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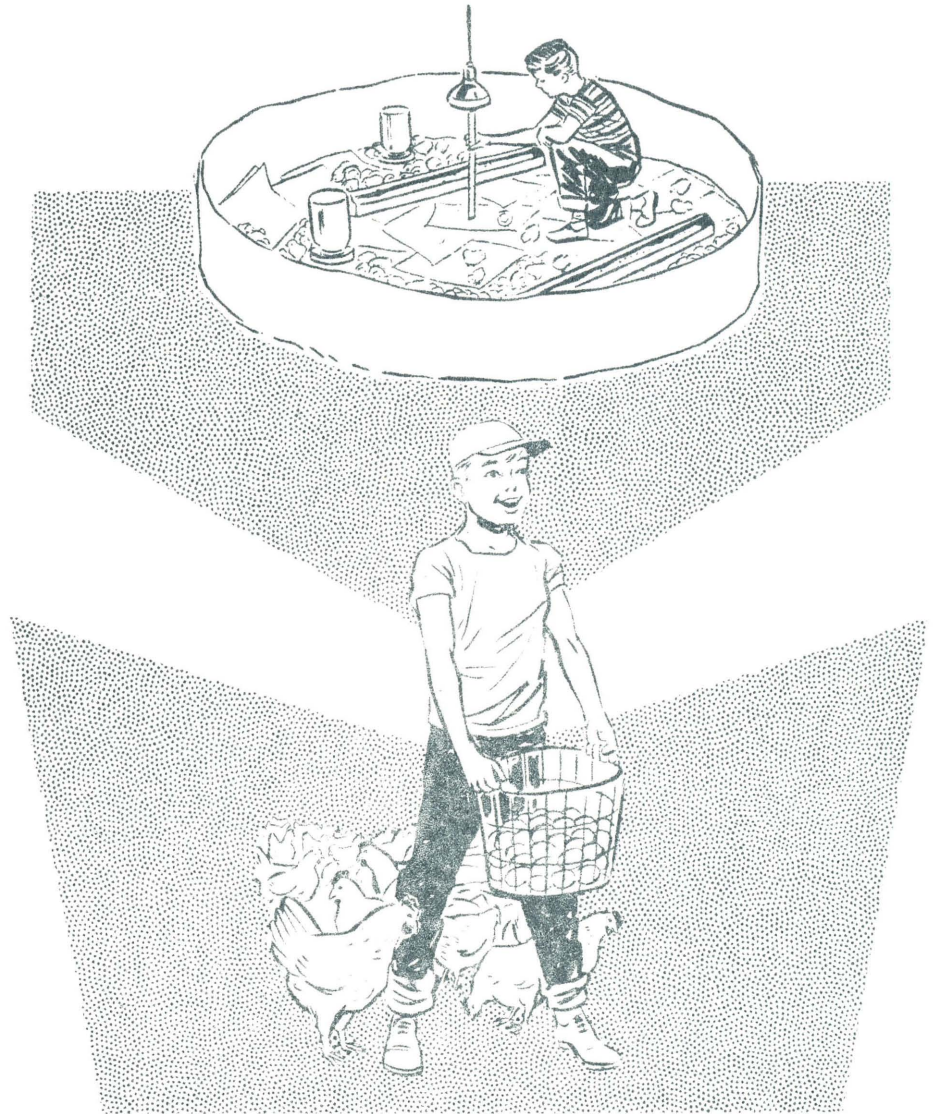
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# PULLET RAISING III

**Suggested  
Experiments  
For  
4-H'ers  
14 and over**



Michigan State University  
Cooperative Extension Service  
4-H Program  
East Lansing, Michigan

Dear 4-H'ers:

Now that you have completed the experiments suggested in 4-H Bulletin 187.1B, you are ready to move on to more difficult experiments which are outlined in this bulletin.

These experiments will probably require more equipment and a greater skill on your part than those you have already completed. However, when carrying out the experiments described herein, don't forget to keep accurate records of production costs. Good luck!

STRAIN COMPARISONS  
Suggested for age group 14 and over

OBJECTIVE: Selection of pullets for egg production depends on their ability to return the operator a profit when they are placed in the laying house. Included in the factors on which strain selection should be based are:

1. Number of eggs produced.
2. Sexual maturity.
3. Beginning and ending egg weight.
4. Livability during growing and laying period.
5. Feed efficiency.
6. Body weight.

Considerable difference exists between the different strains in several of the above mentioned factors.

