CIRCULAR 557

(FILING CODE 21)

Culling the Laying Flock

By C. E. HARRIS

UNIVERSITY OF KENTUCKY
COOPERATIVE EXTENSION SERVICE

CONTENTS

	Page
Culling begins early	3
Accuracy of culling	3
Equipment	4
How to cull	5
Combs and wattles	5
Pigment	6
Vent	6
Pubic bones	6
Molt	7
Body conformation	11
Handling quality	12
Culling pullets	13
Culling chart	15

Culling the Laying Flock

By C. E. Harris

Culling birds that are out of laying condition is necessary for efficient production and most profit from the flock. A hen must produce 100 or more eggs per year to pay for her feed alone. Therefore, if only a few loafers are kept in the flock, the profit made by the good producers will be greatly lowered.

CULLING BEGINS EARLY

Eggs—All eggs that are to be set or sold for hatching should be selected for normal size (23 to 26 ounces per dozen), normal shape, and smooth strong shells.

Chicks—Weak and deformed chicks should be culled when putting chicks in the brooder house.

Growing stock—All slow-feathering, slow-growing, runty birds should be sold during the growing period.

Layers—House only healthy, well-developed pullets for layers. Many good pullets will not be producing when placed in the laying house. Therefore give the pullets ample time to become accustomed to their new quarters and change of feed before doing any further culling. There should be very few culls for several months; however, after 4 to 6 weeks in the laying house the few that go out of production or are showing signs of weakness should be removed.

Sell those that are good for food, destroy those that are diseased. *Do not offer for sale any chickens you would not be willing to eat.*

ACCURACY OF CULLING

It is unfair to cull any flock until it has had every opportunity to produce. Accurate culling can be done only after the flock has been fed a balanced feed in the amounts needed. The flock should also be comfortably housed and in good physical condition, free of parasites, and reasonably free of disease. To assure accurate culling, the general management of the flock should be good.

EQUIPMENT

Culling will be much easier and will be done more often if a few pieces of equipment are provided.

A few turkey-size catching coops with lift-up ends should be kept in the house (Fig. 1).

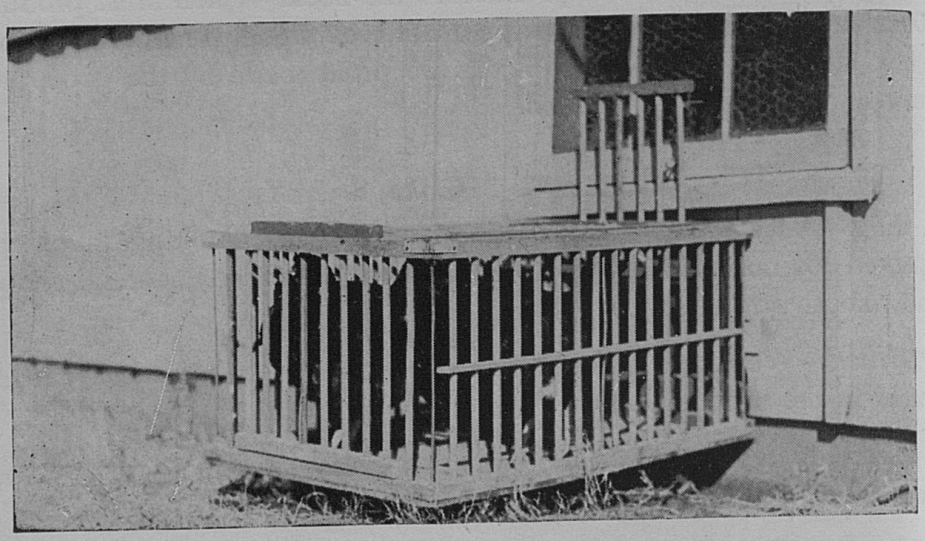

Fig. 1.— The catching coop in use.

