

Kentucky 4-H Poultry Judging Contest



Evaluating Past Production Hens

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Classes and Scoring

In the Kentucky 4-H poultry judging contest there are two classes of past production hens. Each class has four hens that need to be ranked from the hen that has laid the most eggs to the hen that has laid the least. Once the ranking has been determined that order is circled on the score card as shown in Figure 1. For the second class of past production hens, participants will be required to give a set of oral reasons explaining their ranking. See the separate Factsheet on giving oral reasons.

Contestant #: J-21
Name: JOHN DOE
County: Calloway
KENTUCKY 4-H POULTRY JUDGING EVENT

CLASS A: Production Hens – placing only

Directions: Below are all the possible placings for a ring of four hens. Draw a circle around the placing which you consider correct for the ring of hens you are judging.

A = 1-2-3-4
B = 1-2-4-3
C = 1-3-2-4
D = 1-3-4-2
E = 1-4-2-3
F = 1-4-3-2

G = 2-1-3-4
H = 2-1-4-3
I = 2-3-1-4
J = 2-3-4-1
K = 2-4-1-3
L = 2-4-3-1

M = 3-1-2-4
N = 3-1-4-2
O = 3-2-1-4
P = 3-2-4-1
Q = 3-4-1-2
R = 3-4-2-1

S = 4-1-2-3
T = 4-1-3-2
U = 4-2-1-3
V = 4-2-3-1
W = 4-3-1-2
X = 4-3-2-1

Score: _____ / 100

Contestant #: J-21
Name: JOHN DOE
County: Calloway
KENTUCKY 4-H POULTRY JUDGING EVENT

CLASS B: Production Hens – with reasons

Directions: Below are all the possible placings for a ring of four hens. Draw a circle around the placing which you consider correct for the ring of hens you are judging.

A = 1-2-3-4
B = 1-2-4-3
C = 1-3-2-4
D = 1-3-4-2
E = 1-4-2-3
F = 1-4-3-2

G = 2-1-3-4
H = 2-1-4-3
I = 2-3-1-4
J = 2-3-4-1
K = 2-4-1-3
L = 2-4-3-1

M = 3-1-2-4
N = 3-1-4-2
O = 3-2-1-4
P = 3-2-4-1
Q = 3-4-1-2
R = 3-4-2-1

S = 4-1-2-3
T = 4-1-3-2
U = 4-2-1-3
V = 4-2-3-1
W = 4-3-1-2
X = 4-3-2-1

Score: _____ / 100

Figure 1. Examples of filled out score cards for the two classes of past production hens in the Kentucky 4-H poultry judging class.

In the ‘real world’ why is it important to judge chickens for their level of productivity?

Most flocks of egg laying hens go through the same typical production curve (see Figure 2). The flock quickly peaks in egg production and then slowly reduces its level of egg production. It is important to remember, however, that not all the hens in a flock will be laying at the same rate. Some hens may never lay a single egg while others may go out of production earlier than the rest of the flock. Economically it would be helpful to find such hens and remove them from the flock.

Past egg production is based on the loss of pigment from the skin and shanks of the hens. This evaluation method can be used for any breed that has yellow-pigmented skin and

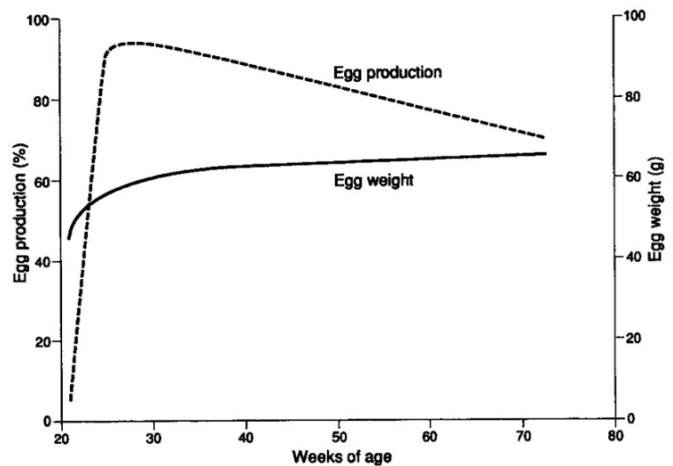


Figure 2. Typical production curve for an egg laying flock.