MATERIALS: Three commercial strains of egg producing type chickens (20-25 birds of each strain) reared by the member.  
Brooding and growing facilities for three groups of chickens.

PROCEDURE:

- A. Place day-old chicks of each strain into separate pens and collect records until the birds are 24 weeks of age -- sexual maturity.
- B. Maintain records on weekly feed fed, daily mortality, ending body weight and weekly egg weight.
- C. For the egg weight, weigh all the eggs from each strain 1 day each week.
- D. Report your results:
  1. Age at sexual maturity of each strain.
  2. Feed fed to each strain.
  3. Average body weight of each strain.
  4. Mortality of each strain.
  5. Average beginning egg weight of each strain.

STRAIN COMPARISONS  
(Strain #1 \_\_\_\_\_)

Name \_\_\_\_\_

Week Number	Egg Weight (per doz)	Feed Fed (lbs)	Bird Number	Ending Weight
1			1	
2			2	
3			3	
4			4	
5			5	
6			6	
7			7	
8			8	
9			9	
10			10	
11			11	
12			12	
13			13	
14			14	
15			15	
16			16	
17			17	
18			18	
19			19	
20			20	
21			21	
22			22	
23			23	
24			24	
25			25	
Total				

STRAIN COMPARISONS  
(Strain #2 \_\_\_\_\_)

Name \_\_\_\_\_

Week Number	Egg Weight (per doz)	Feed Fed (lbs)	Bird Number	Ending Weight
1			1	
2			2	
3			3	
4			4	
5			5	
6			6	
7			7	
8			8	
9			9	
10			10	
11			11	
12			12	
13			13	
14			14	
15			15	
16			16	
17			17	
18			18	
19			19	
20			20	
21			21	
22			22	
23			23	
24			24	
25			25	
Total				

STRAIN COMPARISONS

(Strain #3 \_\_\_\_\_) Name \_\_\_\_\_

Week Number	Egg Weight (per doz)	Feed Fed (lbs)	Bird Number	Ending Weight
1			1	
2			2	
3			3	
4			4	
5			5	
6			6	
7			7	
8			8	
9			9	
10			10	
11			11	
12			12	
13			13	
14			14	
15			15	
16			16	
17			17	
18			18	
19			19	
20			20	
21			21	
22			22	
23			23	
24			24	
25			25	
Total				

## EXPERIMENT #2

### LIGHTING

Suggested for age groups 14 and over

#### OBJECTIVE:

Light produces energy which penetrates the eye of the bird and sets up a nervous impulse. This impulse then sets into operation those factors which stimulate egg production. The lighting program used during the growing period of replacement pullets affects subsequent egg production, sexual maturity, egg weight and body weight.

#### MATERIALS:

Egg type chickens one day of age (60-75 birds).  
Fact Sheet #1465, "Electric Lights For Egg Production" (available from Poultry Science Department, 113 Anthony Hall, MSU, East Lansing, Michigan 48823).  
Brooding and growing facilities for three groups of chicks.

#### PROCEDURE:

- A. At eight weeks of age divide the three groups (20-25 chicks per group) and house separately.
- B. Birds in Pen #1 should receive 8 hours of light per day; Pen #2 should receive natural light and Pen #3 should receive 24 hours of light per day from 8 to 22 weeks of age. Pen #1 will have to be darkened so that no natural light enters the pen.
- C. Record weekly the feed consumption (lbs), weekly the egg numbers, weekly the egg weight, the sexual maturity and the ending body weight.
- D. For the egg weight, weigh all the eggs from each pen 1 day per week.
- E. Report your results
  1. Feed consumed Pen #1, 2 and 3.
  2. Average beginning egg weight Pen #1, 2 and 3.
  3. Average ending body weight Pen #1, 2 and 3.
  4. Average age at sexual maturity Pen #1, 2 and 3.
  5. Mortality Pen #1, 2 and 3.



LIGHTING  
(Pen #1 - 8 hr)

Name \_\_\_\_\_

Week	Feed Consumption	Egg Production (Number)	Egg Weight (per doz)	Bird Number	Ending Body Weight
1				1	
2				2	
3				3	
4				4	
5				5	
6				6	
7				7	
8				8	
9				9	
10				10	
11				11	
12				12	
13				13	
14				14	
				15	
				16	
				17	
				18	
				19	
				20	
				21	
				22	
				23	
				24	
				25	
TOTAL				AVE.	

