UNIVERSITY OF KENTUCKY

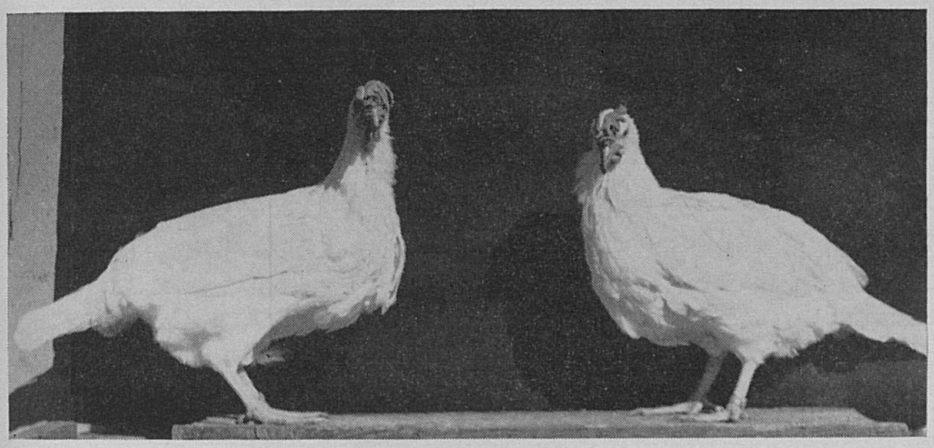
COLLEGE OF AGRICULTURE

Extension Division

THOMAS P. COOPER, Dean and Director

CIRCULAR 330

CULLING FARM POULTRY



GOOD PRODUCERS
These five-year-old hens have laid a total of 1636 eggs.

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CULLING CHART

PRESENT PRODUCTION

Character	Laying Hen	Non-laying Hen
Comb and wattles	Large, glossy, red, smooth, soft	Small, pale, scaly, rough, harsh
Pubic bones	Wide spread, pliable	Close together, hard
Vent	Large, oblong, moist	Small, round, dry

PAST PRODUCTION

Character	Long Laying Period	Short Laying Period
Vent	Bluish white	Flesh colored
Eyelids	Edges white	Edges yellow
Beak	Completely faded white	Yellow tinted
Shanks	White, flat, fine scale	Round, yellow, coarse
Plumage	Worn, broken and soiled	Molting, new plumage

RATE OF PRODUCTION

Character	High Rate	Low Rate
Capacity of abdomen	Deep, 4 or more fingers	Shallow, 2 fingers deep
Skin	Soft, pliable, silky, free from fatty deposits	Thick, harsh, underlaid with fat
Abdomen	Soft, pliable	Hard, fatty
Pubic bones	Thin, pliable	Thick, fatty deposits on ends
Body	Deep, broad over ribs and back	Shallow, narrow over ribs and back

Culling Farm Poultry

By Stanley Caton*

EFFICIENCY OF PRODUCTION is one of the most important means of making the poultry flock profitable. One method of increasing the efficiency is to dispose of poor producers and individuals having undesirable characteristics that may be passed on to their offspring. The culling process should begin when eggs are selected for hatching and be continued until the usefulness of each individual bird has terminated. Constant culling and selection should result in a flock which produces desirable offspring.

IMPORTANCE OF CULLING HENS

Culling the hen flock is of much economic importance. It has been estimated that production of 90 to 100 eggs is necessary to pay for the feed and upkeep of a hen. The more eggs produced over this number the more profitable a hen will be. Generally a flock of hens can be divided into three groups; poor producers, medium producers, and good producers. The knack in culling is to be able to distinguish fairly accurately between these three groups so that the poor producers may be disposed of. The sooner poor producers are removed the more profitable the flock will be.

FACTORS AFFECTING ACCURACY IN CULLING

Inasmuch as culling is dependent upon certain physical characters that change from time to time, every effort should be made to have conditions favorable if culling is to be accurate. The high egg-laying ability of a hen is dependent upon breeding; the kind of management a hen is subjected to determines the degree to which she can express this inherited egg-laying ability. Lack of proper feed will make a good hen look like a cull as far as pigment and molt are concerned. Keeping growing stock well fed during the growing period has a decided effect on reducing the number of cull pullets found in the flock at housing time. Thus, if culling is to be accurate, the flock should be well fed, well housed, free from lice and mites, and relatively free from internal parasites and disease infections.

