

## **MSU Extension Publication Archive**

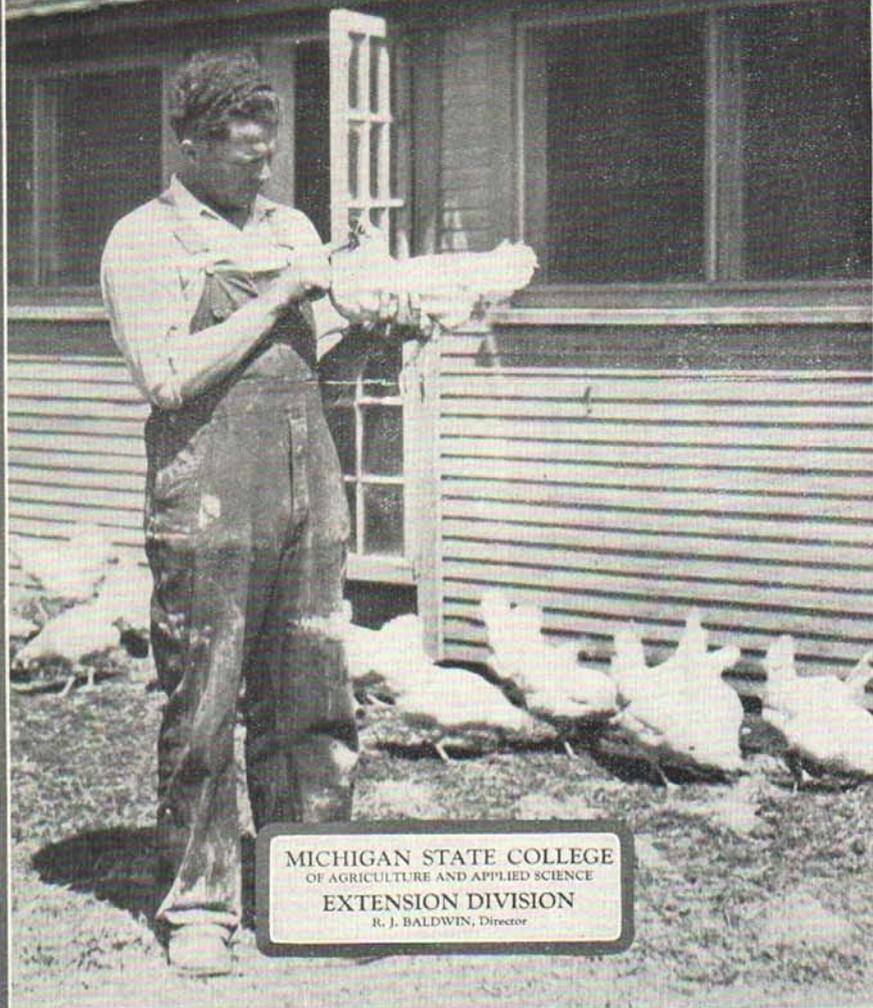
Archive copy of publication, do not use for current recommendations. Up-to-date information about many topics can be obtained from your local Extension office.

Culling the Farm Flock  
Michigan State University Extension Service  
J.A. Davidson  
Issued November 1927  
16 pages

The PDF file was provided courtesy of the Michigan State University Library

**Scroll down to view the publication.**

# CULLING THE FARM FLOCK



MICHIGAN STATE COLLEGE  
OF AGRICULTURE AND APPLIED SCIENCE  
EXTENSION DIVISION  
R. J. BALDWIN, Director

The Michigan State College of Agriculture and Applied Science and the U. S. Department of Agriculture, co-operating. Printed and distributed in furtherance of the purpose of the co-operative agricultural extension act of May 8, 1914.

# CULLING THE FARM FLOCK

J. A. DAVIDSON

Maintenance of a flock that lays well is, of course, a necessity if poultry keeping is to be profitable, and the problem of removing unproductive birds constantly confronts the alert poultryman. This "culling" is not a difficult task if the poultryman knows, to a certain extent, just how the flock has been handled and also has some knowledge of the characteristics of the laying hen.

It is questionable whether or not it pays to keep the flock longer than the pullet year, since the second year's production is from 15 to 20 per cent less than the pullet year's production. Furthermore, this loss in production takes place during the fall months when the price of eggs is the highest.

It certainly does not pay to keep those birds that have produced less than 150 eggs, since it requires from 90 to 100 eggs to pay for the bird's feed. In general, we may say that only the best third of the flock should be kept through the second year, and very few individuals should be kept for longer than two years.

