

Common egg shell quality problems

By: [sumi](#)

Posted 8/27/13 • Last updated 10/26/13

Approximately 2% of all chicken eggs has some defect, ranging from minor, barely noticeable faults to downright alarming deformities. So the chances are pretty good that most, if not all flock owners will at some stage find an irregular egg. This article is about the most common egg irregularities and problems and their causes. To help us understand these problems and how they occur, let's first look at how an egg is formed:

How an egg is formed

An egg is formed over a period of about 25 hours. The egg yolks are formed in the hen's ovary. Hens, unlike most animals, have only one functional ovary, the left one. At the time of hatch each female chick will have up to 4 000 tiny ova, from some of which yolks may develop when the hen matures. At any given time, an active layer will have a number of yolks in her ovary, in different stages of development. It takes around 10 days for an egg yolk to mature, after which it gets released into the funnel (infundibulum) where, if live sperm are present, it will be fertilised. This process takes about 15 minutes. Next, the yolk moves down into the magnum, where inner and outer shell membranes are added, as well as water and mineral salts. This process takes about 3 hours. The yolk then moves into the isthmus, where albumen (egg white) is secreted and layered around the yolk. This process takes about an hour. Next the partly formed egg moves into the uterus, or shell gland, where it will receive it's shell. Initially some water is added, thinning the outer layer of albumen. Then the shell material, mostly calcium carbonate, is added, followed by pigments, if a coloured egg is produced. For example a brown, blue or green egg. This process takes about 21 hours. Once this process is complete, the egg passes through the vagina and is laid by the hen. This final process takes less than a minute.

Common egg shell quality problems

1. White banded egg.

These eggs are the result of two eggs entering and making contact with each other in the shell gland pouch. When this happens, normal calcification (egg shell formation) is interrupted and the first egg that entered the pouch will get an extra layer of calcium, seen as the white band marking.



Causes for this can be:

- Stress in the flock;
- Changes in lighting, for example adding artificial light in the coop to encourage laying over winter;
- Diseases such as infectious bronchitis.

2. Blood on egg shell.

This can be anywhere from a few spots to a smear to an alarming amount of blood.

Causes can be:

- Small blood vessels ruptured in the hen's vagina from excessive straining. This is more common in young pullets coming into lay and overweight hens.
- Cannibalism, vent pecking.
- Sudden big increase in length of daylight (when supplementing light in winter months).
- A mite/lice infestation around the vent.



3. Body checked egg.

These eggs' shells got cracked during the calcification process and had a layer of calcium deposited over the crack before the egg was laid. Some body checks are covered by a thick layer of calcium, forming a noticeable ridge or band around the egg. Body checks will increase if the hens are excited or gets startled late in the afternoon/early evening, when the egg shell formation process begins.



Causes of body checks are:

- Stress and overcrowding;
- The hen's age. There is a higher incidence in body checked eggs from older layers.

4. Broken and mended egg.

These are similar to body check eggs. The egg shell got cracked during the calcification process and mended just before being laid.

Cause:

- Stress, frights or disturbance during the calcification process.



5. Misshaped or odd shaped eggs.

These eggs differ from the normal shape and/or size and can be either too large, too small, round instead of oval or has major changes in the shape. Shapes can range from minor, barely noticeable to grossly mis-shaped.

Causes are:

- Immature shell gland (young layers);
- Defective shell glands;
- Disease such as infectious bronchitis;
- Stress, frights, or disturbances;
- Overcrowding in coop and/or run.



6. Calcium deposits. These egg shells have white coloured, irregularly shaped spots deposited onto the external surface of the shell. It can range from a few spots to a severe deposit.

Causes are:

- Defective shell glands;
- Disturbances and/or stress during the calcification process;
- Poor nutrition, for example excess calcium in the hen's diet.



7. Lack of pigment or uneven pigmentation on egg shells.

The causes for this can be:

- Poor nutrition. A deficiency in any of the main nutrients, protein, minerals etc in the hens' diet can influence shell colour and formation. Zinc, copper and manganese are thought to be especially important in transporting pigment onto the shell. It has been suggested that a magnesium supplement can improve shell colour:
- Viral infections. Infectious bronchitis and its variants, Newcastle disease, egg drop syndrome and avian influenza can cause damage to the oviduct, resulting in loss of shell colour and other problems:
- Internal and external parasites. A heavy infestation of roundworms and or capillaria worms as well as red mites, when present as a heavy infestation, can have an adverse effect on egg quality and may cause pale shells;
- Drugs. The coccidiostat drug, Nicarbazin, if present in feed, can interfere with egg shell pigmentation;
- The hen's age. An older layer will often produce eggs with paler shells, as well as a hen who had been laying intensively over a long period;
- Stress. Physical stresses, environmental stresses or nutritional stresses can all interfere with shell pigmentation;
- Exposure to sunlight and high temperatures can produce a fading effect on the shell.