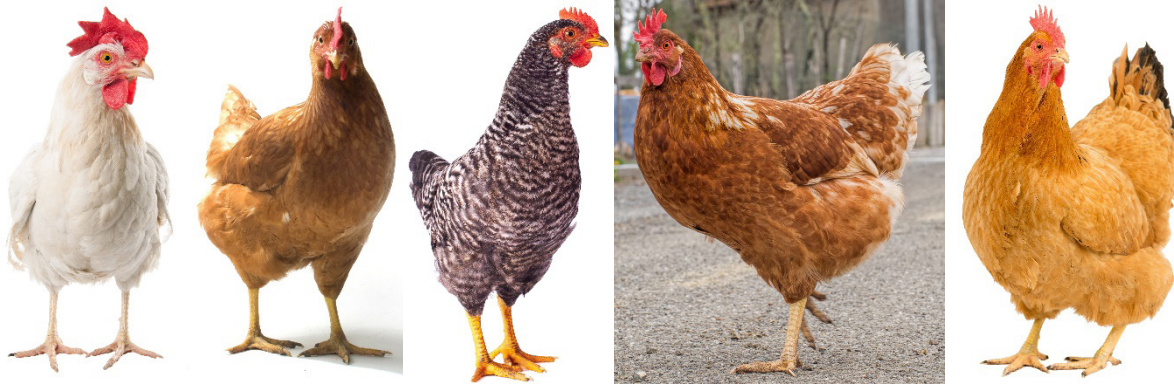


Figure 3. Examples of breeds with yellow skin and shanks (Left to right: Leghorn hybrid, Red sex-linked, Barred Plymouth Rock Rhode Island Red, and New Hampshire). Only single comb white leghorns will be used in the 4-H poultry judging contest.

shanks. In the state and national 4-H poultry judging contests, Single Comb White Leghorn hybrids are used for the egg production classes. For practice, however, other breeds having yellow-pigmented skin and shanks can be used if Leghorns are not available. Examples of breeds commonly raised in small flocks that may be available for practice include the Red sex-links or breeds in the American class like the Plymouth Rocks, Rhode Island Reds, or New Hampshires (see Figure 3).

Terminology

In order to be able to evaluate laying hens for level of past egg production, it is important to know the names of the parts of a hen (see Figure 4). As the name implies, the eye ring surrounds the eye. The ear canal is on each side of the eye behind and below the eye and is covered with feathers. The ear lobe is the flesh underneath the ear canal. The main part of the leg is referred to as the shank. Chickens have four toes on each foot, three in the front and one in the back. The hock is the joint between the top of the shank and the bottom of the drumstick.

Evaluating a Class of Past Production Hens

In the 4-H poultry judging contest, participants are required to evaluate four live laying hens (see Figure 7) and rank them according to which has laid the most eggs to the which has laid the least. The laying hens are judged on:

- past production and
- current production factors.

Past Production

The past production factor is **pigment loss** or **bleaching** from the skin and shanks of the hen. Yellow pigment is deposited in the skin, beak, shanks, and toes while a chicken is still an immature pullet. This can be seen in Figure 4 with the dark yellow color of the beak, eye ring, shanks, and toes. In young pullets there can also be a tinge of yellow in the ear lobes. The yellow color of the skin is from pigment in the feed. In the United States, the pigment is primarily from yellow corn (see Figure 5). The yellow pigment is added as new skin cells are produced. New skin cells are constantly being produced as old ones are sloughed off. Once a pullet starts laying eggs, the yellow pigment from the feed goes into the egg yolk (see Figure 6) rather than into the skin. As a result, the yellow color of the skin begins to fade. This is referred to as 'bleaching.' The more eggs that a hen has laid, the less yellow pigment remaining in