These accepted facts bring the poultryman face to face with the problem of culling, and the purpose of this bulletin is to collect and present the important points in the culling process.

## CULLING AND CULLING CONDITIONS

Culling is a term applied to the removal of the unprofitable or non-laying birds from the flock. Culling, in its broadest sense, refers to the sorting of desirable hatching eggs, chicks, pullets, cockerels, hens, or breeding males.

Culling has been, and still is, practiced a great many times without regard to the conditions to which the birds have been subjected. A great many discarded hens and pullets would have undoubtedly produced sufficient eggs to pay for their keep and show a profit in addition, if they had been housed in dry, well lighted, and well ventilated houses.\*

Housing alone, however, is only a part of the requirements. The flock should be supplied with a good grain and mash ration that is properly balanced, with plenty of fresh water, and with green feed. There are many good commercial feeds on the market, as well as a sufficient number of home mixed rations that will prove satisfactory.†

\*For information on housing, write for Michigan State College Extension Bulletin No. 48.

†For information on feeding, write for Michigan State College Extension Bulletin No. 51.

The proper rearing of young stock also influences the productivity of the pullet.\*

If the above conditions are satisfactorily taken care of, and the birds are free from parasites or pests, culling operations may begin. Birds that will not lay under good conditions are certainly poor producers because of poor breeding or abnormalities.

### CULLING FOR EGG PRODUCTION

Culling should be a continuous practice, but this is frequently impossible, and under such conditions culling two or three times during the summer may be sufficient to keep the flock on a paying basis, and, at the same time, build it up to a higher standard. Culling for egg production in these cases should begin the middle of June. Summer culling **ELIMINATES THE LOAFER**. Fall culling should be a selection of the best individuals.

Health, vigor, size, trueness to type and color, as well as high egg production, should be guide posts to a higher standard. In the selection of profitable hens, there are three things that should be known: first, present production; second, persistence of production; third, intensity or rate of production. Present production can be determined by examining the vent, the abdominal capacity, the spread of pelvic bones, the comb, the wattles, and the ear lobes. Persistence or length of production is determined by pigmentation, moulting, and body capacity. The intensity or rate of production is judged largely by the head and laying temperament.

### FACTORS IDENTIFYING THE NON-PRODUCER

- 1st—Health, vigor, and condition.
- 2nd—Condition of vent.
- 3rd—Pigmentation.
- 4th—Moult.
- 5th—Body conformation and handling qualities.
- 6th—Head and adjuncts.

### HEALTH

A sick bird is incapable of production and should be disposed of. Constitutional vigor is essential. Good hatches and vigorous chicks are impossible without vigor and vitality in the parent stock.

Good layers are busy hens, they rise early in the morning and go to roost late. A heavy layer is a heavy eater and is always searching for something to eat. She is happy and contented. The inactive, dull hen spends much of her time on the roosts and is usually a poor layer.

\*For information on brooding and rearing young stock, write for Michigan State College Extension Bulletin No. 52.

**HIGH VITALITY**

- 1—Broad, deep head
- 2—Bright, prominent eye
- 3—Long, deep body
- 4—Strong parallel legs
- 5—Stylish carriage
- 6—Active disposition

**LOW VITALITY**

- 1—Long, slim, sleepy head
- 2—Dull, sunken eye
- 3—Short shallow body
- 4—Knock-kneed
- 5—Droopy appearance
- 6—Lazy sluggish disposition

Poor production may be caused by lack of good health, vigor, and stamina. It may be caused by poor management, lack of green feed, insufficient roosting space, poorly ventilated houses, or other faults in caring for the flock.