8. Calcium coated egg. These eggs have an extra, powdery layer of calcium, covering either the entire egg, or just one end of the egg.

Causes are:

- Defective shell glands;
- Disturbance or stress during calcification process;
- Poor nutrition, for example excess calcium in the hen's diet.



9. Speckled eggs. Spots or speckles can be either brown or white. They are similar to calcium deposits, except the speckles are smaller. Speckles may or may not be pigmented.

Causes are:

- Stress or disturbance during calcification process;
- Poor nutrition, for example excess calcium in the hen's diet.



10. Shell less eggs.

A shell less consists of a yolk, albumen and membrane, but has no shell at all. The egg contents are protected by the outer membrane only. These are often seen in pullets coming into lay.

Causes can be:

- Immature shell gland (young layer);
- Nutritional deficiency, usually lack of calcium and vitamins E, B12 and D as well as phosphorous and selenium;
- Certain diseases, such as Newcastle disease, infectious bronchitis, avian influenza, egg drop syndrome;
- Exposure to very high temperatures and extremely high or low humidity levels;
- An infestation of internal or external parasites, such as worms, mites or lice;
- Stress prompting the hen to lay an egg prematurely, before the shell is formed;
- Egg laying while molting;
- Exposure to toxins, such as mold, fungi, bacteria.



11. Slab sided or flat sided egg. When two eggs enter the shell gland pouch shortly after another, normal calcification is interrupted. The second egg will not be as complete as the first and may be flattened at the side where the eggs made contact, resulting in a flat or slab side.

Causes are:

- Disease, such as infectious bronchitis;
- Stress, frights and disturbances;
- Overcrowding in coop/run;
- Sudden large increase in daily light hours, for example when supplementing light during winter months.



12. Wrinkled eggs. These eggs' shells have thinly creased/wrinkled surfaces. The wrinkles can range in severity from a single small wrinkle to quite a few large wrinkles, as shown in the egg pictured.

Causes are:

- Stress and disturbance during calcification process;
- Disease such as infectious bronchitis;
- Defective shell glands.



13. Corrugated shell. This happens when the egg membrane is thinner than it should be, often as a result of double ovulation (two yolks) and having to stretch thinner to cover the extra egg contents. This results in insufficient plumping of the egg, leaving a corrugated membrane onto which the shell gets deposited, so the shell takes on a corrugated appearance as well.

Causes are:

- Extra large egg size, often double or multi yolk eggs;
- Newcastle disease;
- Excessive use of antibiotics;
- Copper deficiency in the hen's diet;
- Excess calcium consumption;
- A defective shell gland;
- It is often seen with hens recovering from infectious bronchitis;
- It can be hereditary.



14. Fart egg aka fairy egg, witch egg, rooster egg or oops eggs.

These tiny eggs may or may not have a yolk. Yolk-less fart eggs are often called rooster eggs. These little eggs are often much darker than normal, as they spend more time in the shell gland pouch and gets an extra layer or two of pigment. These yolk-less eggs sometimes form when:

The hen's oviduct releases a small piece of reproductive tissue or another small foreign mass enters the hen's oviduct, triggering the regular formation of



an egg. The foreign object will be treated like a normal yolk and enveloped in albumen, membranes and a shell;

Occasionally a hen will also lay a fart egg when something disturbs her reproductive cycle;

Young pullets may lay a fart egg or two when coming into lay and is still getting their reproductive systems in gear.

15. Soft shell eggs. These eggs are laid with an incomplete shell, sometimes just a thin layer of calcium.



Causes : are similar to shell less eggs:

- Immature shell gland;
- Nutritional deficiencies, usually lack of calcium, vitamins E, B12 and D as well as phosphorous and selenium;
- Disease such as infectious bronchitis, avian influenza, egg drop syndrome; an internal or external parasite infestation;
- Exposure to very high temperatures and/or very high or low humidity levels;
- Egg laid prematurely due to stress or a disturbance during the calcification process;
- Egg laying while molting.

A huge "Thank you!" to the members who contributed pics for this article. They are:

1. Banded egg- pic by brierose3
2. Blood on shell - pic by lablover
3. Body checked egg - pic by SpotJL
4. Broken and mended - pic by Naked Farm
5. Misshaped eggs - pic by CaCO3
6. Calcium deposits - pic by HipEMama
7. Pigmentation egg - pic by Wynette
8. Calcium coated - pic by animal-lover99
9. Speckled egg - pic by Wynette

10. Shell less egg - pic by LaLa Chickie
 11. Slab sided egg - pic by Mac14
 12. Wrinkled egg - pic by FlagChick
 13. Corrugated egg - pic by mike555444
 14. Fart egg - pic by sumi
 15. Soft shell egg - pic by Liz9910
1. Blood spot - pic by Melabella
 2. Egg yolk - pic by macylee36
 7. Double yolk - pic by bellah1
1. Meat spots - pic by ChickPrincess
 1. Second and third pic by Sumi