1% laying mortality and 17.4 days per bird lost to mortality. Eggs per pullet housed averaged 221.7, an increase of 38 eggs, and rate of production was 4.9% higher. The Vaccine was a treatment rather than a genetic effect, but the genetic interaction with this treatment produced effects ranging from 1.2 to 65.4 increase in eggs per bird housed among the fourteen stocks entered in each of the years.

The number of random sample laying tests peaked at 23 in North America some twenty-odd years ago and immediately began to decline but the intense interest that they generated had spread around the world. In 1975 only seven of the North American tests were continuing but Ray Schar listed 42 random sample egg production tests being conducted in 15 countries outside North America. He noted that he had mailed 1526 copies of the 1975 combined summary to 67 foreign countries. Only three laying tests continue to operate in North America- the Central Canada Test at Ottawa, Ontario, the New Hampshire Test at Durham, N.H., and the North Carolina Test at Salisbury.

In June, 1976 the USDA held a program review of ARS participation in the Random Sample Egg Production Test with 13 committee members from USDA and 4 each from industry and universities. At the conclusion of the review, the ARS was committed to publish combined summaries through the 1978-79 test flocks and then discontinue that publication. A four-man team was assigned to examine the need for a national system for evaluation of genetic potential of commercial stocks and make recommendations as to alternatives that might be pursued. Their recommendations for a modernized, coordinated National Performance Evaluation Program with three levels of testing and uniform entry lists at all test sites did not generate enough industry and institutional support to become established.

The base breeding lines of 7 of the 8 strains in the North Carolina test flock were entered in the 1959-61 tests. Net

increase of egg production for these strains was up 11.4 eggs in 1971-72 or about one egg per bird annually. In 1983-84 average production was up another 17.5 eggs or about 1.5 eggs per bird annually. This 28.9 eggs improvement compares to 40.7 eggs per bird increase mean production of the survivor strains over the 1959-61 regressed means. The 21.9 egg per bird difference was accomplished through selection of strains that had performed well in the tests for the commercial flocks, a component largely attributable to the laying tests.

trying to emulate the environments that are prevalent in economically successful commercial flocks in North Carolina.

In the late 1940's two official programs for testing egg production were conducted. The US ROP-ROM used a system of supervised trapnesting of selected pullets on the breeder's farm and the Standard Egg Laying Contests provided trapnest records at central locations for the 12 best of the 13 best pullets that the breeder could produce and deliver to the central location. The common denominator of the two programs was that only pure line pullets were used and that pullets were grown in the breeder's facility and subject to his highly skilled selection before entering into competition. Chick customers found very little correlation between performance of flock-run pullets raised on their farms and performance of the breeder's entries in tests.

An idea that originated in Europe before the turn of the century of testing a random sample of a population to obtain an estimate of the worth of the population was applied to layers in California where the first Random Sample Egg Laying Test was begun in 1948. In 1959 North Carolina initiated the 15th Random Sample Laying Test in North America with 20 entries among the 171 laying stocks represented in the tests. Each entry was represented by a random sample of 360 hatching eggs which were set in randomly assigned trays at the test site. Replicate pens of 60 sexed pullets were started on pine shavings over concrete floors. At 150 days of age each replicate was randomly reduced to 50 pullets and placed on pine shavings litter over concrete

floors at 3.6 sq. ft. per bird for a 350-day laying period. Average eggs per bird housed for the stocks ranged from 193 to 253 and income over feed and chick cost ranged from \$0.40 to \$2.56. Most commercial layers in North Carolina were housed on litter at that time.

By 1966 housing for commercial layers had evolved toward either 2-bird cages, all-slat or all-wire floors, or a combination of part-slat and part-litter pens. Laying cages were installed in one house to provide 4 replicates of 26 pullets for each entry with 2 birds per 10" X 18" cage. One house was equipped with all hardwood slat floors and two replicates of 50 pullets per entry were housed at 0.96 sq.ft. per bird in this house. A third house was equipped with hardwood slats over half of the pen and pine shavings over the other half. Two replicates of 50 pullets per entry were placed in this house at 1.8 sq.ft. per pullet. This arrangement was maintained for four flocks. The all-slat pen provided an inferior environment and were placed with 24" X 20" cages at seven birds per cage which was a developing trend in the industry in the early 70's. All pullets to be housed in cages were grown at 8 birds per 24" X 20" cage.

When light and air controlled growing and laying houses were built in 1976 and 7-bird cages were discontinued and 4 replicates per entry were housed in 10 cages per rep at either 3 or 4 birds per 12" X 18" cage. In 1980 the current bird facilities were completed and use of the original houses was discontinued.

Facilities

The current physical plant of the project is a light and air controlled brood-grow house; a curtain-side brood-grow house; a light and air controlled laying house; a high-rise curtain-side laying house; a flush-waste, curtain-side laying house; an incubator room; a central building with two egg rooms and work space for egg quality measurement, etc., and an office recently completed by remodeling a former dwelling. The light and air controlled brood-grow house is equipped with three-deck, 12-bird cages and the curtain-side brood-grow house is equipped with flat-deck, 48-bird cages. In each laying house, half of the cages are 12" X 18" and half are 18" X 12" to provide 72 sq.in. per bird at 3 per cage or 54 sq.in. per bird at 4 per cage. The strain testing project utilizes a maximum of 144 of the 384 laying replicates. The remaining space is utilized for layer and pullet management and physiological stress research. Arranged as research houses the total maximum capacity of the three laying houses is 15,312 birds. Maximum capacity of the brood-grow houses is about 16,800 birds.

Test Design

Each of the 26 flocks of the North Carolina layer tests has begun with the setting of samples of randomly selected hatching eggs from each of the entries at the Piedmont Research Station. Trays in the incubators are randomly assigned. Initially all commercial and experimental entries were entered at the request

of the breeder, were accompanied by a \$100 entry fee, and the hatching eggs were provided at no cost to the test. When the breeders of a significant percentage of the chicks sold in North Carolina quit making entries in the early 70's, the policy was changed to acquire those strains enjoying high volume sales in this area with or without a request from the breeder. This has necessitated the purchase of hatching eggs for one or more entries for most of the recent flocks. Voluntary entrants still pay an entry fee and furnish the eggs for the entry.

Twelve hundred and sixty eggs are set for each entry from which 492 sexed pullets are housed in laying cages at 20 weeks of age. During growing bi-weekly body weights and feed consumption data are taken as guides for feeding during the next 14 days. Each entry is conformed to the breeder's recommended growth curve. During the 50-week laying period, bi-weekly feed consumption and production data guide feeding programs for each strain. Necropsy examination of all birds that die after the first week provide cause of death data for reports. Livability, feed consumption, bird weights, egg production, egg size, body weight, egg quality, cause of mortality, candled and commercial egg grade, salvage value, egg value, and income over feed and chick cost are measured and published in a growing report, three quarterly reports, and a final summary report of each flock by strain, housing type, cage type and cage space during the laying period. Beginning with the current flock the layers will be molted and recycled.

Flock Performance

Each of the flocks in the North Carolina project has had its performance described for each entry and each management system in 5 published reports. Growing feed consumption, body weight, mortality, growing feed, and chick cost, and egg production per bird before placement in the laying houses are reported in a "Growing Report." Age at 50% production, rate of production for the quarter, rate of production after 50%, number of eggs per pullet housed, percentage egg size distribution, average egg weight, layer mortality, and rate of feed consumption per 100 bird days, per dozen eggs, and per pound of eggs are reported in "Progress Report to xxx days of age" at the end of each of the first three quarters of the laying period. A "Final Summary Report" at the termination of the flock includes all of the above, causes of mortality, quarterly haugh unit and shell score values, candled egg grade percentages, quarterly egg grades at a commercial processing plant, percentage cost of downgrade eggs, chick and feed cost per bird housed, egg value per bird housed, final body weight, spent fowl value per bird housed, income over feed and chick cost per bird housed, and Duncan significance test of mean differences for four key variables. All birds are sold for slaughter. Infrequent field days and an open invitation to visit the test provide opportunity for interested persons to observe the project.

Program Impact

The USDA Study Committee appointed following a 1976 program review of ARS participation in random sample layer testing calculated that 5 strains having the highest 3-year average income over feed and chick cost in the tests averaged 90 cents more than the mean of all other stocks. They calculated that 26% of the U.S. market for 282 million layers were served by those 5 stocks. About another 48 or 49% of U.S. layers were non-tested stocks equally as profitable as the five strains that were tested. Even with this conservative approach, they estimated that replacement of the remaining approximately 25% of the national laying flock by those 5 strains would increase layer income by over \$60 million. For a comparison of North Carolina potential, if our 13 million bird laying flock is composed of birds that require 0.1 lbs. less feed per dozen due to information on strain and management from the test, 14,300 tons less feed is required each year to produce commercial eggs. Of the North Carolina flock of layers averages producing one more egg per 60 cents per dozen due to use of test data, state commercial egg income is \$1.4 million more each year. There is little doubt that cumulative effects of the use of test data is of much greater magnitude. Since profitability of commercial egg production has not been excessive in recent years, it is obvious the consumer of eggs has been ultimate recipient of these economics.

Program Benefits

Benefits of the North Carolina testing program cannot easily be separated from those of other North American tests, since all data were combined in a very popular publication by USDA for 20 years. The strain selection, strain improvement, and management improvement in the test has increased average eggs per bird housed by three dozen. The average hen-day basis annual production of North Carolina commercial laying flocks has increased near the same number of eggs. This means that our commercial is about 2.1 million birds less than would be required for the same number of eggs at 1959-60 performance and that about 100,000 tons less feed is required to produce the eggs. Our commercial egg producers are the people who selected the high performance strains and efficient management systems that are identified in the tests. The approximately \$20 million reduction in cost of feed has largely been passed through to the consumer of the eggs. Participating breeders have either been shown that their strains could not compete and gone to other enterprises or have used their success as a basis for world-wide franchise distribution. Net annual cost of the project is depreciation on approximately \$375,000 buildings and equipment and most of the cost of 9 1/2 man-years for personnel at the Piedmont Station and 0.35 Extension specialist cost plus 0.17 of a technician at North Carolina State University. About 32% of this project is strain and management performance testing and the other 68% is layer and pullet management research.

Dissemination Of Results

Growing, quarterly, and final reports are mailed to list of people in North America who submit requests annually. The final summary is mailed to a list worldwide who request it. This list includes poultry breeders, chick salesmen, integrated production managers, independent egg producers, journal and news editors, allied industry representatives, educators, and Extension agents and specialists. These reports provide performance data of the specific strains under our three management systems and do not constitute certification of any sort or declaration of winners. Each user is encouraged to apply his specific management and market economics to the performance data in choosing the strain or strains to use in his enterprise. All data become a part of the public information domain. The most recent mailing list has 150 North Carolina locations, 96 in other states, and 15 in other countries.

FINAL REPORT OF THE TWENTY-SEVENTH
NORTH CAROLINA LAYER PERFORMANCE
AND MANAGEMENT TEST

The North Carolina Layer Performance and Management Test is conducted under the auspices of the Agricultural 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. Billy Ayscue is the Piedmont Research Station Superintendent; Mr. Joe Hampton is Resident Manager of the flock; and Dr. J.B. Carey is Project Leader. The purpose of this program is to assist poultrymen in evaluation of stocks of commercial layers and management systems.

The contents of this report summarize performance over the first, second, and both laying cycles.

Tables 1-16	Performance Days 140-434
Tables 17-32	Performance Days 435-728
Tables 33-48	Performance Days 140-728

Description of the tabular headings and data are included immediately preceding the tables. The data presented represent only the strain differences and the two-way strain x management interactions, strain x cage type, strain x birds per cage, and strain x house type.

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PROTOCOL FOR 27th NORTH CAROLINA LAYER PERFORMANCE AND MANAGEMENT TEST

Entries:

Ten entries were accepted in accordance with the rules and regulations of the test. Seven white egg and 3 brown egg strains were tested.

Incubation and Hatching:

A minimum of 105 dozen hatching eggs per entry were set November 26, 1985 and hatched December 17, 1985. For details of pullet performance of this flock, refer to Twenty-Seventh North Carolina Layer Performance and Management Test Growing Report (Vol. 1, No. 1), August 1987.

Layer Housing and Feeding:

Those hens laying in the light and air controlled house were reared in a light and air controlled facility. Those to lay in the curtain-sided houses were reared in a curtain-sided facility. Within each laying house each entry was housed in four replicates of ten cages, deep cages (12" x 18") and shallow cages (18" x 12") crossed with 3 and 4 birds per cage. Resulting in 140 hens per entry per laying house or a total of 420 hens per entry in the test. This report includes production data from 20-104 weeks of age (May 6, 1986 - December 14, 1987) summarized in three sections: (20-62 weeks, 63-104 weeks, and 20-104 weeks).

Layer Feeding:

All hens were fed ad libitum from a series of eight diets (to provide minimum daily nutrient intakes as outlined below.

EGG PRODUCTION RATE

	<u>> 87% and pre peak</u>	<u>87-80%</u>	<u>80-70%</u>	<u>< 70%</u>
<u>White Egg Layers</u>				
Protein (g/day)	19	18	17	16
Calcium (g/day)	3.8	3.8	4.0	4.0
Lysine (mg/day)	820	780	730	690
TSAA (mg/day)	700	670	630	590
<u>Brown Egg Layers</u>				
Protein (g/day)	20	19	18	17
Calcium (g/day)	3.8	3.8	3.8	4.0
Lysine (mg/day)	830	820	780	730
TSAA (mg/day)	710	700	670	630

DESCRIPTION OF DATA TABLE STATISTICS

Breeder (Strain):

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

Cage Type:

"S" denotes performance in shallow (18" x 12") cages. "D" denotes performance in deep (12" x 18") cages.