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* Photographs by Dr. James H. Bywaters.

WHEN TO CULL

Culling should be practiced at all times of the year, but it is not necessary nor practical to handle the entire flock of hens except in the summer and early fall. July, August, and September are the months when special attention should be given to culling the laying flock, and during this period it is advisable to handle the entire flock once a month and remove the non-layers. Handling the flock in late September or early October should be done with the view of selecting possible breeders for another year. In making this last culling, breed type, health, vigor, and size should be considered as well as egg-producing ability.

EQUIPMENT

Two pieces of equipment which make culling easier are a catching coop and a wire catching hook. The coop should be large enough to hold ten or twelve hens. A sliding door on one or both ends is desirable. If the coop has doors on both ends, several coops can be placed end to end and the hens driven thru to the other, thus holding a large number at one time.

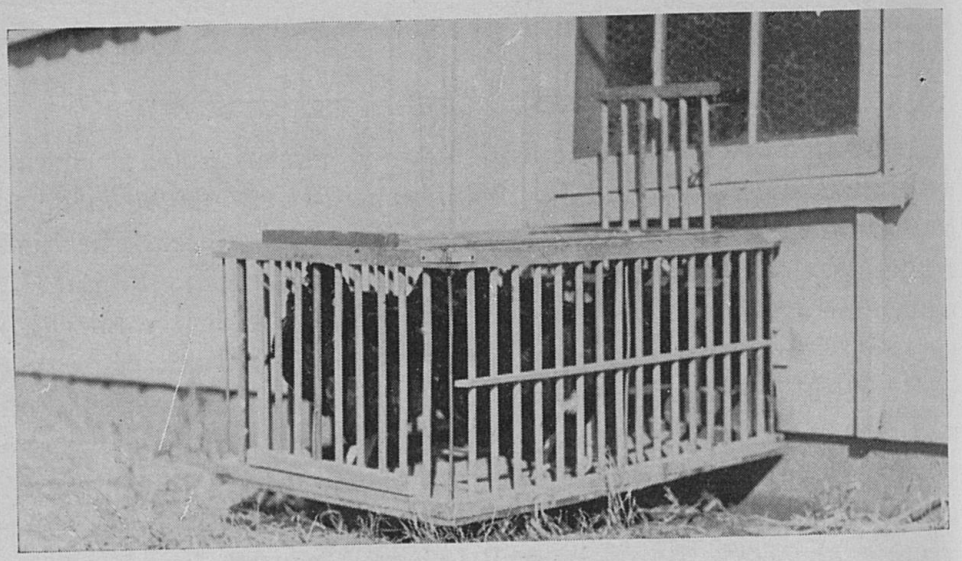

FIGURE 1. The catching coop in use

The wire hook should be made of No. 8 wire and should be about four feet long. These hooks can be made easily, and one or

two should be left hanging in the poultry house for use at any time. For those who desire to make their own hooks and catching coops the plans may be found in Kentucky Extension Circular No. 351, "Housing Farm Poultry."

FIGURE 2. Catching coop with end doors and the trap-door open. This type of coop is inexpensive and light weight.

Care should be taken not to frighten the hens and they should be handled carefully to avoid internal injuries. After the birds are driven into the coop they may be removed thru the trap-door in the top. The hen should be held in such a manner as to be comfortable, thus keeping her quiet, and at the same time easily handled by the one who is culling. One method is to place the bird on the hand with the keel or breast bone resting on the palm. The head of the hen should be toward the person holding her. The legs are held by placing one between the thumb and first finger and the other between the first and second finger. Very little pressure is required to hold the bird quietly and securely in this position.

HOW TO CULL

To do a thoro job of culling, three things must be observed: present production, persistency, and intensity or rate of production.

Present Production. It is relatively easy to determine whether or not the hen is in production at the time of handling.

Vent. The condition of the vent is a reliable guide. 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 figure 3 is in production, while the one on the right is out of production.