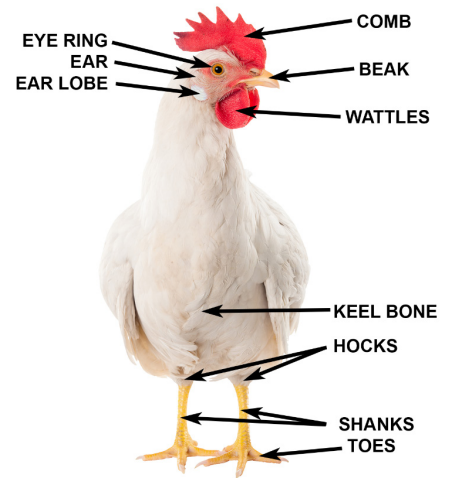


Figure 4. Single Comb White Leghorn pullet with parts identified. Note the yellow in the shanks.



Figure 5. Yellow corn kernels.

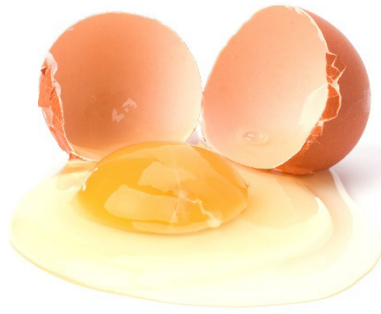


Figure 6. Broken out egg showing yellow yolk.



Figure 7. A class of past production hens at the Kentucky state poultry judging contest

the skin and the more bleaching that has occurred.

The bleaching of pigment occurs in a particular order. It starts with the skin of the vent, then the eye ring, ear lobe, beak, bottom of the feet, shanks, hock, and tops of toes. Learning the order of pigment loss is critical to evaluating a group of hens.

When a hen goes into a molt and stops laying eggs, pigment is returned to the skin in the same order it was bleached. That is, vent, eye ring, ear lobe, beak, the bottom of the feet, entire shank, hock, and tops of toes. Hens that show signs of regaining pigment tend to be poor producers.

Current Production

Current Production factors indicate the hen's current rate of egg production. The factors of importance are **abdominal capacity, abdominal fat condition** and **molt**.

Health and vigor are indicated by the shape and brightness of the eye, the proportional shape of the head, and the condition of the comb and wattles. Health and vigor are NOT used in placing the hens but are suggested as describing factors when giving oral reasons on a past production class.

The specific order of importance for factors when placing a class of past production hens is:

- Pigment loss/bleaching
- Abdominal capacity
- Abdominal fat condition
- Molt

Pigment Loss/Bleaching

As already stated, the most important factor in determining past egg production is the loss of pigment from the skin and shanks of the hen. This is referred to as bleaching. The order of pigmentation loss is:

- Vent
- Eye ring, Ear lobe and Beak (corner of the mouth toward the tip)
- Bottom of the feet
- Pigment loss over the entire shank (front, back, and sides)
- Hock and tops of toes

Vent

The first place where pigment is lost is the vent. The vent is located at the rear of the chicken as shown in Figure 8. A hen that has been producing eggs will have very little yellow remaining in the skin around the vent. As shown in Figure 9, the hen on the left still has yellow remaining



Figure 8. Location of the vent on a chicken.



Figure 9. Examples of vents with poor bleaching (left) and good bleaching (right).

in the vent. She has either laid few, if any eggs, or has been laying eggs and has gone out of production, putting pigment back into the vent (since pigment is replaced in the same order it was removed). The vent of the hen on the right has been bleached of pigment indicating she has laid more eggs than the other hen.

Eye Ring, Ear Lobe, and Beak

After the vent, pigment is lost from the eye ring, ear lobe and beak. Figure 10 compares a hen with pigment still clearly visible in the eye ring and beak, and a tinge of yellow in the ear lobe with a hen with no pigment remaining in the face.