Birds per Cage:

"3" or "4" denotes performance with 3 or 4 birds housed per cage, respectively.

Housing Type:

"FL" denotes performance in a curtain-sided flush waste facility. "HR" denotes performance in a curtain-sided high rise facility. "LC" denotes performance in a light and air controlled facility.

Eggs per Bird Housed:

The total number of eggs produced divided by the number of birds housed at 140 days.

Egg Production:

Hen Housed - The average daily number of eggs produced per 100 hens housed at 140 days. Hen Day - The average daily number of eggs produced per 100 hen days.

Egg Mass:

Hen Housed - The average daily production of egg mass in grams per bird housed at 140 days. Hen Day - The average daily production of egg mass in grams per hen day.

Mortality:

The percentage of birds housed at 140 days which have died prior to 434 days of age (Tables 1-16); from 435 to 728 days (Tables 17-32); from 140 to 728 days (Tables 33-48).

Feed Consumption:

The pounds of feed consumed daily per 100 hens.

Egg Weight:

The average egg weight of biweekly samples in grams per egg.

Egg Income:

The calculated income per hen housed at 140 days from egg production, using three year regional average egg prices as follows:

<u>Grade</u>	<u>Size</u>	<u>Cents/Dozen</u>	
		<u>20-62 Weeks</u>	<u>63-104 Weeks</u>
A	Extra Large	60.98	55.61
A	Large	60.98	55.61
A	Medium	50.23	44.13
A	Small	37.59	31.95
A	Pee Wee	41.04	40.39
B	All	41.04	40.39
Cracks	All	35.03	36.71

Feed Cost:

The calculated feed cost per hen housed at 140 days, using three year regional average prices, weighted average price of \$136.83 per ton at 20-62 weeks and \$111.16 per ton at 63-104 weeks.

Grade Information:

The average grade of eggs according to USDA grading standards.

Blood Spots:

The percentage of blood spots in excess of 1/8 inch diameter, detected in broken out eggs.

Meat Spots:

The percentage of meat spots in excess of 1/8 inch diameter, detected in broken out eggs.

Egg Size Distribution:

The proportion of the eggs falling into the following size categories:

<u>Size Category</u>	<u>Ounces/Dozen</u>
Pee Wee	< 18
Small	18 - 21
Medium	21 - 24
Large	24 - 27
Extra Large	> 27

TABLE 1. AVERAGE PERFORMANCE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	Eggs Per Bird Housed	Egg Production		Egg Mass		Mortality
		Hen Housed ---- (%)	Hen Day ----	Hen Housed --- (g/d)	Hen Day ---	>140 d Of Age (%)

White Egg Layers						
Hisex (White)	221.3	75.2	77.5	44.5	45.9	6.3
Colonial (365-S)	198.7	68.5	73.4	37.3	40.3	16.0
ISA-Babcock (B300)	230.7	78.1	79.0	45.4	46.0	2.6
Hyline (W-36)	222.9	75.4	77.8	43.5	44.9	6.9
Shaver (288-A)	223.8	76.0	79.8	45.0	47.3	7.5
Dekalb (XL-Link)	226.7	77.2	80.6	44.9	47.0	9.1
H & N (Nick Chick)	222.4	76.1	80.5	44.6	47.4	10.4
White Egg Average	220.9	75.2	78.4	43.6	45.6	8.4

Brown Egg Layers						
Hubbard (Golden Comet)	212.0	72.0	74.1	45.0	46.3	6.4
Dekalb (Sex-Sal-Link-G)	210.0	71.2	73.9	45.6	47.2	6.6
Hisex (Brown)	216.5	73.6	75.8	47.7	49.2	6.5
Brown Egg Average	212.8	72.2	74.6	46.1	47.6	6.5

**TABLE 2. AVERAGE PERFORMANCE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (140-434 DAYS)**

Breeder (Strain)	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Specific Gravity Score	Egg Income	Feed Cost
White Egg Layers					
Hisex (White)	24.5	54.3	3.1	10.11	4.82
Colonial (365-S)	22.3	51.0	2.8	8.40	4.37
ISA-Babcock (B300)	24.4	53.6	3.1	10.47	4.90
Hyline (W-36)	23.4	52.8	2.8	9.93	4.67
Shaver (288-A)	23.9	54.1	2.9	10.43	4.72
Dekalb (XL-Link)	24.5	53.6	2.9	10.34	4.85
H & N (Nick Chick)	25.3	54.3	3.0	10.13	4.85
White Egg Average	24.0	53.4	3.0	9.97	4.74
Brown Egg Layers					
Hubbard (Golden Comet)	26.4	57.2	2.8	10.07	5.05
Dekalb (Sex-Sal-Link-G)	27.4	58.3	2.7	10.19	5.23
Hisex (Brown)	26.5	59.6	2.8	10.52	5.08
Brown Egg Average	26.8	58.4	2.8	10.26	5.12

TABLE 3. AVERAGE EGG SIZE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)

White Egg Layers					
Hisex (White)	2.7	9.3	18.8	40.3	29.0
Colonial (365-S)	4.2	14.6	28.2	39.3	13.7
ISA-Babcock (B300)	2.8	9.6	19.4	44.7	23.5
Hyline (W-36)	3.0	13.0	21.1	42.1	20.8
Shaver (288-A)	1.8	8.4	18.6	44.5	26.6
Dekalb (XL-Link)	2.7	9.5	20.6	45.0	22.2
H & N (Nick Chick)	2.1	9.2	17.0	43.0	28.6
White Egg Average	2.8	10.5	20.5	42.7	23.5

Brown Egg Layers					
Hubbard (Golden Comet)	0.9	6.4	13.0	32.9	46.8
Dekalb (Sex-Sal-Link-G)	1.1	6.1	10.4	30.1	52.3
Hisex (Brown)	0.9	3.9	7.8	26.7	60.8
Brown Egg Average	1.0	5.5	10.4	29.9	53.3

**TABLE 4. AVERAGE EGG QUALITY OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (140-434 DAYS)**

Breeder (Strain)	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)
<hr/> White Egg Layers						
Hisex (White)	94.2	2.2	3.3	0.3	0.2	0.9
Colonial (365-S)	93.1	2.2	4.0	0.7	0.9	0.4
ISA-Babcock (B300)	96.1	0.9	2.7	0.4	0.3	1.7
Hyline (W-36)	95.9	0.8	2.7	0.6	0.4	0.0
Shaver (288-A)	96.5	0.5	2.6	0.4	0.0	0.0
Dekalb (XL-Link)	95.3	0.7	3.4	0.6	0.6	0.0
H & N (Nick Chick)	94.5	1.7	3.0	0.7	1.4	0.6
White Egg Average	95.1	1.3	3.1	0.5	0.5	0.5
<hr/> Brown Egg Layers						
Hubbard (Golden Comet)	96.2	0.6	2.4	0.8	4.7	15.9
Dekalb (Sex-Sal-Link-G)	94.3	0.8	4.1	0.8	0.9	16.0
Hisex (Brown)	95.8	0.8	2.7	0.8	1.8	14.3
Brown Egg Average	95.4	0.7	3.1	0.8	2.5	15.4

TABLE 5. EFFECTS OF NUMBER OF BIRDS PER CAGE ON PERFORMANCE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	Birds/ Cage	Eggs Per Bird Housed	Egg Production		Egg Mass		Mortality >140 d Of Age (%)
			Hen Housed -----	Hen Day (%) -----	Hen Housed ---	Hen Day (g/d) ---	

White Egg Layers							
Hisex (White)	3	225.0	76.1	78.2	45.3	46.3	4.4
	4	217.6	74.4	76.9	43.8	45.5	8.2
Colonial (365-S)	3	207.7	71.4	75.8	38.7	41.4	13.0
	4	189.7	65.6	71.0	35.8	39.1	18.9
ISA-Babcock (B300)	3	235.4	79.4	80.5	46.7	47.2	2.8
	4	225.9	76.8	77.5	44.1	44.8	2.5
Hyline (W-36)	3	224.9	76.4	78.9	44.0	45.6	8.3
	4	220.8	74.5	76.7	43.1	44.2	5.4
Shaver (288-A)	3	233.2	78.9	82.1	47.1	49.0	5.0
	4	214.4	73.0	77.6	42.9	45.7	10.0
Dekalb (XL-Link)	3	234.5	79.9	82.0	46.7	48.0	6.1
	4	218.9	74.5	79.2	43.1	46.1	12.0
H & N (Nick Chick)	3	228.7	77.8	81.4	46.0	48.1	6.9
	4	216.1	74.3	79.6	43.2	46.8	13.9
White Egg Average	3	227.1	77.1	79.8	44.9	46.5	6.7
	4	214.8	73.3	76.9	42.3	44.6	10.1

Brown Egg Layers							
Hubbard (Golden Comet)	3	218.3	73.8	74.6	46.7	47.1	3.0
	4	205.7	70.1	73.6	43.3	45.5	9.9
Dekalb (Sex-Sal-Link-G)	3	222.4	75.3	77.0	48.4	49.5	5.0
	4	197.5	67.1	70.8	42.7	45.0	8.2
Hisex (Brown)	3	225.6	76.7	78.6	50.0	51.1	5.6
	4	207.4	70.6	73.0	45.5	47.2	7.4
Brown Egg Average	3	222.1	75.2	76.7	48.4	49.2	4.5
	4	203.5	69.2	72.5	43.8	45.9	8.5

TABLE 6. EFFECTS OF NUMBER OF BIRDS PER CAGE ON PERFORMANCE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	Birds/ Cage	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Specific Gravity Score	Egg Income	Feed Cost

White Egg Layers						
Hisex (White)	3	25.1	54.2	3.1	10.36	4.97
	4	23.9	54.4	3.1	9.86	4.66
Colonial (365-S)	3	23.3	50.6	2.7	8.77	4.59
	4	21.3	51.4	2.8	8.03	4.15
ISA-Babcock (B300)	3	25.2	53.8	3.1	10.72	5.02
	4	23.6	53.4	3.2	10.22	4.77
Hyline (W-36)	3	24.2	52.8	2.9	10.04	4.79
	4	22.6	52.7	2.8	9.83	4.54
Shaver (288-A)	3	24.2	54.4	3.0	10.91	4.91
	4	23.5	53.9	2.9	9.95	4.52
Dekalb (XL-Link)	3	24.7	53.9	2.9	10.65	5.04
	4	24.3	53.2	2.9	10.03	4.66
H & N (Nick Chick)	3	25.9	54.5	3.0	10.41	5.06
	4	24.8	54.1	3.0	9.85	4.63
White Egg Average	3	24.7	53.5	3.0	10.26	4.91
	4	23.4	53.3	3.0	9.68	4.56

Brown Egg Layers						
Hubbard (Golden Comet)	3	27.3	57.6	2.8	10.51	5.33
	4	25.4	56.8	2.8	9.62	4.78
Dekalb (Sex-Sal-Link-G)	3	28.2	58.5	2.8	10.81	5.49
	4	26.6	58.2	2.6	9.57	4.97
Hisex (Brown)	3	27.5	59.8	2.9	11.02	5.33
	4	25.5	59.3	2.8	10.02	4.83
Brown Egg Average	3	27.7	58.6	2.8	10.78	5.38
	4	25.8	58.1	2.7	9.74	4.86

TABLE 7. EFFECTS OF NUMBER OF BIRDS PER CAGE ON EGG SIZE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	Birds/ Cage	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)
White Egg Layers						
Hisex (White)	3	3.1	8.9	19.2	40.8	28.0
	4	2.3	9.7	18.4	39.7	29.9
Colonial (365-S)	3	4.5	15.4	28.3	39.4	12.5
	4	3.9	13.8	28.0	39.3	15.0
ISA-Babcock (B300)	3	2.7	9.0	19.3	44.2	24.8
	4	2.9	10.2	19.6	45.1	22.2
Hyline (W-36)	3	3.0	12.8	20.9	42.2	21.2
	4	2.9	13.3	21.3	42.0	20.4
Shaver (288-A)	3	1.8	8.0	17.6	44.3	28.3
	4	1.8	8.8	19.7	44.7	25.0
Dekalb (XL-Link)	3	2.5	9.8	21.0	44.5	22.3
	4	2.9	9.2	20.1	45.6	22.1
H & N (Nick Chick)	3	2.0	8.8	16.5	43.4	29.3
	4	2.3	9.6	17.6	42.7	27.9
White Egg Average	3	2.8	10.4	20.4	42.7	23.8
	4	2.7	10.6	20.7	42.7	23.2
Brown Egg Layers						
Hubbard (Golden Comet)	3	0.7	6.8	11.8	31.4	49.4
	4	1.2	6.0	14.2	34.4	44.3
Dekalb (Sex-Sal-Link-G)	3	0.9	5.7	10.6	29.7	53.1
	4	1.3	6.5	10.1	30.6	51.5
Hisex (Brown)	3	1.0	3.5	6.7	25.4	63.3
	4	0.8	4.3	8.8	27.9	58.2
Brown Egg Average	3	0.9	5.3	9.7	28.8	55.3
	4	1.1	5.6	11.0	31.0	51.3