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

Pubic Bones. The pinbones or pubic bones may also be used as a guide in judging present production. These thin, flat bones are found one 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 figure 4 the hen on the left is in production. Three fingers' width is shown as the distance between her pin bones, while only two fingers may be placed between the pin bones of the hen on the right which has ceased to lay.

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.

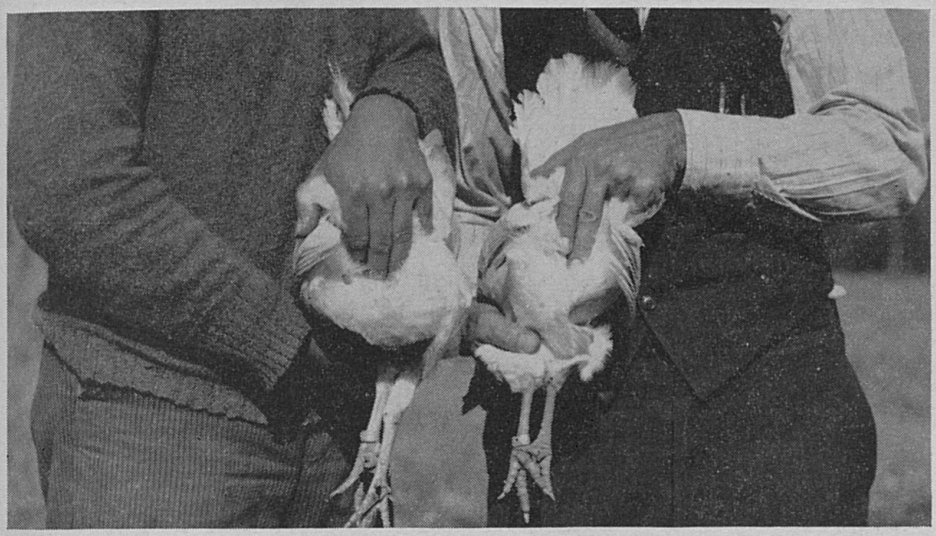

FIGURE 4. Measuring the space between the pubic bones of a layer (left) and non-layer (right).

Persistency. This is the ability of the hen to lay for a long period of time. Hens which cease production in July lack persistency, while those producing thru the summer and fall are persistent producers. Pigment and molt are two characters which are of value in determining which hens to keep and which to sell.

Pigment. This is the yellow coloring matter found in the skin, beak and shanks of yellow-skin breeds. It is derived 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 is diverted to the yolk of the egg when the hen begins to lay, where it is stored in the tiny fat globules of the yolk instead of in body tissue. As production progresses 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.

FIGURE 5. A good producer as she appeared in November

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 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.

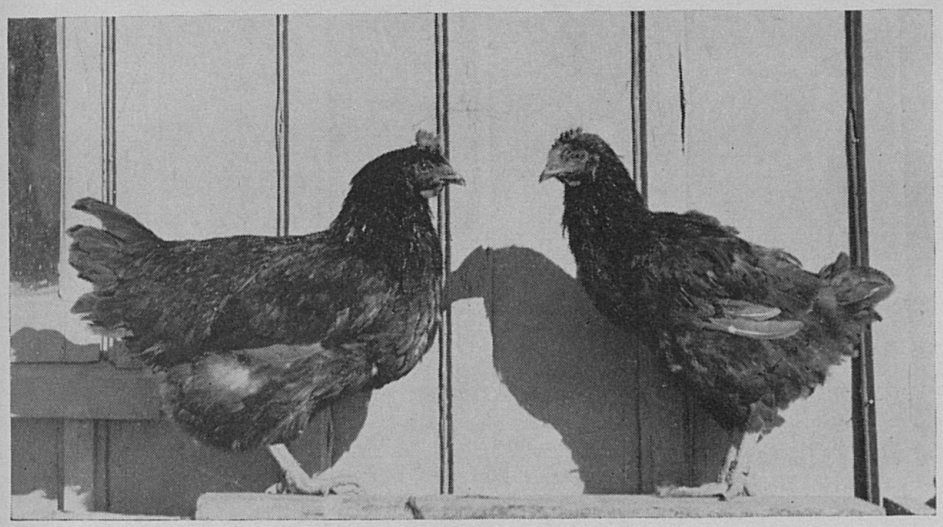

FIGURE 6. The early molter (left) is the poorer producer.