Bottom of the Feet, Shanks, Hock, and Tops of Toes

After pigment has been bleached from the face, the next place that pigment is lost is bottom of the feet. Pigment is then lost from the front, side and back of the shanks. Figure 11 shows hens with varying levels of pigment



Figure 10. Hen with considerable pigment remaining in the eye ring and beak and with a tinge of yellow in the ear lobe compared with a hen with no pigment remaining in the eye ring and beak and pearly white ear lobe.

remaining in the front of the shanks. The amount of pigment remaining decreases going from left to right. The hen on the far right, therefore, has laid the most eggs.

It is not uncommon for a hen that looks totally bleached in the shanks to have a few bright yellow scales at the base of the shank (see Figure 12). It is important to consider the overall degree of pigment in the entire shank,

not just a few bright yellow scales at the base. A hen with pearly white shanks and a few bright yellow scales at the base should be placed over a hen with pale yellow in the shanks and scales that might not be as bright at the base. So, do not consider the scales at the base of the shank as the main factor unless all other parts have a similar level of bleaching.



Figure 11. Front of the shanks of hens with varying levels of pigment remaining.



Figure 12. Well bleached front of shanks and tops of toes, but with a few dark yellow scales at the base of the shank.



Figure 13. Back of the feet showing varying levels of pigment remaining in the bottom of the feet, back of the shank, and the hock of three different hens.

Figure 13 shows the bottom of the feet, the back of the shank, and the hock of the same three hens as in Figure 11. Again, the level of pigmentation remaining in the bottom of the feet, back of the shanks, and the hock decreases going from left to right indicating that

the hen on the far right has laid the most eggs while the one on the left has laid the least.

Aside from the front and back of the shanks, it is also important to look at the sides of the shanks for the amount of pigment remaining (see Figure 14).



Figure 14. The sides of the shanks of hens with varying levels of pigment remaining.

Abdominal Capacity

If two hens in a class have identical levels of pigmentation remaining, the tie is split based on the current level of production. The first factor to consider is **abdominal capacity**. The abdominal capacity of the four hens is compared by measuring the distance between the pubic bones (abdominal width) and between the pubic bones and the tip of the keel (abdominal depth) using your fingers (Figure 15). Although finger size will vary from person to person, as long

as the same person measures all four hens it gives you the **relative size** of each hen (Figure 16).

Remember that your placing of the hens should be based first and foremost on pigmentation level. The more bleaching the more eggs the hen has laid and higher up in the ranking she will be placed. Hens with identical bleaching are split on abdominal capacity.

All hens should be evaluated for abdominal capacity in order to discuss current production in oral reasons.

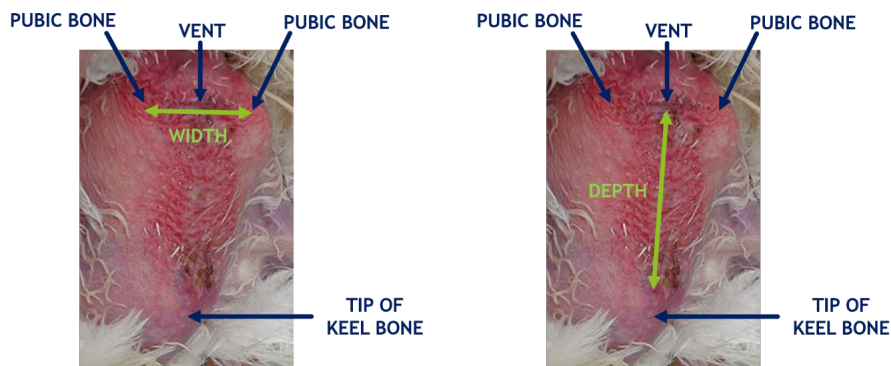


Figure 15. View of the area around the vent of a chicken showing the location of the vent, pubic bones, and tip of the keel.