TABLE 8. EFFECTS OF NUMBER OF BIRDS PER CAGE ON EGG QUALITY OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	Birds/ Cage	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)
<hr/> White Egg Layers							
Hisex (White)	3	96.2	1.0	2.5	0.2	0.0	0.0
	4	92.3	3.3	4.0	0.4	0.4	1.7
Colonial (365-S)	3	93.5	2.1	3.6	0.8	0.0	0.0
	4	92.8	2.2	4.5	0.5	1.9	0.8
ISA-Babcock (B300)	3	96.9	0.6	1.8	0.7	0.6	1.7
	4	95.2	1.1	3.5	0.2	0.0	1.7
Hyline (W-36)	3	96.5	0.8	1.9	0.7	0.0	0.0
	4	95.2	0.8	3.5	0.5	0.9	0.0
Shaver (288-A)	3	96.9	0.5	2.2	0.5	0.0	0.0
	4	96.1	0.4	3.1	0.3	0.0	0.0
Dekalb (XL-Link)	3	95.3	0.2	3.7	0.8	0.7	0.0
	4	95.3	1.3	3.2	0.3	0.5	0.0
H & N (Nick Chick)	3	94.5	1.5	2.9	1.1	2.2	0.0
	4	94.6	1.9	3.1	0.4	0.6	1.3
White Egg Average	3	95.7	1.0	2.7	0.7	0.5	0.2
	4	94.5	1.6	3.6	0.4	0.6	0.8
<hr/> Brown Egg Layers							
Hubbard (Golden Comet)	3	97.0	0.6	2.0	0.3	2.8	17.9
	4	95.4	0.6	2.7	1.3	6.6	13.8
Dekalb (Sex-Sal-Link-G)	3	95.4	0.7	3.3	0.6	0.7	17.1
	4	93.1	1.0	4.9	1.0	1.2	15.0
Hisex (Brown)	3	96.5	0.2	2.3	1.1	3.0	15.0
	4	95.0	1.3	3.2	0.5	0.6	13.7
Brown Egg Average	3	96.3	0.5	2.5	0.7	2.2	16.7
	4	94.5	1.0	3.6	0.9	2.8	14.1

TABLE 9. EFFECTS OF CAGE TYPE ON PERFORMANCE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	Cage Type	Eggs	Egg Production		Egg Mass		Mortality >140 d Of Age (%)
		Per Bird Housed	Hen Housed ----- (%)	Hen Day -----	Hen Housed --- (g/d)	Hen Day ---	

White Egg Layers							
Hisex (White)	S	225.5	77.0	79.6	45.8	47.6	8.1
	D	217.1	73.5	75.5	43.2	44.3	4.6
Colonial (365-S)	S	204.1	70.1	74.9	38.0	41.0	16.2
	D	193.3	66.9	71.9	36.5	39.5	15.7
ISA-Babcock (B300)	S	234.3	79.2	79.7	46.1	46.6	2.4
	D	227.0	77.0	78.3	44.6	45.3	2.9
Hyline (W-36)	S	222.4	75.5	78.6	43.7	45.6	9.2
	D	223.3	75.4	76.9	43.4	44.3	4.6
Shaver (288-A)	S	229.1	77.7	81.5	46.1	48.3	6.5
	D	218.6	74.2	78.1	43.9	46.4	8.5
Dekalb (XL-Link)	S	235.2	80.1	82.5	46.4	47.9	7.2
	D	218.2	74.4	78.7	43.4	46.2	10.9
H & N (Nick Chick)	S	226.6	77.9	82.0	45.4	48.1	10.0
	D	218.2	74.2	79.0	43.8	46.8	10.8
White Egg Average	S	225.3	76.8	79.8	44.5	46.4	8.5
	D	216.5	73.7	76.9	42.7	44.7	8.3

Brown Egg Layers							
Hubbard (Golden Comet)	S	216.8	73.5	75.1	46.6	47.5	5.8
	D	207.2	70.4	73.1	43.4	45.2	7.1
Dekalb (Sex-Sal-Link-G)	S	214.4	72.6	75.6	46.6	48.4	6.3
	D	205.6	69.7	72.2	44.5	46.0	6.8
Hisex (Brown)	S	219.1	74.4	77.1	48.1	50.0	8.6
	D	213.9	72.8	74.4	47.3	48.3	4.3
Brown Egg Average	S	216.8	73.5	75.9	47.1	48.6	6.9
	D	208.9	71.0	73.2	45.1	46.5	6.1

TABLE 10. EFFECTS OF CAGE TYPE ON PERFORMANCE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	Cage Type	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Specific Gravity Score	Egg Income	Feed Cost

White Egg Layers						
Hisex (White)	S	24.9	54.9	3.1	10.40	4.90
	D	24.0	53.7	3.1	9.82	4.74
Colonial (365-S)	S	22.8	50.6	2.7	8.60	4.46
	D	21.8	51.4	2.8	8.19	4.28
ISA-Babcock (B300)	S	24.4	53.8	3.2	10.67	4.94
	D	24.3	53.3	3.1	10.28	4.85
Hyline (W-36)	S	23.9	52.9	2.8	9.98	4.72
	D	22.9	52.6	2.8	9.89	4.61
Shaver (288-A)	S	24.1	54.2	2.9	10.69	4.80
	D	23.6	54.1	3.0	10.16	4.63
Dekalb (XL-Link)	S	24.9	53.2	2.9	10.76	4.98
	D	24.1	53.9	2.9	9.91	4.72
H & N (Nick Chick)	S	25.3	54.1	3.0	10.31	4.85
	D	25.4	54.5	3.0	9.96	4.84
White Egg Average	S	24.3	53.4	3.0	10.20	4.81
	D	23.7	53.4	3.0	9.74	4.67

Brown Egg Layers						
Hubbard (Golden Comet)	S	26.9	57.9	2.7	10.38	5.19
	D	25.9	56.5	2.8	9.75	4.92
Dekalb (Sex-Sal-Link-G)	S	27.9	58.0	2.7	10.34	5.30
	D	26.9	58.7	2.8	10.04	5.16
Hisex (Brown)	S	27.0	59.5	2.8	10.65	5.12
	D	26.0	59.7	2.9	10.39	5.04
Brown Egg Average	S	27.3	58.5	2.7	10.46	5.20
	D	26.2	58.3	2.8	10.06	5.04

TABLE 11. EFFECTS OF CAGE TYPE ON EGG SIZE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	Cage Type	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)

White Egg Layers						
Hisex (White)	S	2.0	8.9	16.6	41.1	31.5
	D	3.3	9.7	21.0	39.5	26.5
Colonial (365-S)	S	4.1	14.7	30.5	39.1	11.6
	D	4.2	14.5	25.9	39.5	15.9
ISA-Babcock (B300)	S	2.8	9.4	18.3	45.0	24.5
	D	2.8	9.8	20.5	44.4	22.5
Hyline (W-36)	S	2.6	13.0	20.7	43.7	20.0
	D	3.3	13.1	21.5	40.5	21.5
Shaver (288-A)	S	2.2	7.8	17.3	45.5	27.3
	D	1.5	9.0	20.0	43.6	25.9
Dekalb (XL-Link)	S	2.5	9.6	19.9	46.0	22.0
	D	2.9	9.3	21.3	44.1	22.4
H & N (Nick Chick)	S	2.1	8.9	17.7	43.4	28.0
	D	2.2	9.5	16.3	42.7	29.2
White Egg Average	S	2.6	10.3	20.1	43.4	23.6
	D	2.9	10.7	20.9	42.0	23.4

Brown Egg Layers						
Hubbard (Golden Comet)	S	1.1	5.9	11.4	31.4	50.2
	D	0.8	6.9	14.5	34.3	43.4
Dekalb (Sex-Sal-Link-G)	S	1.1	6.8	10.3	29.4	52.4
	D	1.1	5.4	10.4	30.9	52.2
Hisex (Brown)	S	1.1	3.7	7.6	27.0	60.7
	D	0.7	4.1	8.0	26.3	60.8
Brown Egg Average	S	1.1	5.5	9.8	29.3	54.4
	D	0.9	5.5	11.0	30.5	52.2

TABLE 12. EFFECTS OF CAGE TYPE ON EGG QUALITY OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	Cage Type	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)
<hr/>							
White Egg Layers							
Hisex (White)	S	94.6	1.9	3.1	0.4	0.4	0.0
	D	93.8	2.5	3.4	0.2	0.0	1.7
Colonial (365-S)	S	93.7	1.4	4.3	0.7	0.0	0.0
	D	92.6	3.0	3.8	0.7	1.9	0.8
ISA-Babcock (B300)	S	95.7	0.7	3.0	0.5	0.6	0.6
	D	96.4	1.1	2.3	0.3	0.0	2.8
Hyline (W-36)	S	97.0	0.4	2.0	0.6	0.4	0.0
	D	94.7	1.2	3.4	0.7	0.4	0.0
Shaver (288-A)	S	96.0	0.5	2.9	0.5	0.0	0.0
	D	97.0	0.4	2.4	0.2	0.0	0.0
Dekalb (XL-Link)	S	95.2	0.8	3.4	0.6	1.2	0.0
	D	95.4	0.6	3.5	0.5	0.0	0.0
H & N (Nick Chick)	S	94.2	1.2	3.8	0.8	1.0	0.6
	D	94.9	2.1	2.3	0.7	1.7	0.7
White Egg Average	S	95.2	1.0	3.2	0.6	0.5	0.2
	D	95.0	1.6	3.0	0.5	0.6	0.9
<hr/>							
Brown Egg Layers							
Hubbard (Golden Comet)	S	96.2	0.3	2.9	0.7	4.1	15.5
	D	96.3	0.9	1.9	0.9	5.3	16.2
Dekalb (Sex-Sal-Link-G)	S	93.7	0.7	4.6	0.9	1.2	12.1
	D	94.8	0.9	3.5	0.7	0.6	20.0
Hisex (Brown)	S	96.3	0.4	2.4	0.9	0.6	17.4
	D	95.2	1.1	3.1	0.6	3.0	11.3
Brown Egg Average	S	95.4	0.5	3.3	0.8	2.0	15.0
	D	95.5	1.0	2.8	0.7	3.0	15.8

**TABLE 13. EFFECTS OF HOUSING ON PERFORMANCE OF ENTRIES IN
27TH NCLPMT (140-434 DAYS)**

Breeder (Strain)	House Type	Eggs Per Bird Housed	Egg Production		Egg Mass		Mortality >140 d Of Age (%)
			Hen Housed -----	Hen Day (%) -----	Hen Housed --- (g/d) ---	Hen Day ---	
White Egg Layers							
Hisex (White)	HR	225.3	76.1	78.1	45.9	47.0	6.0
	FL	213.0	72.5	74.7	43.9	45.2	5.0
	LC	225.6	77.1	79.8	43.8	45.6	8.0
Colonial (365-S)	HR	202.4	70.3	75.1	38.0	41.0	19.1
	FL	196.9	67.7	74.4	37.1	41.2	20.4
	LC	196.8	67.5	70.6	36.7	38.5	8.4
ISA-Babcock (B300)	HR	228.1	77.0	78.1	44.8	45.9	2.9
	FL	228.8	77.6	78.7	45.6	46.2	2.9
	LC	235.1	79.7	80.3	45.7	45.9	2.1
Hyline (W-36)	HR	218.0	73.4	77.0	43.0	45.0	9.4
	FL	220.4	75.0	76.7	43.7	44.7	4.8
	LC	230.2	77.9	79.7	44.0	45.1	6.5
Shaver (288-A)	HR	225.9	76.4	79.2	46.3	47.9	6.0
	FL	210.5	71.6	78.1	42.3	46.5	11.5
	LC	235.1	79.8	82.2	46.3	47.7	5.0
Dekalb (XL-Link)	HR	219.7	75.2	78.4	44.5	46.5	8.0
	FL	228.2	77.6	80.6	45.5	47.4	8.5
	LC	232.2	78.9	82.9	44.7	47.1	10.6
H & N (Nick Chick)	HR	215.2	73.9	80.3	43.2	47.4	14.1
	FL	221.5	75.3	77.3	44.9	46.1	5.3
	LC	230.5	78.9	83.8	45.7	48.9	11.8
White Egg Average	HR	219.2	74.6	78.0	43.7	45.8	9.4
	FL	217.0	73.9	77.2	43.3	45.3	8.3
	LC	226.5	77.1	79.9	43.9	45.5	7.5
Brown Egg Layers							
Hubbard (Golden Comet)	HR	213.3	72.2	74.4	45.5	46.8	6.2
	FL	207.3	70.6	73.6	44.3	46.3	7.4
	LC	215.6	73.1	74.3	45.2	45.9	5.7
Dekalb (Sex-Sal-Link-G)	HR	203.4	68.7	70.6	45.3	46.2	4.0
	FL	199.7	67.7	71.6	43.4	46.1	9.3
	LC	226.8	77.1	79.5	47.9	49.4	6.5
Hisex (Brown)	HR	211.8	72.2	75.3	47.0	49.4	10.4
	FL	216.5	73.2	74.9	48.1	48.9	3.7
	LC	221.2	75.5	77.1	48.1	49.2	5.2
Brown Egg Average	HR	209.5	71.0	73.4	45.9	47.5	6.9
	FL	207.8	70.5	73.4	45.3	47.1	6.8
	LC	221.2	75.2	77.0	47.1	48.2	5.8