Some hens molt much more rapidly than others. A hen which lays late into the fall molts rapidly. Figure 5 shows a late as well as rapid molter. This picture was taken about the middle of November. Note the new feathers coming in over the neck and back. Figure 6 shows this same hen contrasted with an earlier molter which has grown a complete set of new feathers. Usually late molters are the best producers and records show that they come back into production in the spring nearly as quickly as the early molters, thus taking a shorter vacation and laying more eggs.

The wing molt of the excellent producer is shown in figure 7.

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,

FIGURE 7. Rapid molt, five primary feathers molted at one time.

FIGURE 8. Slow molt, one primary feather molted at a time.

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 figure 8. In this case one feather has been dropped at a time. The two feathers at the tip 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 figure 6 also.

The plumage of a heavy producer is usually soiled, dry and ragged in the 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 usually recover from this rather quickly when conditions are readjusted to normal.

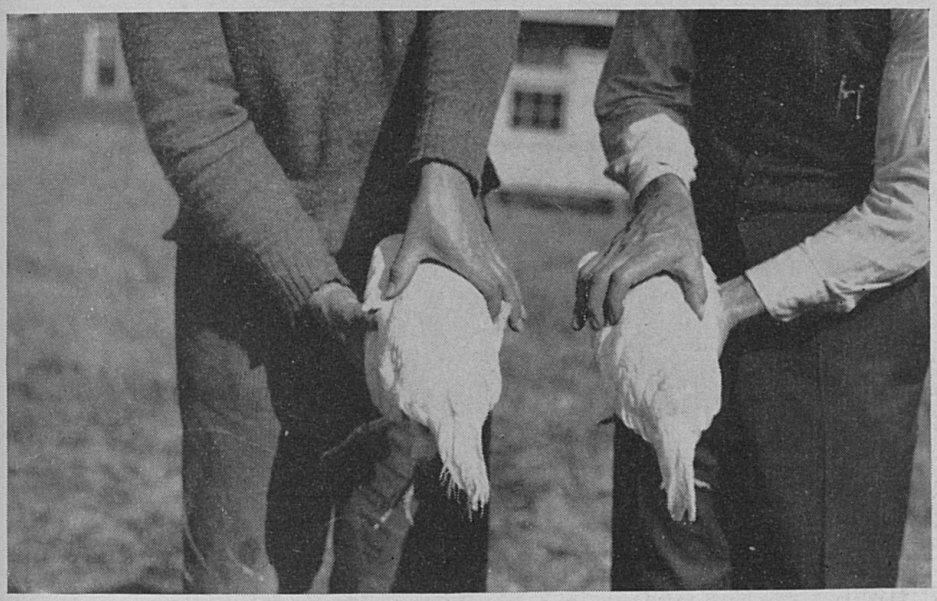

FIGURE 9. A wide back (left) compared with a narrow back.

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 figure 9. Note the width of the back of the hen to the left in the picture compared with the one on the right.

Depth of abdomen is shown in figure 10. 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.

FIGURE 10. The good producer has a deep abdomen compared with the poorer producer (right).

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. Figure 11 shows three different head types. On the left, 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.