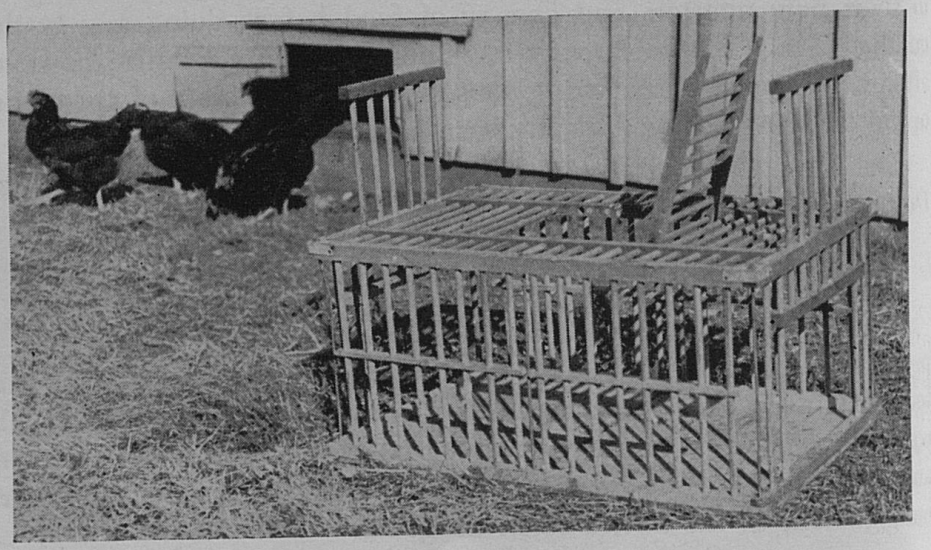

Fig. 2.— Catching coop with end doors and the trap-door open. This style of coop is inexpensive and light weight.

Several catching hooks should be hung at different places in the house. These can be made by bending one end of a No. 8 wire to form a hook. Nail the other end to a broom handle. Catching hooks can be bought very cheaply.

A roll of 2-inch mesh, 5-foot poultry wire, 12 to 15 feet long, nailed to light sticks 3 to 4 feet apart, can be used to surround 25 to 30 hens at a time, which makes catching easy.

Most of the loafers can be spotted at night by using a flashlight. The birds picked out this way can be cooped and rehandled in daylight. This method of culling has the advantage of not exciting the birds and saves labor.

If the entire flock is to be handled, it should be done in such a way as not to frighten or injure the birds. An easy way to handle a bird is to place the breast bone on the palm of the hand with her head facing you. By letting the bird rest in the palm of the hand with the first finger between her legs and the thumb over them, very little pressure is required to keep her in place. When birds are held in this position, it is easy to handle and judge them (Fig. 4).

HOW TO CULL

You must know the difference between a producer and a loafer if you are to cull accurately. This knowledge can be gained by studying the chart (page 15), and by handling the birds. It is easy to distinguish between the high and low producers. The medium producers are the ones that may give the culler some difficulty.

The rate of lay and the price of feed and eggs should be considered in culling. When the profit margin becomes less and is likely to remain so for quite awhile, more rigid culling should be practiced than when the reverse is true.

Comb and Wattles

There is a definite relation between the activity of the egg organs and the appearance and texture of the comb and wattles. When the hen is in heavy laying condition the comb and wattles become large, full, and glossy in appearance and feel warm and waxy. When production ceases and the ovary becomes dormant, the comb and wattles lose their gloss and fulness and have a dried, wilted appearance; a white scale or dandruff becomes noticeable, and the comb is cool and harsh to touch. The condition of the comb is one of the best guides to present production.