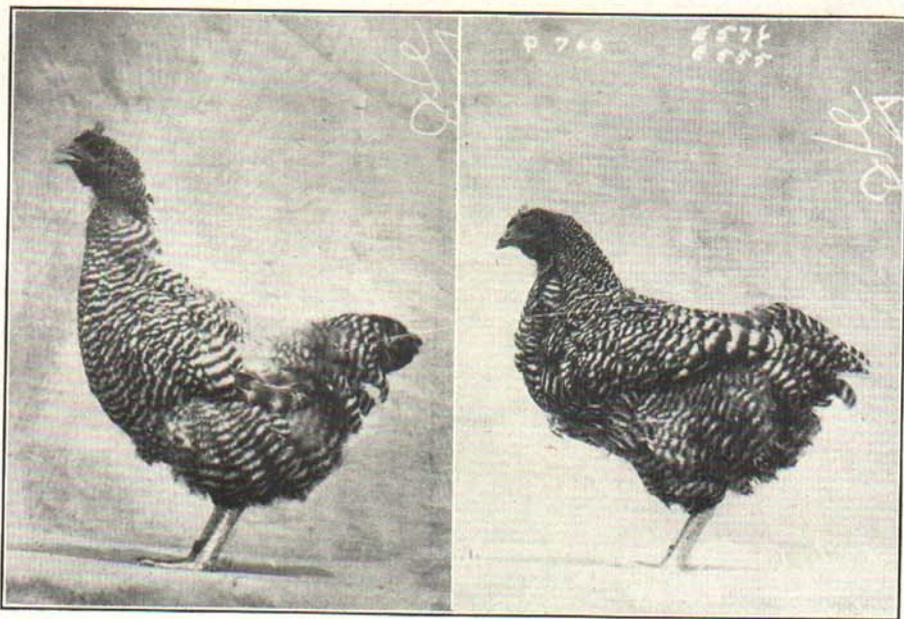


Fig. 1—Vigor. Note the dejected, knock-kneed appearance of bird at right. Contrast the active, nervous, straight legged appearance of the other bird.

**CONDITION OF THE VENT**

The condition of the vent is one of the most accurate factors for determining whether or not a hen is laying. A bird in good laying condition will have a large, broad vent that is moist and shows no pigment. A bird that stops laying soon has a vent that is dry and puckered and shows some yellow around the edge. The vent is the first place that change of pigment shows, in yellow pigmented birds.

## PIGMENTATION

The yellow color of the pullet or hen is due to a pigment known as xanthophyll. This material is secured by the hen from yellow corn and green feed. Therefore, before using this test for persistent egg production, we must know what the hen has been fed and where she has ranged. The coloring matter of xanthophyll is used to produce the yellow color in the yolk, and, therefore, when a hen is not laying this coloring matter is stored up in the skin, fat, ear-lobes, beak, and shanks of the bird. When she begins to lay, the pigment is used in the egg yolks. (This test applies only to the yellow skinned breeds and varieties.)

The color fades first from the vent, a few days after egg production

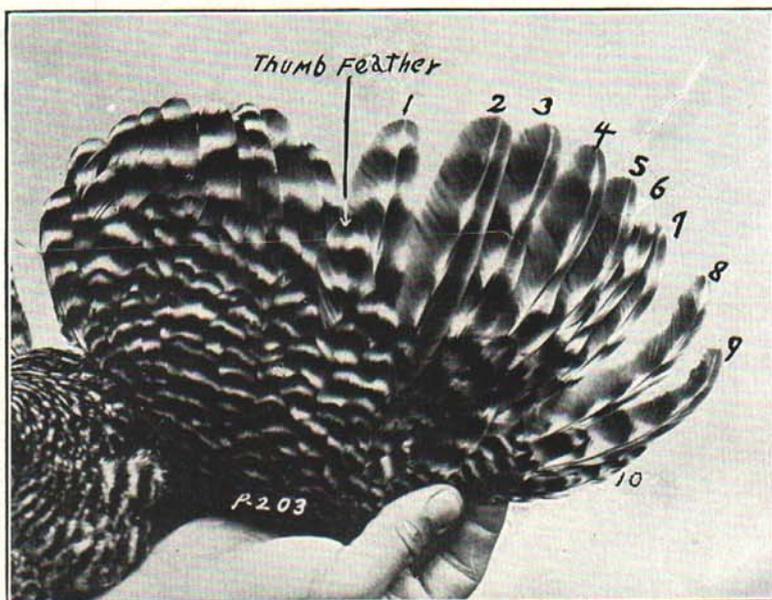


Fig. 2—Primary wing feathers.

starts. The eye ring or edges of the eye-lids bleach more slowly than the vent. The ear lobes are next to lose their color, followed by the lower and upper mandibles of the beak. The color of the ear lobes is particularly noticeable in varieties having white ear lobes, such as the White Leghorn.

The color leaves the corners of the mouth or base of beak first, gradually fading towards the tip, and disappearing from the arch of the upper beak last. Four to six weeks of production will usually eliminate all of the color from the beak.

The shanks are the last to lose their color, fading first in front and retaining the color longest just below the feather line at the rear of the hock joint. Four to five months is necessary to completely bleach the

shanks. The color re-appears in the order in which it disappeared, but more rapidly.

### MOULT

When a hen starts moulting she usually stops laying, because any surplus food not needed for maintenance is used to produce feathers.