TABLE 14. EFFECTS OF HOUSING ON PERFORMANCE OF ENTRIES IN
27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	House Type	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Specific Gravity Score	Egg Income	Feed Cost
White Egg Layers						
Hisex (White)	HR	24.8	54.8	3.1	10.37	4.93
	FL	23.7	55.4	3.2	9.94	4.69
	LC	24.9	52.7	3.1	10.02	4.83
Colonial (365-S)	HR	22.4	50.9	2.7	8.49	4.40
	FL	22.6	51.2	2.9	8.44	4.30
	LC	22.0	50.9	2.7	8.25	4.41
ISA-Babcock (B300)	HR	24.5	53.9	3.2	10.37	4.91
	FL	24.1	54.0	3.1	10.55	4.81
	LC	24.6	52.8	3.1	10.50	4.98
Hylne (W-36)	HR	23.2	53.2	2.9	9.71	4.58
	FL	22.5	53.5	2.8	10.00	4.56
	LC	24.4	51.6	2.8	10.10	4.85
Shaver (288-A)	HR	23.6	55.0	2.9	10.65	4.74
	FL	23.5	54.1	3.0	9.92	4.50
	LC	24.5	53.3	2.9	10.72	4.90
Dekalb (XL-Link)	HR	24.6	54.9	2.9	10.02	4.84
	FL	24.4	53.7	3.0	10.55	4.89
	LC	24.5	52.0	2.8	10.45	4.82
H & N (Nick Chick)	HR	25.1	54.3	3.0	9.75	4.70
	FL	24.8	54.8	3.1	10.25	4.83
	LC	26.1	53.7	3.0	10.40	5.01
White Egg Average	HR	24.0	53.9	2.9	9.91	4.73
	FL	23.7	53.8	3.0	9.95	4.65
	LC	24.4	52.4	2.9	10.06	4.83
Brown Egg Layers						
Hubbard (Golden Comet)	HR	26.2	57.4	2.7	10.19	5.01
	FL	26.3	57.7	2.9	9.92	4.96
	LC	26.6	56.5	2.8	10.09	5.19
Dekalb (Sex-Sal-Link-G)	HR	27.1	59.7	2.8	9.93	5.23
	FL	26.6	58.4	2.8	9.83	5.08
	LC	28.4	56.9	2.6	10.80	5.38
Hisex (Brown)	HR	26.6	59.9	2.8	10.29	5.03
	FL	26.0	60.1	2.8	10.59	5.06
	LC	26.9	58.8	2.8	10.69	5.14
Brown Egg Average	HR	26.6	59.0	2.8	10.14	5.09
	FL	26.3	58.7	2.8	10.11	5.03
	LC	27.3	57.4	2.7	10.53	5.24

TABLE 15. EFFECTS OF HOUSING ON EGG SIZE OF ENTRIES
27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	House Type	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)

White Egg Layers						
Hisex (White)	HR	2.2	8.9	18.4	39.9	30.6
	FL	2.4	7.8	15.2	38.2	36.4
	LC	3.5	11.1	22.7	42.7	19.9
Colonial (365-S)	HR	3.8	17.2	29.3	37.7	11.9
	FL	3.7	13.5	27.3	41.3	14.1
	LC	5.0	13.1	27.8	38.9	15.2
ISA-Babcock (B300)	HR	2.7	9.1	20.1	43.5	24.6
	FL	2.3	9.1	17.6	45.6	25.4
	LC	3.4	10.5	20.6	45.0	20.5
Hyline (W-36)	HR	3.3	12.7	21.5	42.3	20.1
	FL	2.4	12.2	17.5	42.1	25.8
	LC	3.1	14.2	24.3	41.8	16.5
Shaver (288-A)	HR	1.9	8.1	16.3	45.1	28.6
	FL	1.7	8.2	17.0	45.1	28.0
	LC	1.9	8.9	22.6	43.3	23.2
Dekalb (XL-Link)	HR	2.2	9.5	20.6	43.4	24.3
	FL	2.9	8.0	17.4	45.0	26.6
	LC	3.0	11.0	23.8	46.7	15.6
H & N (Nick Chick)	HR	1.9	10.2	17.9	43.8	26.2
	FL	2.2	8.2	14.2	41.5	33.8
	LC	2.3	9.1	19.0	43.9	25.8
White Egg Average	HR	2.6	10.8	20.6	42.3	23.8
	FL	2.5	9.6	18.0	42.7	27.2
	LC	3.2	11.1	23.0	43.2	19.5

Brown Egg Layers						
Hubbard (Golden Comet)	HR	0.4	6.8	13.3	33.6	45.8
	FL	1.5	5.4	12.4	28.6	52.2
	LC	0.9	7.0	13.2	36.5	42.5
Dekalb (Sex-Sal-Link-G)	HR	0.6	5.5	9.8	28.4	55.7
	FL	1.0	5.8	10.7	28.6	53.9
	LC	1.6	7.0	10.6	33.3	47.4
Hisex (Brown)	HR	0.4	3.7	7.8	28.3	59.8
	FL	0.7	2.6	6.8	24.7	65.3
	LC	1.6	5.4	8.8	27.0	57.2
Brown Egg Average	HR	0.5	5.4	10.3	30.1	53.8
	FL	1.1	4.6	9.9	27.3	57.1
	LC	1.4	6.5	10.9	32.3	49.0

TABLE 16. EFFECTS OF HOUSING ON EGG QUALITY OF ENTRIES IN
27TH NCLPMT (140-434 DAYS)

Breeder (Strain)	House Type	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)

White Egg Layers							
Hisex (White)	HR	94.2	2.0	3.3	0.5	0.0	1.8
	FL	93.0	2.8	3.7	0.5	0.0	0.8
	LC	95.6	1.7	2.7	0.0	0.7	0.0
Colonial (365-S)	HR	92.9	3.3	3.7	0.1	1.1	0.0
	FL	93.7	1.7	4.1	0.6	0.0	1.3
	LC	92.8	1.5	4.3	1.3	1.7	0.0
ISA-Babcock (B300)	HR	95.9	0.5	3.0	0.6	0.0	0.8
	FL	96.6	0.7	2.6	0.1	0.0	4.2
	LC	95.7	1.5	2.3	0.6	0.9	0.0
Hyline (W-36)	HR	97.0	0.7	1.8	0.5	0.0	0.0
	FL	95.0	0.6	3.8	0.6	0.0	0.0
	LC	95.6	1.2	2.5	0.8	1.3	0.0
Shaver (288-A)	HR	96.3	0.6	2.7	0.4	0.0	0.0
	FL	97.1	0.5	2.1	0.3	0.0	0.0
	LC	96.1	0.3	3.1	0.4	0.0	0.0
Dekalb (XL-Link)	HR	94.7	0.8	3.6	0.9	0.0	0.0
	FL	95.0	0.7	3.9	0.4	1.0	0.0
	LC	96.3	0.6	2.7	0.4	0.7	0.0
H & N (Nick Chick)	HR	94.0	1.9	3.3	0.8	1.7	0.0
	FL	94.8	2.1	2.5	0.6	1.6	1.0
	LC	94.8	1.1	3.3	0.8	0.9	0.9
White Egg Average	HR	95.0	1.4	3.1	0.5	0.4	0.4
	FL	95.0	1.3	3.2	0.4	0.4	1.0
	LC	95.3	1.1	3.0	0.6	0.9	0.1

Brown Egg Layers							
Hubbard (Golden Comet)	HR	96.1	0.8	2.7	0.4	7.9	10.1
	FL	96.8	0.4	2.4	0.3	0.0	27.4
	LC	95.7	0.6	2.0	1.6	6.2	10.1
Dekalb (Sex-Sal-Link-G)	HR	93.6	0.6	4.7	1.2	1.9	14.3
	FL	95.5	0.9	3.2	0.5	0.0	20.5
	LC	93.8	1.0	4.4	0.8	0.9	13.2
Hisex (Brown)	HR	95.1	0.5	3.2	1.2	1.3	11.1
	FL	96.0	0.2	3.2	0.6	2.0	21.6
	LC	96.2	1.5	1.8	0.5	2.1	10.3
Brown Egg Average	HR	94.9	0.6	3.5	0.9	3.7	11.8
	FL	96.1	0.5	2.9	0.5	0.7	23.2
	LC	95.2	1.0	2.7	1.0	3.1	11.2

**TABLE 17. AVERAGE PERFORMANCE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (435-728 DAYS)**

Breeder (Strain)	Eggs	Egg Production		Egg Mass		Mortality >434 d Of Age (%)
	Per Bird Housed	Hen Housed -----	Hen Day (%) -----	Hen Housed --- (g/d) ---	Hen Day ---	

White Egg Layers						
Hisex (White)	160.4	54.6	63.1	37.7	42.0	8.9
Colonial (365-S)	113.8	38.7	50.5	25.0	30.9	9.3
ISA-Babcock (B300)	173.8	59.1	63.2	39.6	40.3	1.9
Hyline (W-36)	164.0	55.8	62.5	37.5	41.2	6.2
Shaver (288-A)	159.6	54.3	60.7	36.9	39.5	5.4
Dekalb (XL-Link)	157.9	53.7	63.5	35.8	40.4	6.7
H & N (Nick Chick)	155.2	52.8	62.0	36.0	40.2	4.4
White Egg Average	154.9	52.7	60.8	35.5	39.2	6.1

Brown Egg Layers						
Hubbard (Golden Comet)	148.1	50.4	60.4	36.0	41.4	10.8
Dekalb (Sex-Sal-Link-G)	152.0	51.7	62.0	37.0	43.0	13.5
Hisex (Brown)	143.1	48.7	56.7	35.9	40.8	7.9
Brown Egg Average	147.7	50.3	59.7	36.3	41.7	10.7

**TABLE 18. AVERAGE PERFORMANCE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (435-728 DAYS)**

Breeder (Strain)	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Egg Income	Feed Cost
<hr/> White Egg Layers				
Hisex (White)	25.9	65.6	6.98	4.17
Colonial (365-S)	22.4	62.9	4.81	3.33
ISA-Babcock (B300)	25.0	64.3	7.69	4.15
Hyline (W-36)	24.1	64.2	7.24	3.83
Shaver (288-A)	24.5	64.6	7.05	3.99
Dekalb (XL-Link)	24.6	63.7	6.87	4.01
H & N (Nick Chick)	26.3	65.4	6.72	4.21
White Egg Average	24.7	64.4	6.77	3.96
<hr/> Brown Egg Layers				
Hubbard (Golden Comet)	28.4	67.9	6.61	4.73
Dekalb (Sex-Sal-Link-G)	28.9	68.2	6.74	4.83
Hisex (Brown)	28.4	70.2	6.33	4.61
Brown Egg Average	28.6	68.7	6.56	4.73

TABLE 19. AVERAGE EGG SIZE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)

White Egg Layers					
Hisex (White)	0.3	0.5	3.9	25.3	70.1
Colonial (365-S)	0.1	1.1	13.4	37.8	47.6
ISA-Babcock (B300)	0.0	0.1	3.7	33.7	62.6
Hyline (W-36)	0.0	0.1	5.1	32.2	62.5
Shaver (288-A)	0.0	0.1	4.7	29.0	66.2
Dekalb (XL-Link)	0.1	0.3	6.2	33.1	60.4
H & N (Nick Chick)	0.5	0.2	4.7	26.9	67.7
White Egg Average	0.1	0.3	6.0	31.1	62.4

Brown Egg Layers					
Hubbard (Golden Comet)	0.0	0.0	1.4	16.1	82.6
Dekalb (Sex-Sal-Link-G)	0.0	0.1	2.0	13.6	84.3
Hisex (Brown)	0.0	0.0	0.8	9.5	89.7
Brown Egg Average	0.0	0.1	1.4	13.1	85.5

TABLE 20. AVERAGE EGG QUALITY OF ENTRIES
27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)
<hr/> White Egg Layers						
Hisex (White)	89.3	4.6	5.0	1.1	0.3	0.0
Colonial (365-S)	90.1	3.2	4.2	2.5	3.9	0.6
ISA-Babcock (B300)	93.4	1.5	4.0	1.1	1.8	0.2
Hyline (W-36)	94.3	1.2	4.0	0.6	0.8	0.8
Shaver (288-A)	94.2	2.1	2.7	1.0	0.2	0.0
Dekalb (XL-Link)	90.6	2.2	6.3	0.9	0.7	0.8
H & N (Nick Chick)	89.2	2.2	7.3	1.3	2.6	0.0
White Egg Average	91.6	2.4	4.8	1.2	1.5	0.3
<hr/> Brown Egg Layers						
Hubbard (Golden Comet)	94.8	0.9	3.2	1.0	6.0	18.7
Dekalb (Sex-Sal-Link-G)	93.7	0.9	4.5	0.9	4.3	17.3
Hisex (Brown)	93.0	1.4	4.3	1.3	3.5	15.0
Brown Egg Average	93.8	1.1	4.0	1.1	4.6	17.0

TABLE 21. EFFECTS OF NUMBER OF BIRDS PER CAGE ON PERFORMANCE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	Birds/ Cage	Eggs Per Bird Housed	Egg Production		Egg Mass		Mortality > 434d Of Age (%)
			Hen Housed -----	Hen Day (%) -----	Hen Housed --- (g/d) ---	Hen Day ---	

White Egg Layers							
Hisex (White)	3	165.6	56.3	64.6	38.9	43.1	11.8
	4	155.2	52.8	61.6	36.5	40.9	6.0
Colonial (365-S)	3	122.9	41.8	52.9	27.2	32.6	10.7
	4	104.7	35.6	48.0	22.8	29.2	7.9
ISA-Babcock (B300)	3	175.4	59.6	64.1	40.3	41.2	1.3
	4	172.1	58.6	62.3	38.8	39.4	2.5
Hyline (W-36)	3	164.4	55.9	63.1	37.5	41.9	6.6
	4	163.5	55.7	62.0	37.4	40.6	5.8
Shaver (288-A)	3	166.3	56.6	60.8	38.8	40.0	2.0
	4	152.9	52.0	60.7	35.0	39.0	8.8
Dekalb (XL-Link)	3	167.6	57.0	64.0	38.0	40.8	7.1
	4	148.2	50.4	63.0	33.5	40.1	6.4
H & N (Nick Chick)	3	165.4	56.3	63.1	38.5	40.9	2.0
	4	145.0	49.3	60.9	33.5	39.4	6.8
White Egg Average	3	161.1	54.8	61.8	37.0	40.1	5.9
	4	148.8	50.6	59.8	33.9	38.4	6.3

Brown Egg Layers							
Hubbard (Golden Comet)	3	161.5	54.9	62.1	39.3	42.5	9.9
	4	134.7	45.8	58.7	32.6	40.3	11.7
Dekalb (Sex-Sal-Link-G)	3	167.5	57.0	63.6	40.9	44.1	6.3
	4	136.5	46.5	60.3	33.0	41.9	20.6
Hisex (Brown)	3	154.2	52.4	58.0	39.0	41.8	8.0
	4	132.1	44.9	55.4	32.8	39.8	7.9
Brown Egg Average	3	161.1	54.8	61.2	39.7	42.8	8.1
	4	134.4	45.7	58.1	32.8	40.7	13.4