Pigment

This is the yellow coloring matter found in the skin, beak, and shanks of yellow-skin breeds. It comes from such materials as green feed and yellow corn. When a hen is not laying, this yellow material is laid down in various parts of the body, but when she begins to lay, the yellow pigment is stored in the yolk of the egg. As production continues, the pigment begins to bleach from the various parts of the body in a very definite order. Bleaching is first noticeable at the edge of the vent, where the color disappears in just a few days. The edges of the eyelid, commonly called the "eye ring," are next to lose their yellow pigment and bleach a little more slowly than the vent. This is followed by bleaching of the beak. The color fades at the base of the beak or corners of the mouth first and continues on out to the tip of the beak. The arch of the upper mandible is last to bleach. Four to six weeks of production are required to bleach the entire beak.

The shanks are last to lose their color. Four to five months of production are required to completely bleach the shanks. Usually the last part of the shank to be bleached is just below the feather line on the hock. A hen which has produced heavily for five or six months should show scarcely any pigment in the shanks.

After the hen goes out of production, the pigment returns to the various parts of the body in the same order in which it leaves, but much more rapidly.

Vent

The condition of the vent is a reliable guide to production. The vent of the laying hen is large, pale, moist, and tends to be oblong in shape. Contrast this condition with that of the hen which is out of production. The vent of the non-layer is small, contracted, dry and yellow. The hen on the left in Fig. 3 is in production, while the one on the right is out of production.

Pubic bones

The pinbones or pubic bones may also be used as a guide in judging present production. These thin, flat bones are found on each side of the vent. As a hen comes into production these bones become pliable and spread apart. They draw back together when she goes out of production. In Fig. 4 the hen on the left is in production. Three fingers' width is shown as the distance between her pinbones, while only two fingers may be placed between the pinbones of the hen on the right, which has quit laying.

Fig. 3.— The vent of the laying hen (left) and the non-layer (right).

Molt

The dropping of old feathers and growing new is called molting. This process is of value in judging "persistency" when culling. The order in which a molting hen drops her body feathers is neck, back, and breast. This body molt is followed in a few days by the molting

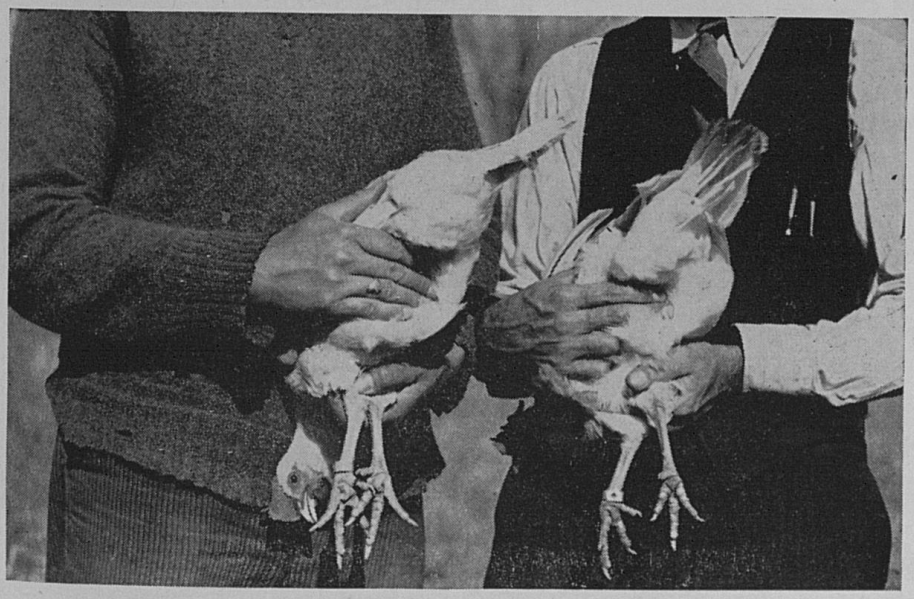

Fig. 4.— Measuring the space between the pubic bones of a layer (left) and non-layer (right).

of wing feathers. The wing molt is used in culling to determine how long the hen has been molting. The main feathers of the wing are divided into two sections called primaries and secondaries, separated by one feather which is known as the axial feather. The secondaries are those feathers which lie toward the body side of the axial; the primaries are those which extend from the axial to the tip of the wing. Usually there are ten of these.