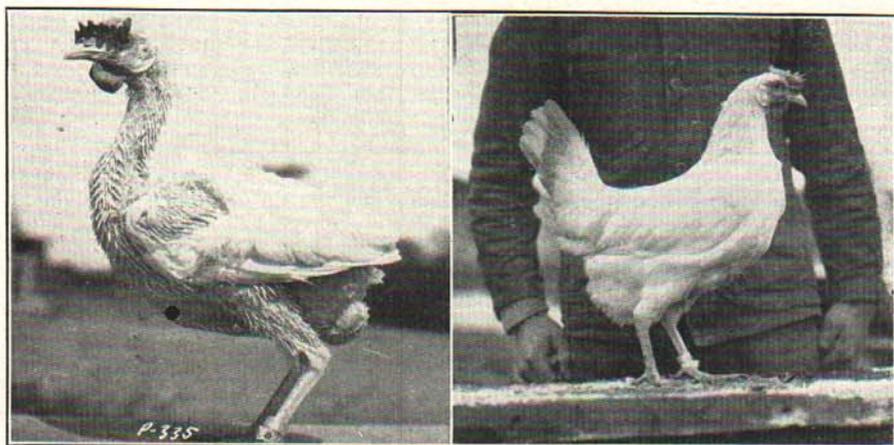


Fig. 3—Quick moult. Fig. 4—Same as in figure 5. Required 6 weeks to moult.

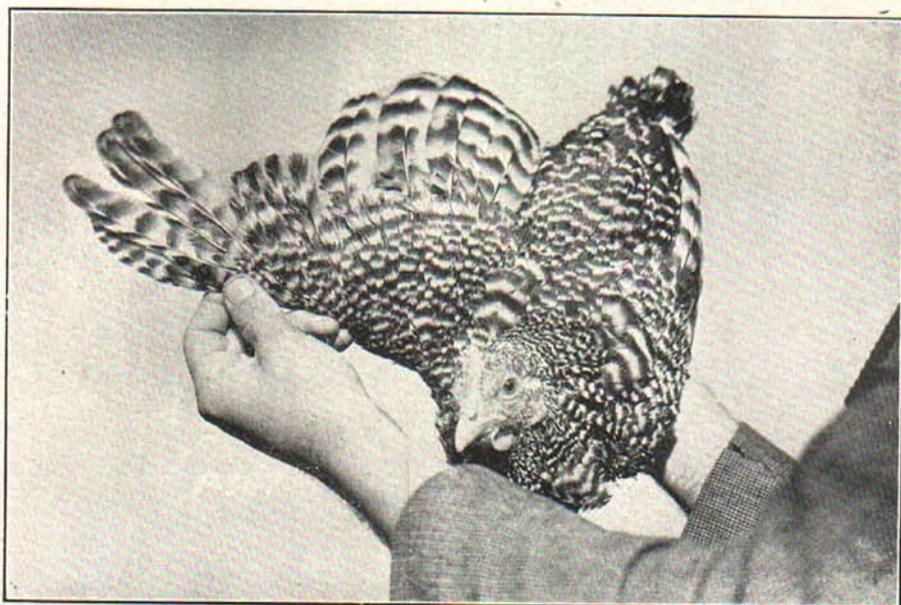


Fig. 5—Quick moult—Indicated by dropping several primary feathers at once.

The appearance of a large number of pin feathers on a bird indicates that a moult is taking place. A bird usually moults on the neck first, then on the back, and finally on the breast. The length of time that a hen has been moulting is determined largely by the wing moult. The wing is divided into two large sections which are: first, the primary flight feathers or outer wing feathers; and second, the secondary flight feathers or inner wing feathers. The sections are separated by a smaller and shorter feather known as the thumb or axial feather.

The primary or flight feathers are dropped systematically, beginning with the feather next to the thumb or axial feather. An early or slow moulting hen usually drops one primary feather at a time, and there is usually a two-weeks interval from the time the first one is dropped until the adjacent feather is dropped. It requires approximately six weeks for a new primary feather to develop. Therefore, a slow moulter requires several months to complete her moult. A fast moulting hen drops several primaries at once, and therefore usually requires less time to complete her moult. The late moulter is usually a better producer, and as a result is more desirable.

The plumage of a heavy producer is generally soiled, harsh, and dry to the touch. The poor producer's plumage is usually smooth and oily. This is due to the storage of fats and oils in the body rather than the use of such materials for egg production.



Fig. 6—Abdominal Capacity. The bird on the left has barely two fingers spread between the pelvic and keel bones. The one on the right has better than four fingers spread. The hen on the left stopped laying in May.

**BODY CONFORMATION AND HANDLING QUALITIES**

The capacity to produce eggs is determined by the depth or distance from the front of the keel, or breast bone, to the center of the back; the space between the end of the keel and the pelvic bone; the width



Fig. 7—Length of back. Note tapering back of bird to the right. A good bird has a back that carries well out over the pelvic arches.