TABLE 22. EFFECTS OF NUMBER OF BIRDS PER CAGE ON PERFORMANCE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	Birds/ Cage	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Egg Income	Feed Cost
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TABLE 24. EFFECTS OF NUMBER OF BIRDS PER CAGE ON EGG QUALITY OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	Birds/ Cage	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)
<hr/> White Egg Layers							
Hisex (White)	3	91.4	3.7	3.9	1.0	0.3	0.0
	4	87.3	5.5	6.0	1.2	0.3	0.0
Colonial (365-S)	3	90.4	4.0	4.0	1.6	3.6	0.0
	4	89.8	2.4	4.4	3.3	4.1	1.2
ISA-Babcock (B300)	3	95.0	0.6	3.5	0.9	1.2	0.5
	4	91.8	2.4	4.5	1.3	2.3	0.0
Hyline (W-36)	3	95.4	1.3	2.8	0.5	0.5	0.5
	4	93.2	1.1	5.1	0.7	1.0	1.0
Shaver (288-A)	3	95.0	2.5	1.7	0.8	0.3	0.0
	4	93.4	1.8	3.6	1.2	0.0	0.0
Dekalb (XL-Link)	3	91.4	1.5	6.2	0.9	0.3	0.8
	4	89.8	3.0	6.3	0.9	1.1	0.8
H & N (Nick Chick)	3	89.2	2.3	6.9	1.6	3.0	0.0
	4	89.2	2.0	7.8	1.0	2.3	0.0
White Egg Average	3	92.6	2.3	4.2	1.0	1.3	0.3
	4	90.6	2.6	5.4	1.4	1.6	0.4
<hr/> Brown Egg Layers							
Hubbard (Golden Comet)	3	95.2	0.6	3.2	1.1	7.4	18.4
	4	94.5	1.3	3.3	1.0	4.6	19.0
Dekalb (Sex-Sal-Link-G)	3	94.8	0.1	4.2	0.9	5.0	14.5
	4	92.6	1.7	4.7	1.0	3.6	20.2
Hisex (Brown)	3	93.2	2.1	2.9	1.8	3.1	15.5
	4	92.7	0.7	5.6	0.9	3.9	14.5
Brown Egg Average	3	94.4	0.9	3.4	1.2	5.2	16.1
	4	93.3	1.2	4.6	0.9	4.0	17.9

TABLE 25. EFFECTS OF CAGE TYPE ON PERFORMANCE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	Cage Type	Eggs	Egg Production		Egg Mass		Mortality
		Per Bird	Hen	Hen	Hen	Hen	> 434 d
		Housed	Housed	Day	Housed	Day	Of Age

White Egg Layers							
Hisex (White)	S	165.2	56.2	65.1	39.4	43.8	7.1
	D	155.6	52.9	61.2	36.0	40.2	10.7
Colonial (365-S)	S	112.9	38.4	51.9	24.6	31.6	12.0
	D	114.6	39.0	49.1	25.4	30.3	6.6
ISA-Babcock (B300)	S	180.2	61.3	64.5	41.4	41.2	1.5
	D	167.3	56.9	61.8	37.7	39.5	2.3
Hyline (W-36)	S	161.5	55.0	63.0	37.3	41.6	5.7
	D	166.4	56.6	62.0	37.6	40.9	6.6
Shaver (288-A)	S	163.0	55.4	61.1	37.8	39.8	4.1
	D	156.2	53.1	60.4	36.0	39.2	6.7
Dekalb (XL-Link)	S	165.6	56.3	64.4	37.5	40.9	6.1
	D	150.2	51.1	62.6	34.0	40.0	7.4
H & N (Nick Chick)	S	157.9	53.7	63.8	36.5	41.1	6.9
	D	152.5	51.9	60.1	35.5	39.3	2.0
White Egg Average	S	158.1	53.8	62.0	36.4	40.0	6.2
	D	151.8	51.6	59.6	34.6	38.5	6.1

Brown Egg Layers							
Hubbard (Golden Comet)	S	156.4	53.2	61.6	38.3	42.5	8.1
	D	139.8	47.6	59.2	33.6	40.3	13.6
Dekalb (Sex-Sal-Link-G)	S	157.4	53.6	61.7	38.3	42.4	7.7
	D	146.6	49.9	62.2	35.7	43.6	19.3
Hisex (Brown)	S	141.7	48.2	56.4	35.4	40.3	5.6
	D	144.5	49.2	57.0	36.4	41.3	10.2
Brown Egg Average	S	151.8	51.7	59.9	37.3	41.7	7.1
	D	143.6	48.9	59.5	35.2	41.7	14.3

TABLE 26. EFFECTS OF CAGE TYPE ON PERFORMANCE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	Cage Type	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Egg Income	Feed Cost

White Egg Layers					
Hisex (White)	S	26.1	66.7	7.24	4.21
	D	25.8	64.6	6.72	4.14
Colonial (365-S)	S	23.7	62.5	4.76	3.42
	D	21.2	63.3	4.86	3.24
ISA-Babcock (B300)	S	25.3	64.6	7.95	4.21
	D	24.6	63.9	7.43	4.09
Hyline (W-36)	S	24.8	64.3	7.18	3.94
	D	23.4	64.1	7.30	3.72
Shaver (288-A)	S	24.8	64.8	7.23	4.02
	D	24.2	64.5	6.88	3.97
Dekalb (XL-Link)	S	25.2	63.8	7.19	4.11
	D	24.1	63.7	6.55	3.91
H & N (Nick Chick)	S	26.1	65.7	6.85	4.09
	D	26.5	65.1	6.60	4.33
White Egg Average	S	25.1	64.6	6.91	4.00
	D	24.2	64.2	6.62	3.92

Brown Egg Layers					
Hubbard (Golden Comet)	S	28.3	68.5	6.99	4.69
	D	28.6	67.3	6.23	4.77
Dekalb (Sex-Sal-Link-G)	S	28.3	68.1	6.97	4.83
	D	29.5	68.2	6.52	4.84
Hisex (Brown)	S	28.1	69.9	6.30	4.51
	D	28.8	70.5	6.35	4.71
Brown Egg Average	S	28.2	68.8	6.75	4.68
	D	29.0	68.6	6.36	4.77

TABLE 27. EFFECTS OF CAGE TYPE ON EGG SIZE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	Cage Type	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)

White Egg Layers						
Hisex (White)	S	0.1	0.2	2.2	20.6	76.9
	D	0.5	0.7	5.6	29.9	63.3
Colonial (365-S)	S	0.3	1.6	16.0	38.5	43.6
	D	0.0	0.5	10.9	37.1	51.5
ISA-Babcock (B300)	S	0.0	0.1	3.3	31.6	65.0
	D	0.0	0.0	4.1	35.8	60.1
Hyline (W-36)	S	0.0	0.1	4.9	31.2	63.9
	D	0.1	0.2	5.4	33.2	61.0
Shaver (288-A)	S	0.0	0.0	4.8	26.2	68.9
	D	0.0	0.1	4.6	31.8	63.5
Dekalb (XL-Link)	S	0.0	0.3	6.3	32.8	60.6
	D	0.1	0.4	6.0	33.3	60.2
H & N (Nick Chick)	S	0.0	0.2	4.9	26.2	68.7
	D	0.9	0.2	4.5	27.7	66.7
White Egg Average	S	0.0	0.4	6.0	29.6	64.0
	D	0.2	0.3	5.9	32.7	60.9

Brown Egg Layers						
Hubbard (Golden Comet)	S	0.0	0.0	0.8	13.2	85.9
	D	0.0	0.0	1.9	18.9	79.2
Dekalb (Sex-Sal-Link-G)	S	0.0	0.3	1.8	14.6	83.3
	D	0.0	0.0	2.2	12.5	85.3
Hisex (Brown)	S	0.0	0.0	0.8	9.5	89.7
	D	0.1	0.0	0.7	9.6	89.7
Brown Egg Average	S	0.0	0.1	1.1	12.5	86.3
	D	0.0	0.0	1.6	13.7	84.7

TABLE 28. EFFECTS OF CAGE TYPE ON EGG QUALITY OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	Cage Type	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)

White Egg Layers							
Hisex (White)	S	90.2	3.0	5.5	1.3	0.3	0.0
	D	88.5	6.1	4.5	0.9	0.3	0.0
Colonial (365-S)	S	91.7	2.0	4.1	2.2	5.9	1.2
	D	88.5	4.5	4.3	2.7	1.9	0.0
ISA-Babcock (B300)	S	92.4	1.7	4.6	1.3	1.8	0.5
	D	94.4	1.3	3.3	1.0	1.7	0.0
Hyline (W-36)	S	95.7	0.9	3.1	0.3	1.6	1.2
	D	92.9	1.5	4.8	0.8	0.0	0.4
Shaver (288-A)	S	94.8	2.2	2.3	0.7	0.3	0.0
	D	93.6	2.0	3.1	1.2	0.0	0.0
Dekalb (XL-Link)	S	89.5	3.1	6.4	1.0	0.0	1.1
	D	91.8	1.3	6.2	0.7	1.4	0.6
H & N (Nick Chick)	S	89.1	2.4	7.3	1.2	3.1	0.0
	D	89.3	1.9	7.3	1.5	2.2	0.0
White Egg Average	S	91.9	2.2	4.8	1.2	1.8	0.6
	D	91.3	2.7	4.8	1.3	1.1	0.1

Brown Egg Layers							
Hubbard (Golden Comet)	S	94.3	0.9	3.9	1.0	4.9	21.0
	D	95.4	1.0	2.6	1.1	7.1	16.3
Dekalb (Sex-Sal-Link-G)	S	92.7	1.2	5.4	0.8	1.4	16.1
	D	94.7	0.6	3.6	1.1	7.1	18.5
Hisex (Brown)	S	94.2	1.1	3.2	1.4	4.9	18.2
	D	91.8	1.7	5.3	1.2	2.1	11.8
Brown Egg Average	S	93.7	1.1	4.2	1.1	3.7	18.5
	D	94.0	1.1	3.8	1.1	5.4	15.5

TABLE 29. EFFECTS OF HOUSING ON PERFORMANCE OF ENTRIES IN
27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	House Type	Eggs	Egg Production		Egg Mass		Mortality
		Per Bird	Hen	Hen	Hen	Hen	>484 d
		Housed	Housed	Day	Housed	Day	Of Age
----- (%) -----							
----- (g/d) -----							
----- (%)							

White Egg Layers							
Hisex (White)	HR	153.7	52.3	63.9	36.1	43.0	14.4
	FL	173.0	58.8	64.2	41.4	43.0	5.8
	LC	154.5	52.6	61.3	35.6	40.1	6.6
Colonial (365-S)	HR	109.1	37.1	50.7	23.3	30.5	6.4
	FL	105.9	36.0	51.1	23.4	31.4	14.7
	LC	126.4	43.0	49.6	28.3	30.8	6.8
ISA-Babcock (B300)	HR	169.9	57.8	64.5	38.9	41.3	1.4
	FL	177.8	60.5	64.2	40.7	41.8	2.4
	LC	173.5	59.0	60.8	39.0	37.8	1.8
Hyline (W-36)	HR	160.7	54.7	62.2	36.7	41.1	3.6
	FL	171.2	58.3	63.7	39.6	42.2	5.5
	LC	160.0	54.4	61.8	36.1	40.4	9.5
Shaver (288-A)	HR	164.0	55.8	61.3	37.9	39.5	5.2
	FL	151.4	51.5	60.4	35.1	39.5	5.8
	LC	163.4	55.6	60.5	37.6	39.6	5.2
Dekalb (XL-Link)	HR	156.6	53.3	61.9	35.9	39.9	9.2
	FL	158.0	53.7	62.9	35.9	40.2	3.4
	LC	159.0	54.1	65.6	35.5	41.3	7.7
H & N (Nick Chick)	HR	144.0	49.0	61.5	33.2	39.8	4.2
	FL	164.4	55.9	62.1	38.4	40.4	5.1
	LC	157.1	53.4	62.3	36.4	40.4	3.9
White Egg Average	HR	151.2	51.4	60.8	34.6	39.3	6.3
	FL	157.4	53.5	61.2	36.3	39.8	6.1
	LC	156.3	53.2	60.3	35.5	38.6	5.9

Brown Egg Layers							
Hubbard (Golden Comet)	HR	157.3	53.5	61.6	38.3	42.6	10.3
	FL	143.4	48.8	59.1	34.6	40.4	10.8
	LC	143.6	48.8	60.5	35.0	41.3	11.4
Dekalb (Sex-Sal-Link-G)	HR	150.1	51.1	63.0	37.3	44.9	23.1
	FL	147.2	50.1	62.6	35.2	42.8	11.4
	LC	158.7	54.0	60.3	38.5	41.2	6.0
Hisex (Brown)	HR	140.1	47.7	56.3	34.8	40.5	8.0
	FL	152.0	51.7	56.2	38.2	40.7	9.2
	LC	137.3	46.7	57.6	34.7	41.1	6.6
Brown Egg Average	HR	149.2	50.8	60.3	36.8	42.7	13.8
	FL	147.5	50.2	59.3	36.0	41.3	10.4
	LC	146.5	49.9	59.5	36.1	41.2	8.0

TABLE 30. EFFECTS OF HOUSING ON PERFORMANCE OF ENTRIES IN
27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	House Type	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Egg Income	Feed Cost

