20 COMMON EGG SHELL QUALITY PROBLEMS

Pale-shelled Eggs
The degree of brown color in the egg shell is determined by the quality of deposited pigment in the cuticle.
Causes:
• Infected bronchi
• Bird age (older hen)
• High humidity in the flock
• Egg Drop Syndrome 76
• Use of chemotherapeutic agents (e.g. sulfonamides and nicarbazin)

Lilac Eggs/Pink Eggs
The egg appears to be pink or lilac due to the association between the cuticle and an extra calcium layer.
Causes:
• Wet droppings
• Large amounts of indigestible compounds in the feed
• Poor gut health
• Electrolyte imbalance/saline water

Dirty Eggs
If the egg shell is stained by feces, it is important to avoid feed ingredients which cause wet and dirty droppings.
Causes:
• Overweight pullets
• Pullets coming into lay

Blood Stained Eggs
Usually from pullets in early lay, eggs are contaminated by smears of blood from a prolapsed cloaca, vent pecking, or cannibalism.
Causes:
• Inadequate nutrition
• Strain of bird

Shell-less Eggs
Laid without a shell, these eggs are protected only by the shell membrane.
Causes:
• Immature shell gland
• Disease: Avian Influenza
• Infectious bronchitis

Soft-shell Eggs
Laid with an incomplete shell, only a thin layer of calcium is deposited on the shell membrane.
Causes:
• Excess calcium in the diet
• Disturbances during calcification

Cracks
This problem includes hair line cracks, star cracks, or large cracks that result in a hole in the shell.
Causes:
• Heat stress
• Saline water
• Bird age (older hen)

NDV, infectious bronchitis, Egg Drop Syndrome 76
• Bird age (older hen)
• Inadequate nutrition
• Calcium and vitamin D3
• Mycotoxins

Corrugated Eggs
Characterized by a wavy, rough, corrugated surface, these eggs are produced when plumping is not controlled and terminated.
Causes:
• Heat stress
• Saline water
• Bird age (older hen)
• Poor nutrition, especially calcium and vitamin D3
• Mycotoxins

Wrinkled Eggs
Eggs with wavy streaked and wrinkled surfaces.
Causes:
• Stress
• Infectious bronchi
• Defective shell gland
• Overcrowding

Pimpled Eggs
Classified by small bumps of calcified material on the egg shell, the severity of pimples depends on the contact with each other during formation and is mended again before lay.
Causes:
• Bird age
• Stress during calcification

Calcium Deposits
These eggs are classified by white, irregularly shaped spots deposited on the external surface of the shell.
Causes:
• Defective shell gland
• Disturbances during calcification
• Excess calcium in the diet

White/Brown Shell-less Eggs
Laid with an incomplete shell, these eggs are protected only by the shell membrane.
Causes:
• Electrolyte imbalance/saline water

Mottled Shells
When placed in front of a light, the translucent areas appear mottled or glassy as a result of the shell’s failure to dry out quickly.
Causes:
• High humidity in the shed
• Disease and mycotoxins
• Manganese deficiency
• Overcrowding

Body-Checked Eggs
The egg is cracked in the shell gland pouch and then repaired before lay.
Causes:
• Incorrect lighting
• Stress
• Bird age (older hen)

Broken and Mended
A diagonal break occurs during formation and is mended again before lay.
Causes:
• Stress during calcification

Missshapen Eggs
These eggs are too small or large, round instead of oval, or differ from normal shapes.
Causes:
• Immature shell gland
• Disease: Avian Influenza
• Infectious bronchitis, Egg Drop Syndrome 76
• Stress

White Banded Eggs
The second egg that enters the shell gland pouch is not as complete as the first egg and is flattened when the eggs make contact.
Causes:
• Stress
• Changes in lighting

Slab-sided Eggs
The egg appears to be pink or lilac due to the association between the cuticle and an extra calcium layer.
Causes:
• Wet droppings
• Large amounts of indigestible compounds in the feed

高血压
The egg white protein (albumen) is produced here.
3 hours

INFUNDIBULUM
The yolk is captured and the formation of the perivitelline membrane and chalazae occurs. In breeder birds, fertilization occurs in this section.
15 minutes

MAGNUM
The egg white protein (albumen) is produced here.

ISTHMUS
The isthmus produces the fibers that make up the inner and outer shell membranes.
1 hour

VAGINA/ CLOACA
The egg is laid via this section.
1 minute

TUBULAR SHELL GLAND
A process called “plumping” occurs where water rich with electrolytes enters the albumen and the formation of the mammary cores commence.
5 hours

SHELL GLAND POUCH
The egg shell is formed and the pigmentation process occurs.
15 hours

Acknowledgement: Some information has been extracted from the book “Egg Shell Quality Problems: Causes and Solutions” published by University of New England, Australia. We thank the Australia Egg Corporation Limited and the University of New England for their permission to use the oviduct photo.