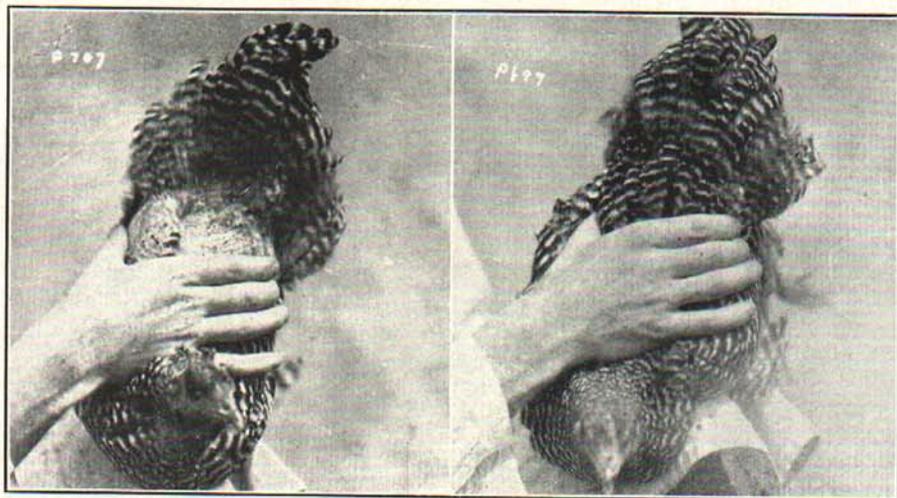


Fig. 8—Measuring width of back. Note that bird at left has sufficient width of back for good development of reproductive organs.

and length of the back, and by the width and length of the keel. These dimensions are more or less fixed in the adult bird, except that the end of the keel moves up or down, according to the rate of production.

The spread between the pelvic bones and the keel bone indicates whether or not the bird is in production at the time of handling, and does not to any degree of certainty determine how many eggs a hen has laid, or how many she may lay. A good bird should have a broad, flat back, carried well over the pelvic arches.

A poor producer usually has a tapering back.

A good bird should be deep from the center of the back to the point of the keel bone, and as deep at the rear, if not deeper, than at the front.

A good bird should have considerable heart girth, showing that she has plenty of capacity for the vital organs—heart and lungs. A

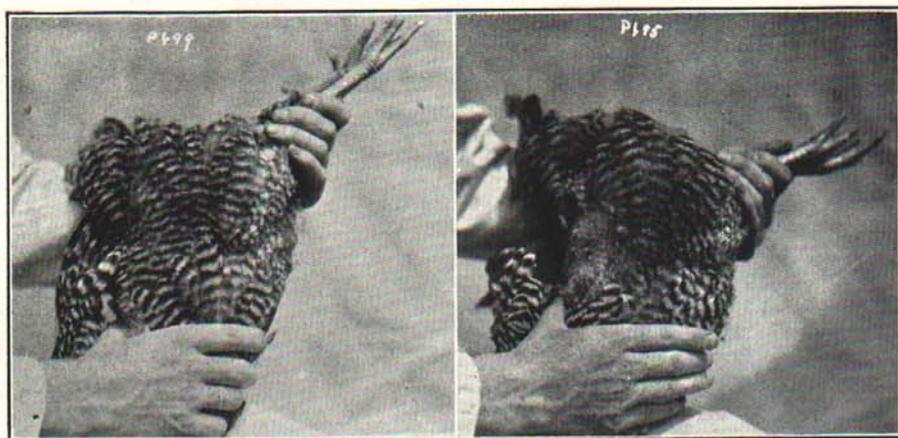


Fig. 9—Measuring depth of bird from back to forward end of keel. Note lack of depth in bird at left showing lack of heart and lung capacity.

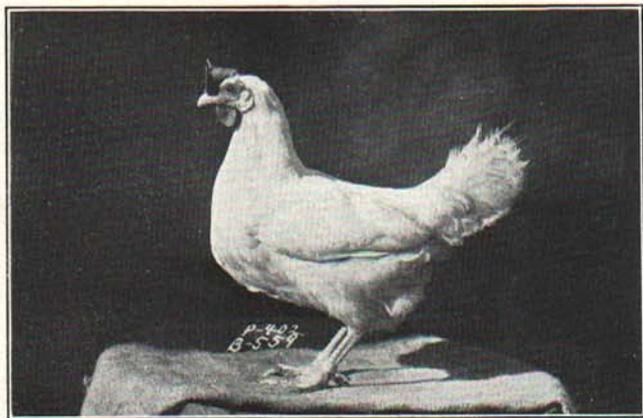


Fig. 10—Good body type—Long, deep and rugged.