White Egg Layers					
Hisex (White)	HR	26.6	65.4	6.64	4.18
	FL	25.1	67.1	7.58	4.15
	LC	26.1	64.4	6.72	4.19
Colonial (365-S)	HR	23.2	61.5	4.56	3.35
	FL	21.6	63.5	4.49	3.02
	LC	22.6	63.7	5.37	3.63
ISA-Babcock (B300)	HR	25.4	64.4	7.47	4.16
	FL	25.2	64.4	7.98	4.07
	LC	24.3	64.0	7.62	4.23
Hyline (W-36)	HR	24.0	64.2	7.12	3.62
	FL	23.1	64.8	7.59	3.74
	LC	25.2	63.5	7.00	4.14
Shaver (288-A)	HR	24.6	64.8	7.28	4.00
	FL	24.0	64.6	6.69	3.85
	LC	25.0	64.5	7.18	4.12
Dekalb (XL-Link)	HR	24.2	64.3	6.83	3.91
	FL	24.3	63.7	6.97	3.85
	LC	25.4	63.2	6.81	4.27
H & N (Nick Chick)	HR	26.4	65.3	6.17	4.05
	FL	25.8	65.8	7.29	4.23
	LC	26.7	65.0	6.72	4.36
White Egg Average	HR	24.9	64.3	6.58	3.90
	FL	24.1	64.9	6.94	3.85
	LC	25.0	64.0	6.78	4.13

Brown Egg Layers					
Hubbard (Golden Comet)	HR	26.7	67.9	7.06	4.51
	FL	27.7	67.2	6.41	4.45
	LC	30.9	68.5	6.35	5.22
Dekalb (Sex-Sal-Link-G)	HR	29.2	69.5	6.68	4.91
	FL	28.6	67.2	6.50	4.48
	LC	29.0	67.7	7.04	5.11
Hisex (Brown)	HR	27.3	69.8	6.21	4.46
	FL	27.9	70.3	6.65	4.40
	LC	30.1	70.6	6.11	4.98
Brown Egg Average	HR	27.7	69.1	6.65	4.63
	FL	28.0	68.2	6.52	4.45
	LC	30.0	68.9	6.50	5.10

TABLE 31. EFFECTS OF HOUSING ON EGG SIZE OF ENTRIES
27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	House Type	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)

White Egg Layers						
Hisex (White)	HR	0.7	0.8	3.4	27.3	67.8
	FL	0.1	0.4	3.2	19.8	76.5
	LC	0.0	0.2	5.1	28.7	66.0
Colonial (365-S)	HR	0.0	1.6	15.5	37.0	45.8
	FL	0.4	1.1	10.9	40.4	47.2
	LC	0.0	0.5	13.9	35.9	49.7
ISA-Babcock (B300)	HR	0.0	0.1	3.6	34.0	62.4
	FL	0.0	0.1	3.3	32.8	63.9
	LC	0.0	0.1	4.3	34.2	61.4
Hyline (W-36)	HR	0.0	0.1	4.4	33.3	62.2
	FL	0.0	0.1	4.5	29.2	66.2
	LC	0.1	0.3	6.5	34.0	59.0
Shaver (288-A)	HR	0.0	0.0	4.7	28.8	66.5
	FL	0.0	0.1	4.1	29.1	66.7
	LC	0.0	0.1	5.3	29.2	65.4
Dekalb (XL-Link)	HR	0.0	0.3	4.7	32.0	63.0
	FL	0.0	0.2	5.6	33.2	61.0
	LC	0.2	0.4	8.2	34.1	57.2
H & N (Nick Chick)	HR	0.0	0.3	6.6	27.6	65.4
	FL	0.0	0.0	2.4	25.0	72.6
	LC	1.4	0.1	5.1	28.3	65.1
White Egg Average	HR	0.1	0.5	6.1	31.4	61.9
	FL	0.1	0.3	4.8	29.9	64.9
	LC	0.2	0.3	6.9	32.0	60.6

Brown Egg Layers						
Hubbard (Golden Comet)	HR	0.0	0.0	1.3	14.1	84.6
	FL	0.0	0.0	1.3	17.0	81.7
	LC	0.0	0.0	1.6	17.1	81.3
Dekalb (Sex-Sal-Link-G)	HR	0.0	0.1	1.1	10.8	88.0
	FL	0.0	0.3	2.6	15.2	81.9
	LC	0.0	0.0	2.2	14.8	83.0
Hisex (Brown)	HR	0.1	0.0	0.5	9.8	89.6
	FL	0.0	0.1	1.1	10.0	88.8
	LC	0.0	0.0	0.6	8.8	90.6
Brown Egg Average	HR	0.0	0.0	1.0	11.6	87.4
	FL	0.0	0.1	1.7	14.1	84.1
	LC	0.0	0.0	1.5	13.5	85.0

TABLE 32. EFFECTS OF HOUSING ON EGG QUALITY OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (435-728 DAYS)

Breeder (Strain)	House Type	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)
<hr/>							
White Egg Layers							
Hisex (White)	HR	88.4	4.0	6.6	0.9	0.0	0.0
	FL	89.6	3.9	5.5	1.1	0.5	0.0
	LC	90.0	5.8	2.8	1.3	0.5	0.0
Colonial (365-S)	HR	90.3	2.7	4.6	2.4	3.4	0.0
	FL	89.9	2.6	5.0	2.5	6.2	1.8
	LC	90.2	4.4	3.0	2.4	2.1	0.0
ISA-Babcock (B300)	HR	92.7	0.4	5.6	1.3	2.4	0.0
	FL	95.7	1.3	2.9	0.2	0.0	0.7
	LC	91.8	2.8	3.5	1.8	2.9	0.0
Hyline (W-36)	HR	95.2	0.3	3.9	0.5	0.0	0.5
	FL	94.8	0.5	4.0	0.7	1.2	1.3
	LC	92.9	2.6	4.0	0.5	1.1	0.4
Shaver (288-A)	HR	94.3	1.9	3.0	0.7	0.0	0.0
	FL	95.9	1.3	1.6	1.3	0.0	0.0
	LC	92.4	3.2	3.5	0.9	0.5	0.0
Dekalb (XL-Link)	HR	91.9	1.6	5.5	1.0	1.7	0.8
	FL	92.9	1.9	4.4	0.8	0.0	0.6
	LC	87.1	3.1	8.9	0.9	0.5	1.0
H & N (Nick Chick)	HR	88.1	1.5	9.1	1.3	4.1	0.0
	FL	91.6	2.6	5.2	0.6	0.0	0.0
	LC	87.9	2.4	7.7	2.0	3.8	0.0
White Egg Average	HR	91.5	1.8	5.5	1.2	1.7	0.2
	FL	92.9	2.0	4.1	1.0	1.1	0.6
	LC	90.3	3.5	4.8	1.4	1.6	0.2
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Brown Egg Layers							
Hubbard (Golden Comet)	HR	96.3	0.7	2.0	1.0	3.1	21.3
	FL	95.1	0.6	3.5	0.8	7.3	11.3
	LC	93.1	1.4	4.2	1.3	7.6	23.4
Dekalb (Sex-Sal-Link-G)	HR	93.9	0.7	4.5	0.8	0.0	21.1
	FL	93.5	0.9	4.8	0.9	10.1	10.4
	LC	93.7	1.1	4.2	1.0	2.7	20.5
Hisex (Brown)	HR	92.5	1.5	5.1	0.9	1.8	20.3
	FL	92.3	1.4	4.5	1.8	6.9	12.1
	LC	94.2	1.3	3.2	1.3	1.8	12.5
Brown Egg Average	HR	94.3	1.0	3.9	0.9	1.7	20.9
	FL	93.6	1.0	4.3	1.1	8.1	11.3
	LC	93.7	1.3	3.8	1.2	4.0	18.8

**TABLE 33. AVERAGE PERFORMANCE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (140-728 DAYS)**

Breeder (Strain)	Eggs Per Bird Housed	Egg Production		Egg Mass		Mortality
		Hen Housed ----- (%)	Hen Day -----	Hen Housed --- (g/d)	Hen Day ---	>140 d of Age (%)
White Egg Layers						
Hisex (White)	381.7	64.9	70.3	41.3	44.1	15.2
Colonial (365-S)	312.5	53.1	61.6	31.4	35.8	25.3
ISA-Babcock (B300)	404.4	68.8	71.2	42.6	43.3	4.5
Hylina (W-36)	386.8	65.8	70.3	40.7	43.2	13.1
Shaver (288-A)	383.4	65.2	70.4	41.1	43.6	12.9
Dekalb (XL-Link)	384.6	65.4	72.0	40.6	43.9	15.8
H & N (Nick Chick)	377.6	64.3	71.2	40.5	44.0	14.8
White Egg Average	375.9	63.9	69.6	39.7	42.6	14.5
Brown Egg Layers						
Hubbard (Golden Comet)	360.0	61.2	67.3	40.7	44.0	17.3
Dekalb (Sex-Sal-Link-G)	362.0	61.6	68.0	41.5	45.2	20.1
Hisex (Brown)	359.6	61.2	66.2	42.1	45.2	14.4
Brown Egg Average	360.5	61.3	67.2	41.4	44.8	17.2

TABLE 34. AVERAGE PERFORMANCE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Egg Income	Feed Cost
<hr/>				
White Egg Layers				
Hisex (White)	25.1	59.6	17.09	8.99
Colonial (365-S)	22.4	56.5	13.21	7.70
ISA-Babcock (B300)	24.6	58.5	18.16	9.05
Hylina (W-36)	23.7	58.0	17.17	8.50
Shaver (288-A)	24.2	59.0	17.48	8.71
Dekalb (XL-Link)	24.6	58.3	17.21	8.86
H & N (Nick Chick)	25.8	59.4	16.86	9.06
White Egg Average	24.3	58.5	16.74	8.70
<hr/>				
Brown Egg Layers				
Hubbard (Golden Comet)	27.3	62.1	16.67	9.78
Dekalb (Sex-Sal-Link-G)	28.1	62.9	16.93	10.06
Hisex (Brown)	27.4	64.5	16.85	9.69
Brown Egg Average	27.6	63.2	16.82	9.85

**TABLE 35. AVERAGE EGG SIZE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (140-728 DAYS)**

Breeder (Strain)	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)
White Egg Layers					
Hisex (White)	1.6	5.2	11.9	33.3	48.0
Colonial (365-S)	2.3	8.4	21.4	38.6	29.3
ISA-Babcock (B300)	1.5	5.2	12.2	39.6	41.5
Hyline (W-36)	1.6	7.2	13.8	37.6	39.8
Shaver (288-A)	1.0	4.6	12.2	37.4	44.9
Dekalb (XL-Link)	1.5	5.3	14.0	39.6	39.7
H & N (Nick Chick)	1.4	5.0	11.3	35.6	46.7
White Egg Average	1.5	5.8	13.8	37.4	41.4
Brown Egg Layers					
Hubbard (Golden Comet)	0.5	3.4	7.6	25.1	63.3
Dekalb (Sex-Sal-Link-G)	0.6	3.3	6.5	22.5	67.1
Hisex (Brown)	0.5	2.1	4.6	18.8	74.0
Brown Egg Average	0.5	3.0	6.2	22.1	68.1

**TABLE 36. AVERAGE EGG QUALITY OF ENTRIES
27TH NCLPMT (140-728 DAYS)**

Breeder (Strain)	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)
White Egg Layers						
Hisex (White)	91.9	3.3	4.1	0.7	0.3	0.3
Colonial (365-S)	91.7	2.7	4.1	1.5	2.9	0.5
ISA-Babcock (B300)	94.8	1.2	3.3	0.7	1.3	0.7
Hyline (W-36)	95.1	1.0	3.3	0.6	0.7	0.5
Shaver (288-A)	95.4	1.2	2.7	0.7	0.1	0.0
Dekalb (XL-Link)	93.2	1.4	4.7	0.7	0.7	0.5
H & N (Nick Chick)	92.0	1.9	5.1	1.0	2.2	0.2
White Egg Average	93.5	1.8	3.9	0.8	1.2	0.4
Brown Egg Layers						
Hubbard (Golden Comet)	95.6	0.7	2.8	0.9	5.6	17.7
Dekalb (Sex-Sal-Link-G)	94.0	0.9	4.3	0.9	3.2	16.9
Hisex (Brown)	94.5	1.1	3.4	1.0	2.9	14.8
Brown Egg Average	94.7	0.9	3.5	0.9	3.9	16.5

TABLE 37. EFFECTS OF NUMBER OF BIRDS PER CAGE ON PERFORMANCE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	Birds/ Cage	Eggs	Egg Production		Egg Mass		Mortality >140 d of Age (%)
		Per Bird Housed	Hen Housed -----	Hen Day (%) -----	Hen Housed ---	Hen Day (g/d) ---	

White Egg Layers							
Hisex (White)	3	390.6	66.4	71.5	42.3	44.8	16.3
	4	372.8	63.4	69.2	40.3	43.3	14.2
Colonial (365-S)	3	330.6	56.2	64.1	33.2	37.2	23.7
	4	294.4	50.1	59.1	29.6	34.4	26.9
ISA-Babcock (B300)	3	410.8	69.9	72.5	43.7	44.3	4.1
	4	398.1	67.7	69.9	41.6	42.3	5.0
Hyline (W-36)	3	389.3	66.2	71.1	40.9	43.8	15.0
	4	384.4	65.4	69.5	40.4	42.5	11.2
Shaver (288-A)	3	399.6	68.0	71.6	43.1	44.7	7.0
	4	367.3	62.5	69.1	39.1	42.5	18.8
Dekalb (XL-Link)	3	402.1	68.4	72.9	42.6	44.6	13.2
	4	367.1	62.4	71.2	38.5	43.2	18.4
H & N (Nick Chick)	3	394.1	67.0	72.2	42.4	44.7	8.9
	4	361.1	61.6	70.2	38.6	43.3	20.7
White Egg Average	3	388.1	66.0	70.8	41.2	43.5	12.6
	4	363.6	61.9	68.3	38.3	41.7	16.4