The primary feathers are dropped, beginning with one next to the axial feather and continuing outward toward the tip of the wing. An early slow-molting hen usually drops one of these feathers at a time. About two weeks after the first feather is dropped, the second one molts and so on until all ten have been molted. It requires about 6 weeks for a feather to grow to maturity replacing the one dropped. About 60 percent of this growth takes place during the first three weeks and about 40 percent the second three weeks. Thus it is a relatively simple matter to estimate how long a hen has been molting.

Some hens molt much more rapidly than others. A hen which lays late into the fall molts rapidly. Usually late molters are the best producers and records show that they come back into production in the

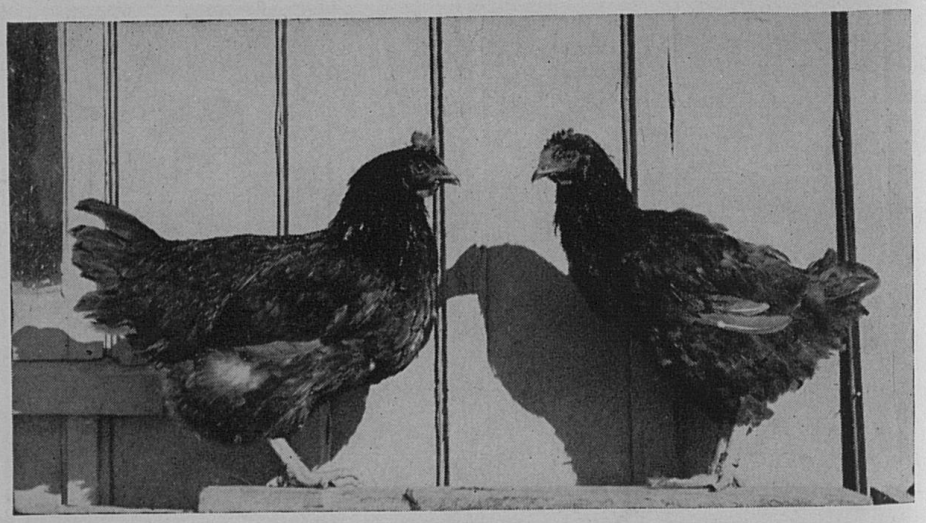

Fig. 5.— The early molter (left) is the poorer producer.

Fig. 6.— Rapid molt, five primary feathers molted at one time.

spring nearly as quickly as the early molters, thus taking a shorter vacation and laying more eggs.

The wing molt of an excellent producer is shown in Fig. 6. In this case five primary feathers were molted at once. In estimating how long a hen has been molting where several primary feathers are molted at once, the clip of feathers, in this case five, is considered as one. The new primaries are about two-thirds grown, indicating the wing molt has been in progress three or four weeks.

In contrast with the wing of the rapid molter, notice the wing of the hen in Fig. 7. In this case one feather has been dropped at a time. The two feathers at the top of the wing are old feathers which will be dropped later. The new feathers in an early stage of growth can be seen between the old and new feathers. This hen is shown in Fig. 5 also.

The plumage of a heavy producer is usually soiled, dry, and ragged in late summer and early fall. The plumage of the poor producer is smooth and neat in appearance.

Sickness, digestive disturbances, or drastic changes in management often cause a partial molt. Hens usualy recover from this rather quickly when conditions are readjusted to normal.

Fig. 7.— Slow molt, one primary feather molted at a time.

Fig. 8.— A wide back (left) compared with a narrow back.

Body conformation

In order that a hen may produce a large number of eggs she must lay at a high rate as well as over a long period of time. A large capacity is necessary for the egg organs, digestive tract, heart, and lungs. Thus the hen must have good body depth and width. The depth of the body should be measured by placing the thumb on the hen's back and the fingers of the same hand on the breast bone. Width of rib and back should be studied by placing the hand over the hen's back as shown in Fig. 8. Note the width of the back of the hen to the left in the picture compared with the one on the right.