Fig. 11—Good body type. Note depth of body and alert appearance.

poor producer usually lacks heart girth, is shallow, and, therefore, does not have room for the vital organs of the body. A hen that lays a large number of eggs must consume and digest a large amount of feed, and, therefore, a large body is desired.

A high producer usually possesses a skin that is soft, thin, and silky, showing that she has no tendency to put on a heavy layer of



Fig. 12—Rooster Headed Bird. Note the enlarged comb and wattles. Such birds have firey red combs. The R. I. R. laid 54 eggs before becoming hemaphroditic.

fat underneath the skin. The abdomen should be free from any hard fat. The heavy producer must, therefore, be flat and slab sided.

## HEAD ADJUNCTS

### (Secondary Sexual Characteristics)

The secondary sexual characteristics—ear lobes, comb, and wattles, are correlated directly with the ovary. When a bird is in heavy laying condition, the ear lobes are large and full, and as production decreases, the ear lobes contract. The comb expands or contracts, depending on the condition of the ovary. The comb feels waxy when the hen is laying. When the comb becomes hard and dry and is covered with yellowish white scales, or dandruff, the ovary is dormant.

There are two common exceptions to the preceding statements: first, a heavy, fat hen that is reabsorbing her yolks as fast as they are formed; second, disarrangement of or diseased ovary, so that the hen takes on male secondary sexual characteristics such as a heavy coarse comb and enlarged wattles, thus becoming rooster headed.

## THE HEAD AS INDICATION OF LAYING TEMPERAMENT

The head determines to a great extent the rate of the hen's production. A good head is one that is narrow through the base of the jaw, that is narrow from a point over the eye to the base of the jaw, and that possesses a strong, well arched beak, free from hollows between the eye and the base of the beak. The face should be free from excessive feathering, and also from many folds or wrinkles. The top of the skull and the base of the beak should form a straight line.

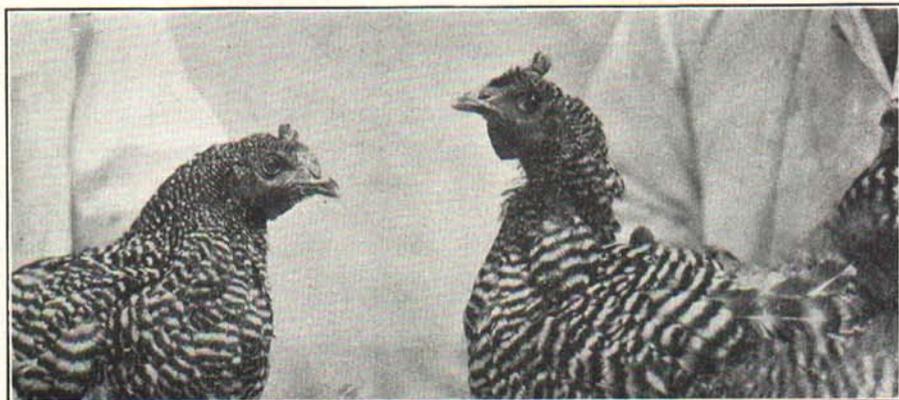


Fig. 13—Head as an indication of laying temperament. Note the weak snake like head, and listless eye in the bird on the left. Note the strong rugged refined head with clear cut prominent eye. Hen on left laid 92 eggs from Nov. 1st, 1926 to May 2nd, 1927. She stopped laying on that date. Hen on right laid 143 eggs during the same time and is still laying.

The eye is the most important part of the head and determines, to a considerable extent, the nervous or laying temperament of the hen. The eye should be keen, sparkling, and prominent. The eye should also be free from any overhanging folds. These overhanging folds, together with sharp angles in front of the eye, indicate or are closely correlated with broodiness.

A long crow-headed or an over refined, short-faced bird is rarely a high producer.

The fat coarse-headed and sunken-eyed bird is rarely a good layer. A moderate coarseness, which may be described as a rugged-refined head, is more to be desired than the type bordering on slimness or over refinement.



Fig. 14—Note the long slim, crow head. This denotes low vitality and low production.

### SELECTING THE BREEDING PEN

Hens or pullets that conform to a reasonable degree to the standards necessary for heavy egg production should also be selected for uniformity of size, shape, and color, when they are to be used for breeders. They should be free from all major disqualifications. Birds that are small for the breed should be discarded, as should all excessively large individuals. It is impossible to determine from the size of the hen the size of egg that may be laid, but continued selection for uniformity of size, together with the selection of eggs for uniformity of color and size, will aid in producing uniform chicks and pullets.