Brown Egg Layers							
Hubbard (Golden Comet)	3	379.8	64.6	68.5	43.2	44.9	12.9
	4	340.1	57.9	66.1	38.2	43.1	21.7
Dekalb (Sex-Sal-Link-G)	3	390.0	66.3	70.5	44.8	46.9	11.3
	4	334.0	56.8	65.5	38.1	43.5	28.8
Hisex (Brown)	3	379.8	64.6	68.2	44.7	46.7	13.5
	4	339.5	57.7	64.2	39.5	43.7	15.2
Brown Egg Average	3	383.2	65.2	69.0	44.3	46.2	12.6
	4	337.9	57.5	65.3	38.6	43.4	21.9

TABLE 38. EFFECTS OF NUMBER OF BIRDS PER CAGE ON PERFORMANCE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	Birds/ Cage	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Egg Income	Feed Cost
<hr/>					
White Egg Layers					
Hisex (White)	3	26.2	59.5	17.64	9.08
	4	24.0	59.6	16.54	8.91
Colonial (365-S)	3	23.6	56.5	13.95	7.94
	4	21.1	56.5	12.46	7.46
ISA-Babcock (B300)	3	25.4	58.7	18.56	9.00
	4	23.9	58.3	17.77	9.10
Hyline (W-36)	3	24.5	58.1	17.33	8.43
	4	22.9	57.9	17.01	8.57
Shaver (288-A)	3	24.6	59.3	18.29	8.67
	4	23.7	58.7	16.67	8.74
Dekalb (XL-Link)	3	24.9	58.5	17.95	8.83
	4	24.3	58.0	16.47	8.89
H & N (Nick Chick)	3	26.4	59.7	17.58	9.24
	4	25.1	59.1	16.14	8.88
White Egg Average	3	25.1	58.6	17.33	8.74
	4	23.6	58.3	16.15	8.65
<hr/>					
Brown Egg Layers					
Hubbard (Golden Comet)	3	28.0	62.4	17.72	9.98
	4	26.6	61.9	15.63	9.58
Dekalb (Sex-Sal-Link-G)	3	28.9	62.9	18.27	10.29
	4	27.3	62.8	15.59	9.84
Hisex (Brown)	3	28.1	64.8	17.83	9.79
	4	26.7	64.2	15.87	9.59
Brown Egg Average	3	28.3	63.4	17.94	10.02
	4	26.8	63.0	15.69	9.67

TABLE 39. EFFECTS OF NUMBER OF BIRDS PER CAGE ON EGG SIZE OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	Cage Type	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)

White Egg Layers						
Hisex (White)	3	1.7	5.0	11.9	34.2	47.3
	4	1.5	5.5	12.0	32.5	48.6
Colonial (365-S)	3	2.5	9.1	22.2	39.5	26.7
	4	2.1	7.7	20.5	37.7	32.0
ISA-Babcock (B300)	3	1.5	4.9	11.4	38.7	43.6
	4	1.6	5.6	13.0	40.6	39.3
Hyline (W-36)	3	1.7	7.1	13.6	36.6	41.1
	4	1.6	7.2	14.0	38.5	38.6
Shaver (288-A)	3	1.0	4.4	11.3	35.5	47.9
	4	1.0	4.8	13.1	39.2	41.9
Dekalb (XL-Link)	3	1.3	5.4	13.9	39.1	40.3
	4	1.6	5.2	14.0	40.1	39.1
H & N (Nick Chick)	3	1.5	4.8	10.6	35.4	47.7
	4	1.2	5.2	12.1	35.8	45.7
White Egg Average	3	1.6	5.8	13.6	37.0	42.1
	4	1.5	5.9	14.1	37.8	40.7

Brown Egg Layers						
Hubbard (Golden Comet)	3	0.4	3.6	7.2	24.1	64.7
	4	0.6	3.2	8.1	26.1	62.0
Dekalb (Sex-Sal-Link-G)	3	0.5	3.1	6.5	22.2	67.7
	4	0.7	3.6	6.4	22.7	66.5
Hisex (Brown)	3	0.5	1.9	4.0	17.4	76.2
	4	0.4	2.3	5.1	20.2	71.9
Brown Egg Average	3	0.5	2.9	5.9	21.2	69.5
	4	0.6	3.1	6.5	23.0	66.8

TABLE 40. EFFECTS OF NUMBER OF BIRDS PER CAGE ON EGG QUALITY OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	Birds/ Cage	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)
<hr/>							
White Egg Layers							
Hisex (White)	3	94.0	2.3	3.2	0.6	0.2	0.0
	4	89.9	4.3	4.9	0.8	0.4	0.6
Colonial (365-S)	3	92.1	3.0	3.7	1.2	2.4	0.0
	4	91.4	2.3	4.5	1.8	3.4	1.1
ISA-Babcock (B300)	3	96.0	0.6	2.6	0.8	1.0	0.9
	4	93.6	1.7	4.0	0.7	1.5	0.6
Hyline (W-36)	3	96.0	1.0	2.3	0.6	0.3	0.3
	4	94.2	0.9	4.2	0.6	1.0	0.7
Shaver (288-A)	3	96.0	1.4	2.0	0.6	0.2	0.0
	4	94.8	1.1	3.4	0.7	0.0	0.0
Dekalb (XL-Link)	3	93.5	0.8	4.9	0.9	0.4	0.5
	4	92.9	2.0	4.5	0.6	1.0	0.5
H & N (Nick Chick)	3	92.0	1.9	4.8	1.4	2.7	0.0
	4	92.1	1.9	5.3	0.7	1.7	0.4
White Egg Average	3	94.2	1.6	3.4	0.9	1.0	0.2
	4	92.7	2.0	4.4	0.8	1.3	0.5
<hr/>							
Brown Egg Layers							
Hubbard (Golden Comet)	3	96.2	0.6	2.6	0.7	5.9	18.2
	4	95.0	0.9	3.0	1.1	5.3	17.2
Dekalb (Sex-Sal-Link-G)	3	95.1	0.4	3.7	0.7	3.5	15.4
	4	92.9	1.3	4.8	1.0	2.8	18.4
Hisex (Brown)	3	95.0	1.1	2.5	1.4	3.1	15.3
	4	93.9	1.0	4.3	0.7	2.8	14.2
Brown Egg Average	3	95.4	0.7	2.9	0.9	4.2	16.3
	4	93.9	1.1	4.0	0.9	3.6	16.6

TABLE 41. EFFECTS OF CAGE TYPE ON PERFORMANCE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	Cage Type	Eggs Per Bird Housed	Egg Production		Egg Mass		Mortality >140 d of Age (%)
			Hen Housed -----	Hen Day (%) -----	Hen Housed ----	Hen Day (g/d) ---	

White Egg Layers							
Hisex (White)	S	390.7	66.5	72.3	42.8	45.8	15.2
	D	372.6	63.4	68.3	39.8	42.3	15.3
Colonial (365-S)	S	317.0	53.9	63.2	31.7	36.5	28.2
	D	307.9	52.4	60.0	31.2	35.1	22.3
ISA-Babcock (B300)	S	414.5	70.5	72.2	43.9	44.0	3.8
	D	394.3	67.1	70.1	41.4	42.6	5.2
Hyline (W-36)	S	383.9	65.3	70.9	40.6	43.7	14.9
	D	389.8	66.3	69.7	40.7	42.7	11.2
Shaver (288-A)	S	392.1	66.7	71.3	42.1	44.3	10.6
	D	374.8	63.7	69.5	40.1	43.0	15.2
Dekalb (XL-Link)	S	400.8	68.2	73.4	42.2	44.6	13.3
	D	368.4	62.6	70.7	39.0	43.2	18.3
H & N (Nick Chick)	S	384.5	65.6	72.8	41.2	44.8	16.9
	D	370.6	63.0	69.6	39.8	43.2	12.7
White Egg Average	S	383.4	65.2	70.9	40.6	43.4	14.7
	D	368.4	62.6	68.3	38.9	41.7	14.3

Brown Egg Layers							
Hubbard (Golden Comet)	S	373.2	63.5	68.3	42.7	45.1	13.9
	D	346.7	59.0	66.2	38.7	42.9	20.7
Dekalb (Sex-Sal-Link-G)	S	371.8	63.3	68.7	42.7	45.5	14.0
	D	352.2	59.9	67.2	40.3	44.9	26.1
Hisex (Brown)	S	360.8	61.4	66.8	42.1	45.4	14.2
	D	358.5	61.0	65.6	42.1	45.0	14.5
Brown Egg Average	S	368.6	62.7	68.0	42.5	45.4	14.1
	D	352.5	60.0	66.3	40.4	44.2	20.4

TABLE 42. EFFECTS OF CAGE TYPE ON PERFORMANCE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	Cage Type	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Egg Income	Feed Cost

White Egg Layers					
Hisex (White)	S	25.4	60.4	17.64	9.10
	D	24.8	58.7	16.54	8.88
Colonial (365-S)	S	23.2	56.1	13.36	7.88
	D	21.5	56.9	13.05	7.53
ISA-Babcock (B300)	S	24.8	58.8	18.62	9.16
	D	24.4	58.2	17.71	8.94
Hyline (W-36)	S	24.3	58.2	17.16	8.66
	D	23.1	57.8	17.18	8.34
Shaver (288-A)	S	24.4	59.1	17.92	8.82
	D	23.9	58.9	17.04	8.60
Dekalb (XL-Link)	S	25.0	58.1	17.95	9.09
	D	24.1	58.4	16.47	8.63
H & N (Nick Chick)	S	25.6	59.4	17.15	8.95
	D	25.9	59.4	16.56	9.17
White Egg Average	S	24.7	58.6	17.11	8.81
	D	24.0	58.3	16.36	8.58

Brown Egg Layers					
Hubbard (Golden Comet)	S	27.5	62.8	17.37	9.88
	D	27.1	61.5	15.98	9.69
Dekalb (Sex-Sal-Link-G)	S	28.1	62.7	17.31	10.12
	D	28.1	63.1	16.55	10.01
Hisex (Brown)	S	27.5	64.3	16.95	9.63
	D	27.2	64.6	16.74	9.75
Brown Egg Average	S	27.7	63.2	17.21	9.88
	D	27.5	63.1	16.42	9.81

TABLE 43. EFFECTS OF CAGE TYPE ON EGG SIZE OF ENTRIES IN
ALL HOUSING, 27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	Cage Type	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)

White Egg Layers						
Hisex (White)	S	1.1	4.9	9.9	31.6	52.4
	D	2.0	5.5	13.9	35.1	43.5
Colonial (365-S)	S	2.4	8.7	23.8	38.8	26.4
	D	2.3	8.1	18.9	38.4	32.3
ISA-Babcock (B300)	S	1.5	5.1	11.4	38.8	43.2
	D	1.5	5.3	13.0	40.4	39.8
Hyline (W-36)	S	1.4	7.0	13.4	37.9	40.3
	D	1.8	7.3	14.3	37.2	39.4
Shaver (288-A)	S	1.2	4.2	11.5	36.6	46.5
	D	0.8	4.9	12.9	38.1	43.3
Dekalb (XL-Link)	S	1.4	5.3	13.6	39.9	39.8
	D	1.6	5.2	14.4	39.2	39.5
H & N (Nick Chick)	S	1.1	4.8	11.8	35.4	46.8
	D	1.6	5.2	10.9	35.8	46.6
White Egg Average	S	1.4	5.7	13.6	37.0	42.2
	D	1.7	5.9	14.0	37.7	40.6

Brown Egg Layers						
Hubbard (Golden Comet)	S	0.6	3.2	6.5	23.0	66.7
	D	0.4	3.7	8.7	27.2	59.9
Dekalb (Sex-Sal-Link-G)	S	0.6	3.8	6.4	22.6	66.7
	D	0.6	2.9	6.6	22.4	67.6
Hisex (Brown)	S	0.6	2.0	4.5	18.9	74.0
	D	0.4	2.2	4.6	18.6	74.1
Brown Egg Average	S	0.6	3.0	5.8	21.5	69.1
	D	0.5	3.0	6.7	22.7	67.2

TABLE 44. EFFECTS OF CAGE TYPE ON EGG QUALITY OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	Cage Type	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spots (%)

White Egg Layers							
Hisex (White)	S	92.6	2.4	4.2	0.8	0.4	0.0
	D	91.3	4.2	3.9	0.6	0.2	0.6
Colonial (365-S)	S	92.8	1.7	4.2	1.4	3.9	0.8
	D	90.7	3.7	4.0	1.6	1.9	0.3
ISA-Babcock (B300)	S	94.2	1.1	3.8	0.9	1.4	0.5
	D	95.4	1.2	2.8	0.6	1.1	0.9
Hyline (W-36)	S	96.4	0.6	2.5	0.5	1.2	0.8
	D	93.9	1.3	4.0	0.7	0.1	0.2
Shaver (288-A)	S	95.4	1.3	2.6	0.6	0.2	0.0
	D	95.4	1.2	2.7	0.7	0.0	0.0
Dekalb (XL-Link)	S	92.5	1.9	4.8	0.8	0.4	0.7
	D	93.8	1.0	4.6	0.6	1.0	0.4
H & N (Nick Chick)	S	91.8	1.8	5.5	1.0	2.4	0.2
	D	92.2	2.0	4.6	1.1	2.0	0.2
White Egg Average	S	93.7	1.5	3.9	0.9	1.4	0.4
	D	93.3	2.1	3.8	0.8	0.9	0.4

Brown Egg Layers							
Hubbard (Golden Comet)	S	95.3	0.6	3.3	0.8	4.7	19.2
	D	95.9	0.9	2.2	1.0	6.5	16.3
Dekalb (Sex-Sal-Link-G)	S	93.2	0.9	5.0	0.8	1.4	14.8
	D	94.8	0.8	3.6	0.9	4.9	19.0
Hisex (Brown)	S	95.3	0.8	2.8	1.2	3.5	17.9
	D	93.6	1.4	4.1	0.9	2.4	11.6
Brown Egg Average	S	94.6	0.8	3.7	0.9	3.2	17.3
	D	94.8	1.0	3.3	0.9	4.6	15.6