Fig. 9.— The good producer has a deep abdomen compared with the poorer producer (right).

Depth of abdomen is shown in Fig. 9. This measurement is made by placing the fingers over the abdomen between the tip of the keel and the pubic bones. The hen on the left in this picture has good depth, space enough for four fingers, as compared with the more shallow hen measuring only two fingers in depth. This measurement varies somewhat on the same hen at different seasons because the keel bone has a tendency to spring downward as the hen comes into laying condition and draw up as the hen goes out of production.

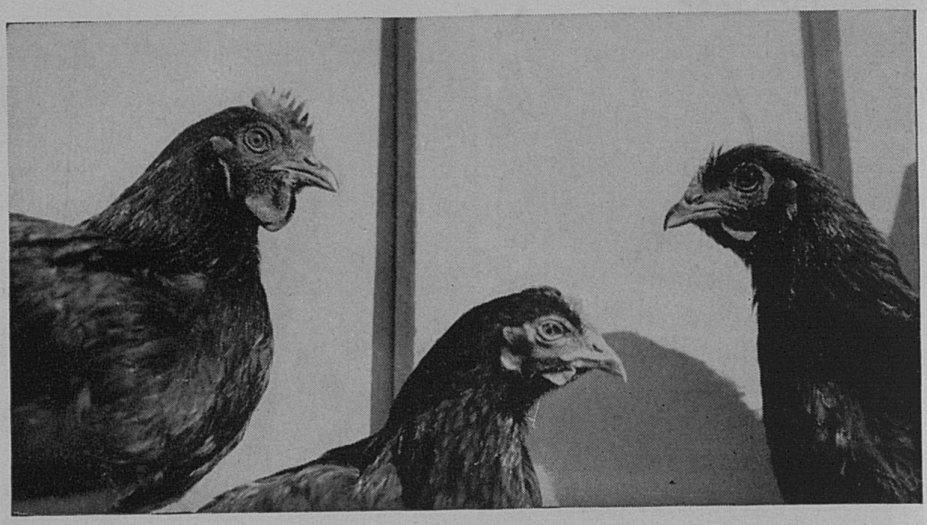

Fig. 10.— Head types: (left to right) good—poor—medium.

Handling quality

Quality or refinement is usually associated with high rate of production. Hens may be grouped as over-refined, refined, and coarse or beefy. Too much refinement is not so desirable because often it results in lack of stamina. The coarse, beefy type of hen is often sluggish and does not lay at a high rate.

Indications of quality are a thin, pliable skin, thin pubic bones, and a fine texture in the comb and wattles. The abdomen of a good hen when in production is full, soft and very pliable. There should not be deposits of heavy fat in the abdomen. The shanks of the heavy producers are flat, with scales of fine texture. The head also indicates quality. Fig. 10 shows three different head types. On the left, is the head of a pullet which has good quality. The eye is bright and prominent and the face is clean cut, free from wrinkles and excess fat. The center head typifies the cull, showing a dull listless eye, badly sunken, and to some degree fatty. This type of head is usually found on individuals with low vitality and poor production. The head on the right represents the beefy or coarse type. The upper and rear portions of the face area around the eye are fatty, as shown by the wrinkled appearance.