### SELECTING PULLETS

It is more difficult to select pullets, since we are not determining the past or present production, but are estimating the chances of that pullet to produce a sufficient number of eggs to be profitable. In

general, the pullet should show the same characteristics, as far as body conformation and head are concerned, as the good laying hen. All under-sized, slow feathering, slow maturing, crippled, or deformed pullets should be discarded.

### SELECTING BREEDING MALES

The best method of selecting breeding males is the pedigree method, since we can tell what type of hen a particular male came from, the number of eggs she laid, and also the color and size of the eggs. Selection of males is especially important, since the type of male influences to a great extent the type of offspring produced.

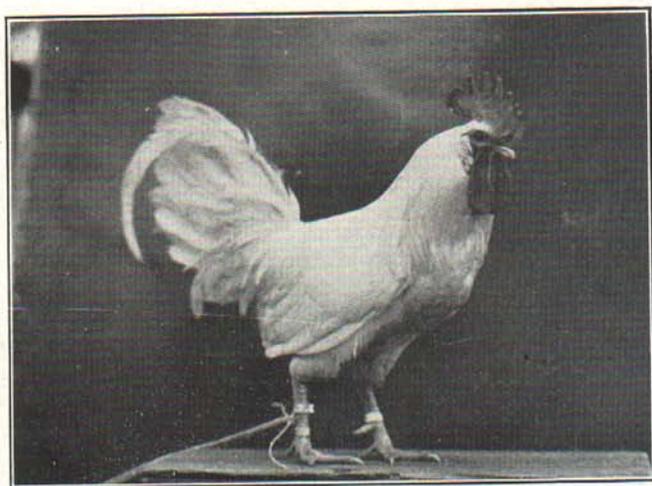


Fig. 15—Vigorous male bird. Deep bodied, straight legged, full-breasted.

Trap nesting is not practical in all cases, and, therefore, it may be necessary to go to the breeder for the birds with pedigree records.

Whether a male bird has a pedigree or not, it is essential that he have vigor and vitality, and that he conform to the qualifications for the breed. The male bird should have plenty of capacity, especially in width and length of back, distance from back to front of keel, length of underline, development of breast, and heart girth.

### METHODS OF CULLING

There are several ways to cull, depending upon the amount of time and the necessity for it. Handling the entire flock may be necessary where egg production is very low. Where egg production is very good, the culls may be picked off the roosts at night with the aid of a flash light. Those that show signs of moulting, the heavy, fat birds,

and those with dry combs should be picked out. Those culled at night should be gone over in day light to make sure that no mistakes have been made.

### APPARATUS FOR CULLING

**CULLING CRATE:** The culling crate is a handy device for culling large flocks, especially in preventing excessive frightening of the birds.

This may be placed before an opening in the house, and a few birds driven into it at one time. These can be carefully gone over and then more birds can be driven into the crate. It is necessary to go over the birds in day light in applying the pigmentation test.

**CATCHING HOOK:** A catching hook, three and one half or four feet long, made of No. 9 wire, is especially valuable in picking out poor or sick individuals as they appear in the flocks.

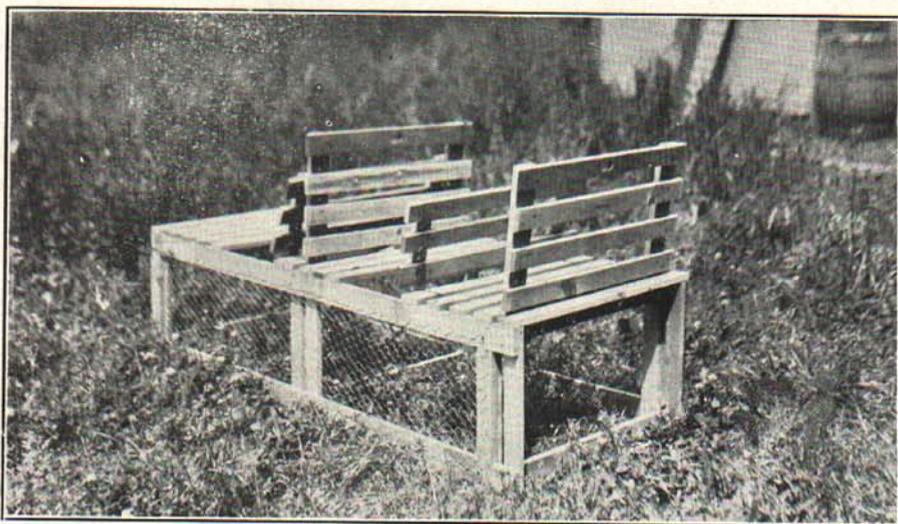


Fig. 16—Culling crate. Note the partition in the center that can be lowered for ease in catching birds.