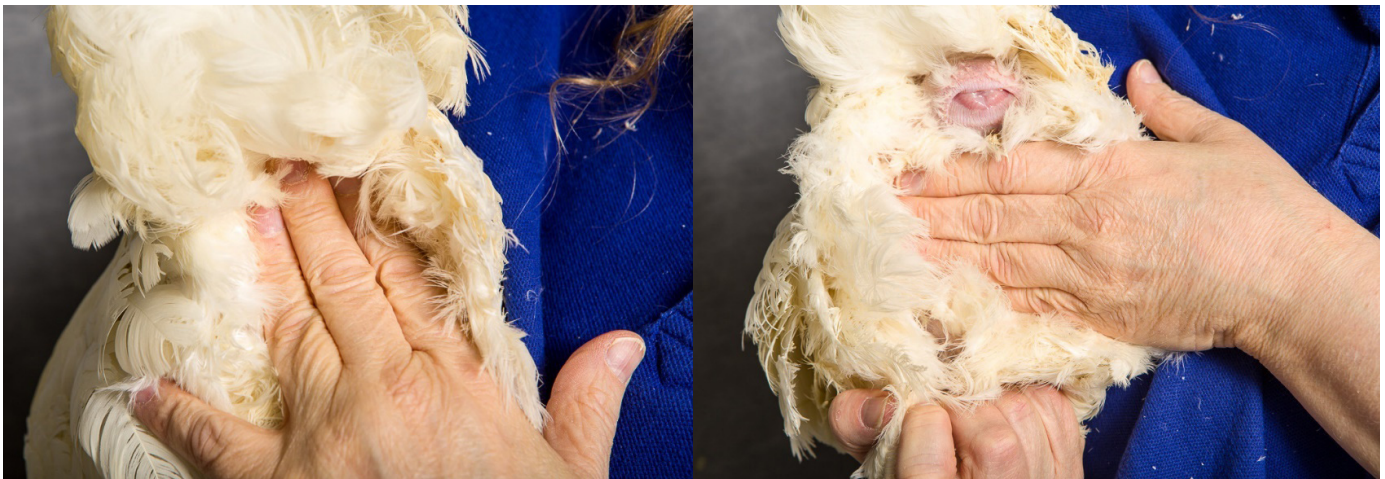


Figure 16. A hen with a 3-finger width (top photo) and a 4-finger depth (bottom photo).

Abdominal Fat Condition

If a pair of hens have equal pigmentation and equal abdominal capacity, they are split on abdominal fat condition. This refers to the amount of fat she has in her abdominal fat pad. A hen uses the energy in the feed she eats to produce eggs. If she is not laying eggs, she does not require as much dietary energy and much of the energy from the feed she eats is deposited as fat. This fat is deposited under the skin and in a fat pad located in the abdomen (see Figure 17). The amount of fat in the abdomen, therefore, is a good indicator of the hen's level of production.

The level of fat in the abdomen is evaluated by pinching the skin on the abdomen between the vent and the tip of the keel (see Figure 18). Pinch and roll the skin gently between your thumb and finger to feel its thinness. Feel the softness

or hardness of the abdomen. Softness and thinness indicate a lack of fat in the abdominal area, which is a good thing. Hardness and thickness indicate fat in the abdomen. A soft, pliable abdomen will feel like you are pinching and rolling the skin on your cheek.

Remember that your placing of the hens should be based first and foremost on pigmentation level. Hens with identical bleaching are split on abdominal capacity with the hen with the larger abdominal capacity being placed highest. If a pair of hens have identical bleaching and identical abdominal capacity, the pair are placed on abdominal fat condition with the hen with the least abdominal fat being placed highest.

All hens should be evaluated for abdominal fat condition in order to discuss current production in oral reasons.



Figure 17. Photograph showing the fat pad of a laying hen.



Figure 18. Examples of hens with a lot (left photo) and very little (right photo) of abdominal fat.

Molt

Molt is the last factor used to place a pair of past production hens. A hen that has not molted has ten primary feathers separated from the secondary feathers by a shorter feather known as the axial feather (see Figure 19).