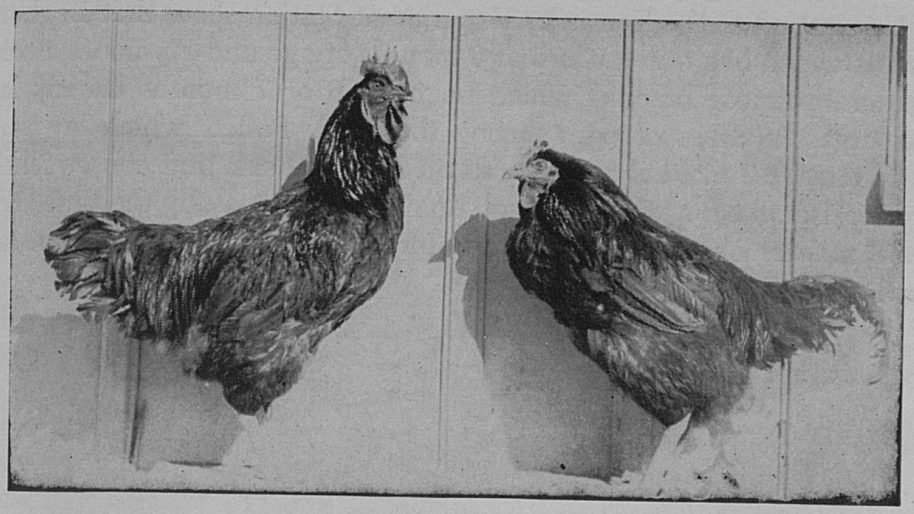

Fig. 11.— The alert, active appearance of the male on the left indicates vigor.

CULLING PULLETS

Pullets should be carefully culled before they are housed in winter quarters. At that time the pullets should be carefully culled on the basis of conformation and vigor. All immature, weak, or diseased stock should be discarded. Vigor is essential if the pullets are to be good producers of eggs capable of hatching vigorous chicks. The following are characteristic differences.

High Vitality	Low Vitality
Broad, deep head	Long, slim head (crow-head)
Bright, prominent eye	Dull, sunken eye
Long, deep, rectangular body	Short, shallow, round body
Strong, parallel legs	Knock-kneed
Stylish carriage	Droopy appearance
Active disposition	Lazy, sluggish disposition

Late-maturing pullets seldom make good layers. Careful records in trapnesting at the Kentucky Experiment Station show that Leghorn pullets which begin to lay at 5 or 6 months of age and Plymouth Rocks (general-purpose breeds) which begin at 6 or 7 months usually lay the largest number of eggs during the year. Pullets which lay very early (under 5 months) seldom attain sufficient size and consequently produce small eggs. Pullets which do not begin to lay by the time they are 8 months old seldom mature before mid-winter and may not lay until spring.

CULLING CHART

CHARACTERISTICS OF LAYERS AND NON-LAYERS

PRESENT PRODUCTION

Character	Layer	Non-Layer
Comb and wattles	Large, smooth, glossy soft, bright red	Small, rough, shriveled, dry, scaly
Face	Bright red	Pale, yellow tint
Vent	Moist, smooth, enlarged	Dry, puckered, shrunken
Pubic (lay) bones	Pliable, spread apart	Rigid, close together
Laterial processes	Pliable, becoming prominent	Rigid, less prominent
Abdomen	Expanded, becoming pliable	Contracted, hard, fatty

PAST PRODUCTION

Character	Long continuous laying period	Short laying period
Eyelids	White	Yellow tinted
Earlobe	White	Yellow tinted
Beak	White	Yellow, partly yellow
Shanks	White, fine, rather flat	Yellow, coarse, round
Plumage	Broken, soiled, worn	Smooth, not worn
Molting	Late, rapid, probably laying some	Early, slow, not laying

RATE OF PRODUCTION

Character	High Rate	Low Rate
Abdomen	Soft, pliable	Hard, fatty
Capacity of abdomen	Deep, 4 or more fingers	Shallow, 2 or 3 fingers
Body	Broad over ribs and back, deep from breast to back	Narrow over ribs and back, shallow
Pubic (lay) bones	Thin, pliable	Thick, fat deposits on ends
Skin	Soft, silky, pliable, free of fat	Harsh, thick, fatty

Cooperative Extension Work in Agriculture and Home Economics: College of Agriculture and Home Economics, University of Kentucky, and the United States Department of Agriculture, cooperating. Frank J. Welch, Director. Issued in furtherance of the Acts of May 8 and June 30, 1914.

Lexington, Kentucky

June, 1958

10M—6-58