## SUMMARY

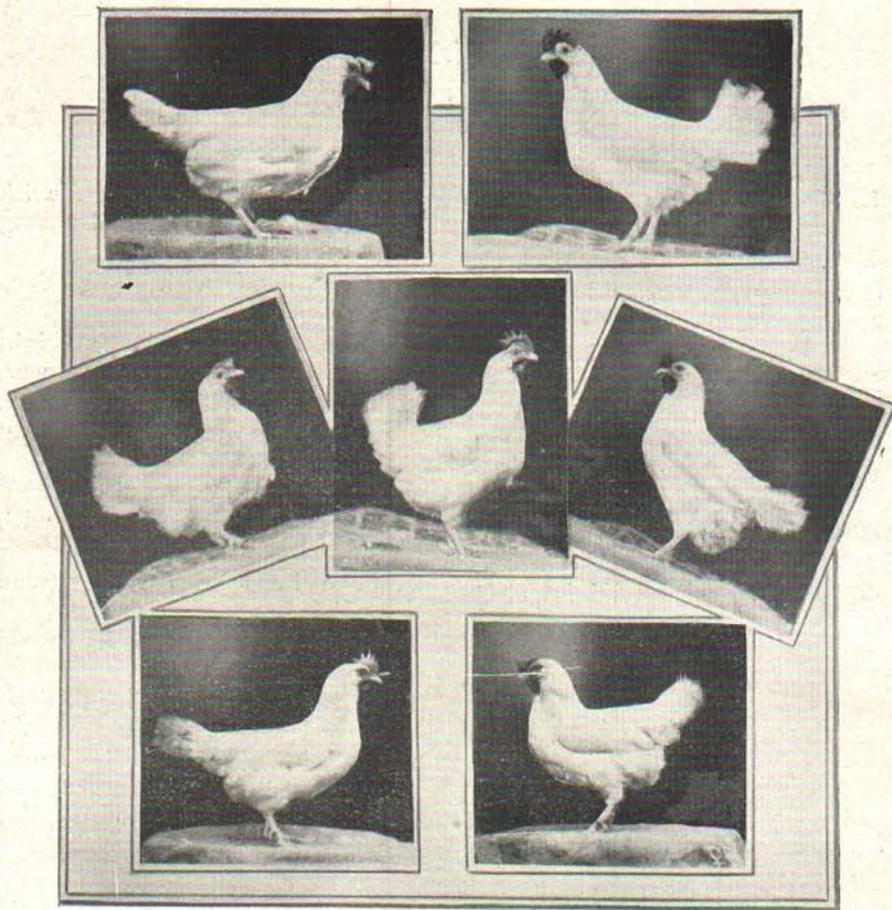
*CULL THE LOAFER***CULL**

1. Cripples and hens with broken down abdomens.
2. Poor layers and old hens.
3. Sick and inactive hens.
4. All "crow-heads," with long slim heads and beaks.
5. The large, coarse-headed hens with sunken eyes.
6. Late hatched, immature pullets, and those that are undersized from early hatches.
7. All hens that moult before August first.
8. All hens with solid fat abdomens.
9. The persistent setter.
10. All cockerels not needed for breeding purposes.

**KEEP**

1. Strong, healthy hens, with short, neat heads, and strong beaks.
2. The hens with long deep bodies.
3. The hens with large bright eyes, and active appearance.
4. The hen with dirty, dusty, worn feathers, but looking healthy.
5. Rapid and late moulters.
6. The vigorous hen with bleached beak and shanks.
7. The hens with well spread pelvic bones.
8. Early hatched, well grown pullets.
9. The hens conforming to their breed characteristics.
10. Large, strong, active, well matured cockerels of good type and good ancestry for breeding purposes.

Three Hundred Egg Records were made by these Hens in the 1925 and 1926 Michigan State College International Contest.



Hen No. D 652  
Record 300 eggs

Hen No. D 1057  
Record 307 eggs

Hen No. D 574  
Record 303 eggs

Hen No. D 1153  
Record 314 eggs

Hen No. D 753  
Record 303 eggs

Hen No. D 494  
Record 314 eggs

Hen No. D 561  
Record 300 eggs

Shows types of birds that may be expected to lay a large number of eggs. Note the large body-capacity and alert head of each.