Hens in a molt lose their primary wing feathers starting with the feather closest to the axial feather and moving outwards. Old feathers that have not molted will be worn on the ends and may be dirty and/or broken. Replace-

PRIMARY FEATHERS

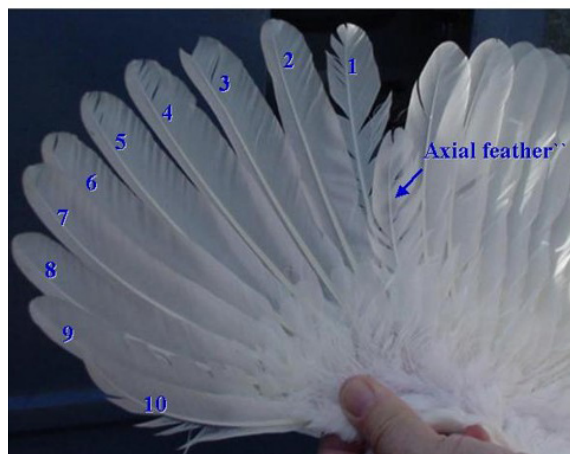


Figure 19. Wing spread out to show the 10 primary feathers separated from the second feathers by the shorter axial feathers.

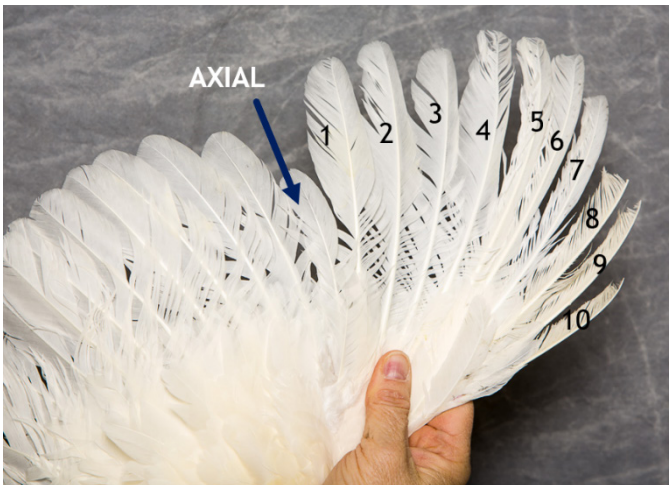


Figure 20. Wing from hen with a 7-feather molt with feathers 1-7 are new feathers and feathers 8-10 are old non-molted.



Figure 21. Wing from a hen with a 6-feather molt with four old feathers (7-10), missing feather 6, and five new feathers (1-5).

ment feathers are typically smooth and clean.

Figures 20 and 21 show examples of different stages of molt. In Figure 20 the hen has gone through a molt and replaced feathers 1 to 7. Feathers 8-10 are old feathers that have not molted. Similarly, in Figure 21, the hen has four old feathers (feathers 7-10), has molted feathers 1-6 but has only replaced 1-5 of them.

Typically, when a hen is in molt she goes 'out of production' (i.e., stops laying eggs) although some hens will continue to lay while molting, but usually at a reduced rate.

As previously mentioned, when a hen goes out of production pigmentation returns to the various parts of the skin in the same order that it was lost. It is possible, therefore, to have a hen bleached all the way through to the back of the shanks but still have yellow pigment in her vent. So, if you are examining a hen that is bleached through the shanks, but you notice she has gone through a molt, it is good to check the vent and face to make sure there isn't any pigment re-deposited in the skin during the molt.

All hens should be evaluated for molt in order to discuss current production in oral reasons.

Summary

When placing a class of hens in a poultry judging contest the first criteria to evaluate is the level of pigmentation since it is the indicator of the level of past egg production. The hen with the least amount of pigment remaining is always the hen at the top of the class. Conversely, the hen with the most amount of pigment remaining is always the hen at the bottom of the class. If two hens have equal pigmentation, the tie is broken on the basis of abdominal capacity, and if needed, on abdominal fat condition and molt.

All hens should be evaluated for abdominal capacity, abdominal fat condition and molt in order to discuss current production in oral reasons.