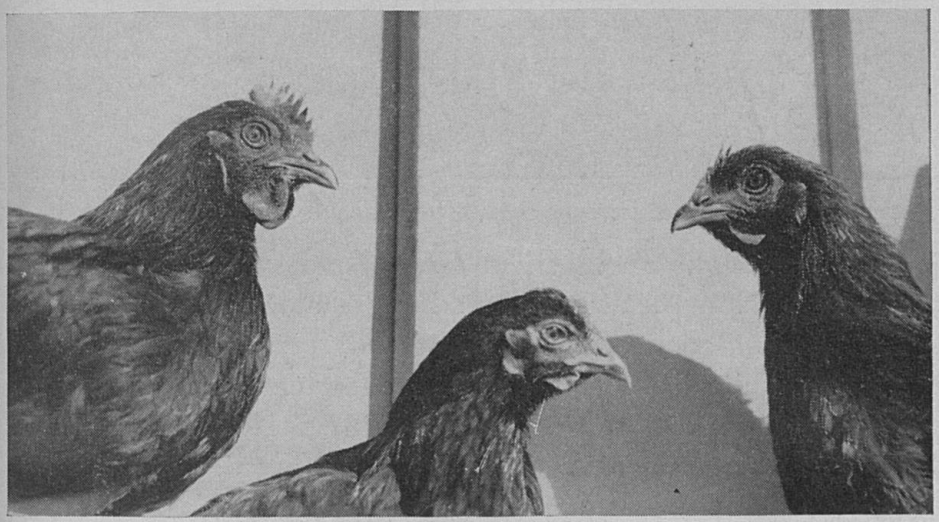

FIGURE 11. Head types (left to right) good—poor—medium.

SELECTING BREEDING MALES

Great care should be taken in selecting breeding males. If they are to be selected from the growing stock on the farm, twice as many should be kept at broiler size as will be needed in the flock in the fall of the year. These may be culled until the correct number is on hand. This system provides better males than if the slow-growing, slow-feathering males are kept for breeders. Vigor is the first essential to be observed. Select males that are active and alert. A vigorous male has a deep, broad head, free from fatness, with a bright, prominent eye. The body should be deep and broad, the

legs medium in length and placed squarely under the body. Avoid using the narrow, knock-kneed type of male. Rapid growth and rapid feathering are both inherited characters and selection for them should be kept in mind when cockerels are being culled.

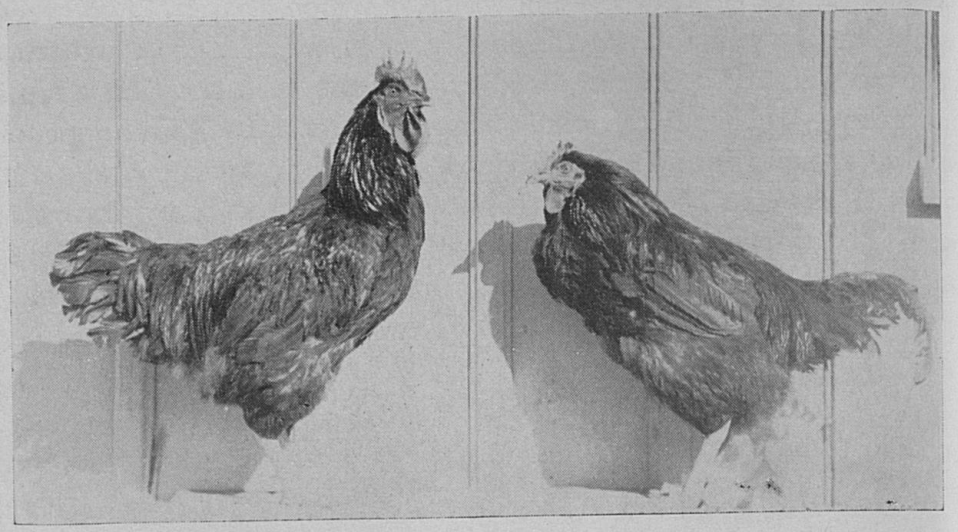

FIGURE 12. The alert, active appearance of the male on the left indicates vigor

Figure 12 shows an excellent type of male (left) and the cull type (right). Note the alert up-standing form of the desirable male. This bird has a good head and good body type. The poorer type male has a shallow body and is particularly narrow over the back.

Male birds which are to be kept for breeders should be reasonably true to the type and color typical of the breed.

CULLING PULLETS

Careful culling of pullets before housing in winter quarters should be practiced. 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
1. Broad, deep head	Long, slim head (crow-head)
2. Bright, prominent eye	Dull, sunken eye
3. Long, deep, rectangular body	Short, shallow, round body
4. Strong, parallel legs	Knock-kneed
5. Stylish carriage	Droopy appearance
6. 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.

SELECTING EGGS FOR HATCHING

Egg size, color and shape are inherited characteristics. Very long eggs and round eggs should not be used for hatching. Tinted eggs should be avoided when white-shell eggs are preferred on the market. Size is an important factor in market eggs, therefore eggs for hatching should not be smaller than 23 ounces to the dozen, in order to maintain and improve size.

20M—3-39
20M—6-41