LIGHTING  
(Pen #2 - Natural)

Name \_\_\_\_\_

Week	Feed Consumption	Egg Production (Number)	Egg weight (per doz.)	Bird Number	Ending body Weight
1				1	
2				2	
3				3	
4				4	
5				5	
6				6	
7				7	
8				8	
9				9	
10				10	
11				11	
12				12	
13				13	
14				14	
				15	
				16	
				17	
				18	
				19	
				20	
				21	
				22	
				23	
				24	
				25	
TOTAL				AVE.	

LIGHTING  
(Pen #3 - 24 hr.)

Name \_\_\_\_\_

Week	Feed Consumption	Egg Production (Number)	Egg weight (per doz.)	Bird number	Ending body weight
1				1	
2				2	
3				3	
4				4	
5				5	
6				6	
7				7	
8				8	
9				9	
10				10	
11				11	
12				12	
13				13	
14				14	
15				15	
				16	
				17	
				18	
				19	
				20	
				21	
				22	
				23	
				24	
				25	
TOTAL				AVE.	

RESTRICTED FEED PROGRAM  
Suggested for age group 14 and over

OBJECTIVE: Delaying sexual maturity generally results in increased initial egg weight, increased rate of lay during the reproductive period and slightly improved egg production. Restricted feeding of replacement pullets is one method whereby sexual maturity can be delayed.

MATERIALS: Egg type chickens either grown to or purchased at 8 weeks of age by the member (40-50 chicks).  
Growing facilities for two groups of chicks.

PROCEDURE: A. At eight weeks of age separate the two groups and give Pen #1 all the feed they will eat (full fed) and Pen #2 only 70% of the feed fed the full fed group.

B. Feed the 70% restricted group according to the following schedule:

Age in Weeks	Pounds Feed Daily Per 20 Birds
8-9	2.0
9-10	2.2
10-11	2.4
11-12	2.6
12-13	2.8
13-14	3.0
14-15	3.2
15-22	3.4

- C. Record weekly the feed consumption (lbs.), daily mortality, ending body weight and beginning egg weight.
- D. For the egg weight, weigh all the eggs from each pen one day each week.
- E. Report your results.
1. Average age at sexual maturity Pen #1 and 2.
  2. Feed consumption Pen #1 and 2.
  3. Average beginning egg weight Pen #1 and 2.
  4. Average ending body weight Pen #1 and 2.
  5. Mortality for Pen #1 and 2.

RESTRICTED FEED PROGRAM  
(Pen #1 Full fed)

Name \_\_\_\_\_

Week number	Feed consumption	Mortality	Egg weight (per doz.)	Bird number	Ending body weight
2				2	
3				3	
4				4	
5				5	
6				6	
7				7	
8				8	
9				9	
10				10	
11				11	
12				12	
13				13	
14				14	
15				15	
16				16	
17				17	
18				18	
19				19	
20				20	
21				21	
22				22	
				23	
				24	
				25	
TOTAL				AVE.	

RESTRICTED FEED PROGRAM  
(Pen #2, 70% feed)

Name \_\_\_\_\_

Week number	Feed consumption	Mortality	Egg weight (per doz.)	Bird number	Ending body weight
2				2	
3				3	
4				4	
5				5	
6				6	
7				7	
8				8	
9				9	
10				10	
11				11	
12				12	
13				13	
14				14	
15				15	
16				16	
17				17	
18				18	
19				19	
20				20	
21				21	
22				22	
				23	
				24	
				25	
TOTAL				AVE.	

COST OF RAISING PULLETS  
Suggested for age group 14 and over

- OBJECTIVE:** Mechanization and specialization has greatly changed the aspects of replacement pullet raising; however, the operator must still be efficient in order to make a profit. In order to know if he is efficient, the egg producer must have accurate records. A major point to consider in any poultry enterprise is the return you receive for your labor.
- MATERIALS:** Egg type chicks one day of age (25-50).  
Brooding and rearing facilities for 25-50 chicks.
- PROCEDURE:**
- A. Maintain the flock from 1 day of age to 20 weeks of age.
  - B. During this same period figure and record all expenses.
    1. Chick cost
    2. Feed cost
    3. Insurance cost
    4. Medication cost
    5. Equipment cost (depreciation @ 20% yearly)
    6. Interest on investment (5% per year)
    7. Building cost (depreciate @ 5% yearly)
    8. Litter cost
    9. Other expenses
  - C. Keep record of number of hours of labor.
  - D. Report your results.
    1. Labor income (Total income-total expenses)
    2. Hourly wages (Labor income ÷ hours of labor)
    3. Rank the cost items (1,2,3,4, etc.)
    4. Calculate the cost to raise a pullet to 16 weeks of age.