TABLE 45. EFFECTS OF HOUSING ON PERFORMANCE OF ENTRIES IN
27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	House Type	Eggs Per Bird Housed	Egg Production		Egg Mass		Mortality >140 d of Age (%)
			Hen Housed -----	Hen Day (%) -----	Hen Housed --- (g/d) ---	Hen Day ---	

White Egg Layers							
Hisex (White)	HR	379.0	64.5	71.1	41.3	45.1	20.4
	FL	385.9	65.6	69.3	42.7	44.1	10.8
	LC	380.1	64.6	70.5	39.9	43.0	14.5
Colonial (365-S)	HR	311.5	53.0	62.4	31.0	36.0	25.5
	FL	302.8	51.5	62.6	30.6	36.6	35.0
	LC	323.2	55.0	59.8	32.7	34.9	15.3
ISA-Babcock (B300)	HR	398.0	67.7	71.4	42.0	43.7	4.3
	FL	406.7	69.2	71.5	43.3	44.1	5.3
	LC	408.5	69.5	70.6	42.5	42.1	3.9
Hyline (W-36)	HR	378.7	64.4	69.8	40.0	43.2	12.9
	FL	391.5	66.6	70.2	41.7	43.5	10.3
	LC	390.2	66.4	70.9	40.2	42.8	16.0
Shaver (288-A)	HR	389.9	66.3	70.3	42.3	43.9	11.2
	FL	362.0	61.6	69.4	38.9	43.1	17.2
	LC	398.4	67.8	71.4	42.2	43.9	10.2
Dekalb (XL-Link)	HR	376.3	64.0	70.0	40.4	43.4	17.2
	FL	386.2	65.7	71.8	40.9	44.0	11.9
	LC	391.2	66.5	74.3	40.3	44.3	18.3
H & N (Nick Chick)	HR	359.2	61.1	70.7	38.4	43.8	18.3
	FL	385.9	65.6	69.7	41.8	43.4	10.5
	LC	387.6	66.2	73.2	41.3	44.8	15.7
White Egg Average	HR	370.4	63.0	69.4	39.4	42.7	15.7
	FL	374.4	63.7	69.2	40.0	42.7	14.4
	LC	382.8	65.1	70.1	39.9	42.3	13.4

Brown Egg Layers							
Hubbard (Golden Comet)	HR	370.6	63.0	68.1	42.1	44.8	16.5
	FL	350.7	59.6	66.3	39.7	43.5	18.1
	LC	358.7	61.1	67.4	40.3	43.7	17.1
Dekalb (Sex-Sal-Link-G)	HR	353.5	60.1	66.8	41.5	45.6	27.0
	FL	347.0	59.0	67.3	39.5	44.5	20.7
	LC	385.5	65.6	69.9	43.4	45.5	12.5
Hisex (Brown)	HR	351.9	59.9	65.9	41.2	45.2	18.4
	FL	368.5	62.7	65.5	43.4	45.0	12.9
	LC	358.5	61.0	67.2	41.7	45.3	11.8
Brown Egg Average	HR	358.7	61.0	66.9	41.6	45.2	20.7
	FL	355.4	60.4	66.4	40.9	44.3	17.2
	LC	367.6	62.5	68.2	41.8	44.9	13.8

TABLE 46. EFFECTS OF HOUSING ON PERFORMANCE OF ENTRIES IN
27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	House Type	Feed Cons. (lbs/100 hens/d)	Egg Weight (g/egg)	Egg Income	Feed Cost

White Egg Layers					
Hisex (White)	HR	25.6	59.7	17.01	9.11
	FL	24.3	60.8	17.52	8.84
	LC	25.4	58.1	16.74	9.02
Colonial (365-S)	HR	22.7	55.8	13.05	7.74
	FL	22.1	56.9	12.94	7.32
	LC	22.3	56.8	13.63	8.04
ISA-Babcock (B300)	HR	24.9	58.8	17.84	9.07
	FL	24.6	58.8	18.53	8.88
	LC	24.5	58.0	18.12	9.20
Hyline (W-36)	HR	23.6	58.2	16.82	8.20
	FL	22.8	58.7	17.59	8.31
	LC	24.7	57.1	17.10	8.99
Shaver (288-A)	HR	24.0	59.5	17.92	8.74
	FL	23.7	59.0	16.61	8.36
	LC	24.7	58.4	17.91	9.03
Dekalb (XL-Link)	HR	24.4	59.2	16.85	8.74
	FL	24.4	58.3	17.51	8.75
	LC	24.9	57.2	17.26	9.09
H & N (Nick Chick)	HR	25.7	59.4	15.92	8.76
	FL	25.3	59.9	17.53	9.05
	LC	26.4	58.9	17.12	9.36
White Egg Average	HR	24.4	58.7	16.49	8.62
	FL	23.9	58.9	16.89	8.50
	LC	24.7	57.8	16.84	8.96

Brown Egg Layers					
Hubbard (Golden Comet)	HR	26.4	62.2	17.25	9.52
	FL	26.9	62.1	16.33	9.42
	LC	28.5	62.1	16.44	10.41
Dekalb (Sex-Sal-Link-G)	HR	28.1	64.3	16.61	10.14
	FL	27.5	62.5	16.33	9.56
	LC	28.7	61.9	17.85	10.49
Hisex (Brown)	HR	26.9	64.4	16.49	9.48
	FL	26.9	64.7	17.24	9.47
	LC	28.4	64.2	16.80	10.12
Brown Egg Average	HR	27.1	63.6	16.78	9.71
	FL	27.1	63.1	16.64	9.48
	LC	28.5	62.7	17.03	10.34

TABLE 47. EFFECTS OF HOUSING ON EGG SIZE OF ENTRIES
27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	House Type	Pee Wee (%)	Small (%)	Medium (%)	Large (%)	Extra Large (%)
White Egg Layers						
Hisex (White)	HR	1.5	5.2	11.5	34.1	47.8
	FL	1.3	4.4	9.7	29.7	54.9
	LC	1.9	6.1	14.6	36.3	41.2
Colonial (365-S)	HR	2.1	10.0	23.0	37.4	27.6
	FL	2.2	7.8	19.7	40.9	29.4
	LC	2.7	7.3	21.4	37.5	31.1
ISA-Babcock (B300)	HR	1.4	5.0	12.5	39.1	42.0
	FL	1.3	5.0	11.0	39.7	43.1
	LC	1.8	5.7	13.0	40.0	39.4
Hyline (W-36)	HR	1.8	6.9	13.7	38.2	39.2
	FL	1.3	6.6	11.5	36.2	44.3
	LC	1.7	7.9	16.2	38.3	36.0
Shaver (288-A)	HR	1.0	4.4	10.9	37.6	46.1
	FL	0.9	4.5	11.1	37.7	45.9
	LC	1.0	4.9	14.6	36.8	42.7
Dekalb (XL-Link)	HR	1.2	5.3	13.3	38.1	42.2
	FL	1.6	4.5	12.1	39.7	42.1
	LC	1.7	6.1	16.6	40.8	34.8
H & N (Nick Chick)	HR	1.0	5.7	12.7	36.3	44.3
	FL	1.2	4.4	8.8	33.9	51.7
	LC	1.9	4.9	12.5	36.6	44.1
White Egg Average	HR	1.4	6.0	13.9	37.3	41.3
	FL	1.4	5.3	12.0	36.8	44.5
	LC	1.8	6.1	15.6	38.0	38.5
Brown Egg Layers						
Hubbard (Golden Comet)	HR	0.2	3.7	7.8	24.6	63.7
	FL	0.8	2.9	7.3	23.2	65.8
	LC	0.5	3.8	7.8	27.5	60.4
Dekalb (Sex-Sal-Link-6)	HR	0.3	3.0	5.8	20.2	70.7
	FL	0.6	3.3	6.9	22.4	66.8
	LC	0.9	3.8	6.7	24.8	63.9
Hisex (Brown)	HR	0.3	2.0	4.4	19.8	73.5
	FL	0.4	1.4	4.2	18.0	76.1
	LC	0.8	2.9	5.0	18.6	72.6
Brown Egg Average	HR	0.3	2.9	6.0	21.6	69.3
	FL	0.6	2.5	6.1	21.2	69.5
	LC	0.7	3.5	6.5	23.6	65.6

TABLE 48. EFFECTS OF HOUSING ON EGG QUALITY OF ENTRIES IN ALL HOUSING, 27TH NCLPMT (140-728 DAYS)

Breeder (Strain)	House Type	Grade A (%)	Grade B (%)	Cracks (%)	Loss (%)	Blood Spots (%)	Meat Spot (%)
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White Egg Layers							
Hisex (White)	HR	91.5	3.0	4.9	0.7	0.0	0.6
	FL	91.4	3.3	4.5	0.8	0.3	0.3
	LC	93.0	3.6	2.8	0.6	0.5	0.0
Colonial (365-S)	HR	91.7	3.0	4.1	1.2	2.7	0.0
	FL	91.9	2.1	4.5	1.5	4.1	1.6
	LC	91.6	2.9	3.7	1.8	1.9	0.0
ISA-Babcock (B300)	HR	94.4	0.4	4.2	0.9	1.6	0.3
	FL	96.2	0.9	2.7	0.2	0.0	1.9
	LC	93.9	2.1	2.9	1.2	2.2	0.0
Hyline (W-36)	HR	96.2	0.5	2.8	0.5	0.0	0.3
	FL	94.9	0.6	3.9	0.7	0.8	0.9
	LC	94.3	1.9	3.2	0.6	1.2	0.3
Shaver (288-A)	HR	95.4	1.2	2.9	0.6	0.0	0.0
	FL	96.5	0.8	1.9	0.8	0.0	0.0
	LC	94.4	1.7	3.3	0.7	0.3	0.0
Dekalb (XL-Link)	HR	93.4	1.2	4.5	1.0	1.1	0.6
	FL	94.0	1.3	4.2	0.5	0.3	0.4
	LC	92.4	1.7	5.3	0.6	0.7	0.6
H & N (Nick Chick)	HR	91.2	1.7	6.0	1.1	3.3	0.0
	FL	93.3	2.3	3.8	0.6	0.5	0.3
	LC	91.5	1.7	5.4	1.4	2.8	0.3
White Egg Average	HR	93.4	1.6	4.2	0.8	1.2	0.3
	FL	94.0	1.6	3.6	0.7	0.9	0.8
	LC	93.0	2.2	3.8	1.0	1.4	0.2
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Brown Egg Layers							
Hubbard (Golden Comet)	HR	96.2	0.7	2.3	0.7	4.7	17.6
	FL	96.0	0.5	2.9	0.5	4.9	16.7
	LC	94.5	1.0	3.1	1.5	7.1	19.0
Dekalb (Sex-Sal-Link-G)	HR	93.8	0.7	4.6	1.0	0.6	18.9
	FL	94.5	0.9	3.9	0.7	6.8	13.8
	LC	93.7	1.1	4.3	0.9	2.1	18.1
Hisex (Brown)	HR	93.8	1.0	4.1	1.1	1.7	17.2
	FL	94.3	0.8	3.8	1.2	5.3	15.3
	LC	95.3	1.4	2.4	0.9	1.9	11.8
Brown Egg Average	HR	94.6	0.8	3.7	0.9	2.3	17.9
	FL	94.9	0.7	3.6	0.8	5.6	15.2
	LC	94.5	1.2	3.3	1.1	3.7	16.3

STOCK SUPPLIERS AND CATEGORIES

<u>Breeder</u>	<u>Stock</u>	<u>Category*</u>	<u>Source</u>
Hisex Division Pilch, Inc. Box 438 Troutman, NC 28166	Hisex White	I-A YES	Pilch, Inc. Box 438 Troutman, NC 28166
Colonial Poultry Farms, Inc., Pleasant Hill, MO 64080	Colonial True-Line 365-S	II YES	Colonial Poultry Farms, Inc. Pleasant Hill, MO 64080
ISA-Babcock, Inc. P.O. Box 280 Ithaca, NY 14851	ISA-Babcock B300	I-A YES	Tri-State Hatcheries 229 Main Street N. Brookfield, MA 0153
HyLine International Johnston, IA 50131	HyLine W-36	I-C	Not applicable
Shaver Poultry Breeding Farms, Ltd., Box 400 Ontario, CANADA N1R 5V9	Shaver Starcross 288-A	I-A YES	Merrill Poultry Farms Inc., Route 2, Box 21 Paul, ID 83347
DeKalb AgResearch, Inc. 3100 Sycamore Road DeKalb, IL 60115	DeKalb XL-Link	I-A YES	Clay's Hatchery Route 1 Blackstone, VA 23824
H & N, Inc. 15305 N.E. 40th Street Redmond, WA 98052	H & N "Nick Chick"	I-A YES	Tatum Farms Route 3 Dawsonville, GA 30534
Hubbard Farms Walpole, NH 03608	Hubbard Golden Comet	I-A YES	Bowers Brothers Hatchery Route 4 Albemarle, NC 28001
DeKalb AgResearch, Inc. 3100 Sycamore Road DeKalb, IL 60115	DeKalb Sex-Sal-Link "G"	I-A YES	Pee Dee Hatchery P.O. Box 156 Hartsville, SC 29550
Hisex Division Pilch, Inc. Box 438 Troutman, NC 28166	Hisex Brown	I-A YES	Pilch, Inc. Box 438 Troutman, NC 28166

- *I = Extensive distribution in southeast United States.
- II = Little or no distribution in southeast United States.
- A = Entry requested.
- C = Entry neither requested nor supported.
- YES = Supporting and fully cooperating with test.

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