

Layer and Egg Quality Troubleshooting



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Layer and Egg Quality Troubleshooting

● Common Issues

- Mortality
- Egg size
- Feed consumption
- Shell quality and interior quality
- Onset of production
- Poor performance (peak and/or persistency)

Mortality

- As a veterinarian, I have to discuss this first although it is not the most common issue that I am called upon to deal with.
- Most producers that have a mortality problem, know what it is before calling me.
- I am called more for moral support, I think.

Mortality

- Most common causes of layer mortality

Peritonitis

Fowl Pox

Marek's Disease

Cannibalism

Gout

ILT

Peritonitis

- Most common problem seen in layers today
- E. coli, Salmonella sp.
- Respiratory origin, enteritis, water quality, cannibalism, prolapse
- Combination of the above most likely

Peritonitis

- Diagnosis:
 - Cheesy exudate in the abdomen
 - Film over liver and other organs
 - Mortality begins to rise usually around 20-50% production.
 - Can be as much as 5% per week, though an increase of 0.1% per week is more common

Peritonitis

- Rule out possible causes:
 - IB
 - M.g.
 - Contaminated water
 - Poor ventilation
 - Cannibalism
 - Enteritis

Peritonitis

- Usually do not find the answer as to why it occurs.
- Treatment should begin as soon as possible and should be aggressive.
- Generally, antibiotics with broad spectrum effect are best, ie tetracyclines

Peritonitis

- Treatment:
 - CTC- 400 grams per ton (US legal level)
 - Neo-Terramycin (200 grams of each/ton)
 - Tylan- 50 grams per ton

Peritonitis

- Prevention

- Good air quality
- Clean layer houses
- Good pullet vaccination program
- Reduce stress
- Acidify water and intestinal tract
- Amprolium in feed with manure belt houses

Fowl Pox

- Recent increase in incidence.
- Some believe it is strain related to some degree.
- Variant pox viruses are being isolated.
- Usually presents as the “wet” form of the disease.

Fowl Pox

- Diagnosis

- Wet Pox: Cheesy plug across the opening to the trachea. Occasional scabs along the trachea also seen.
- Dry Pox: Scabs on eyelids, nostrils, mucous membranes and skin
- Wet Pox can be confused with ILT

Fowl Pox

● Treatment:

- One of only a few diseases that treatment consists of vaccination during the outbreak.
- Vaccinate with a combination Fowl Pox and Pigeon Pox, full dose of each.
- Also has been reported that Iodine added to the water at 6 oz./gallon of stock will help reduce mortality.

ILT

- High mortality with typical cough
- Bloody exudate in trachea
- Also treat by vaccinating immediately with ILT vaccine in the water.
- Differentiate between Pox and ILT

Marek's Disease

- Seeing less and less with better vaccines, more resistant breeds, better pullet house management.
- Can be confused with water deprivation, as both will cause emaciation.
- Look for tumors and sciatic nerve involvement

Marek's Disease

- No treatment
- Prevent with good pullet house clean out, good vaccination technique at the hatchery, and good Bursal Disease protection

Gout

- Diagnosis:

- Pure white grainy exudate covering the liver, intestines, heart, etc.
- Can see some exudate in the trachea and joints.
- Differentiate from bacterial exudates by its pure white color and the grainy texture.

Gout

- Kidneys will have uroliths (kidney stones) in them and often one kidney will have already atrophied away before gout appears
- Causes:
 - Water deprivation
 - Calcium phosphorus imbalance
 - Rarely, Infectious Bronchitis

Gout

- Treatment: None, acidifying the feed has been used in an attempt to prevent the formation of the urolith, but with mixed results.

Early Onset of Production

- Factors that influence the onset of production are:
 - Age
 - Body weight
 - Day length increase

Early Onset of Production

- In general, the earlier the flock comes into production, the smaller the egg size.
- More of a problem with early production in Canada, than in the US with the egg marketing system in place.

Early Onset of Production

- Years ago, physiologist taught me that to stimulate production, 13 hours of day length was required. This was the minimum amount of light to stimulate the hormonal production necessary for egg production.
- Now, I have seen flocks begin laying on 10 hour days.

Early Onset of Production

- Genetics companies breeding for more eggs and earlier onset of production with less peewee and small eggs at the beginning of lay and fewer extra large and jumbo eggs at the end of lay.

Early Onset of Production

- How do we prevent flocks from coming onto production too early?
 - Longer step down lighting programs.
 - Warmer barn temperatures to slow growth.
 - Restricted feedings.

“Mini-Molt” or Pre-Lay Pause

- Used in Japan extensively in the 1970's and 1980's.
- Japan needed extra large and Jumbo eggs for their market.
- Simple program...at 5% production, the flock was taken off feed for 4 days then returned to feeding.

“Mini-Molt”

- Delayed the onset of production by about 7 to 10 days.
- Resulted in larger egg size by about 1 pound per case (30 doz.)
- Some improvement in shells later in life was observed.

Controlling Egg Size

- In many markets, producing eggs that are above the size of large eggs holds no economic benefit.
- Larger eggs tend to have weaker shells and are more likely to be broken in transit due to current packaging materials and shapes.

Controlling Egg Size

- Factors that influence egg size:
 - Protein Intake, esp. Methionine and Lysine
 - Breed
 - Caloric intake
 - Linoleic acid levels in the feed
 - Body weight at the onset of production.

Controlling Egg Size

Methods used to control egg size

- Reduce the amount of protein intake
- Reduce consumption of Methionine
- Reduce caloric consumption
- Increase egg production

Controlling Egg Size

- Reduction of protein levels in the feed while the flock is still at peak production can be detrimental to production. Therefore, I prefer to initially reduce overall consumption with increasing house temperatures before modifying the Crude Protein or amino acid content of the diet.

Controlling Egg Size

- Reducing the caloric content of the diet can be counterproductive because it may lead to increased feed consumption and therefore the consumption of protein and amino acids will be higher leading to increased egg size.

Controlling Egg Size

- Start working on it before egg size gets larger than your desired target.
- Once it gets above where you want it to be, it is almost impossible to lower egg size without hurting production.

Egg Shell Quality Problems

- Egg shell quality deteriorates as a flock ages. That is a given. How do you slow this process and prevent it from getting to a point where you can not sell the eggs is the critical point.

Egg Shell Quality Problems

- Preventing starts at the beginning.
- Build a good pullet with plenty of skeletal reserves to call upon later in life.
- High protein levels in the starter feeds are necessary for the development of the skeletal system which holds the Calcium reserves.

Egg Shell Quality Problems

- Just prior to the onset of lay, hormonal changes promote the movement of Calcium into the intramedullary bones for reserves.
- Therefore correct Calcium and phosphorus levels throughout pullet development are essential.

Egg Shell Quality Problems

- Pre-lay diets...MEANS PRE LAY...ie...BEFORE LAY!!!
- Talked about this earlier, but is the most common mistake I see in feeding birds.
- Typical comment: “ We got them on Calcium like you recommended, they were at 5% production when we ordered the lay feed.” WRONG!!!

Egg Shell Quality Problems

- Calcium Feeding
 - 4.1% minimum for first lay diets
 - NEVER reduce the amount of Calcium in the diet after production starts.
 - Raise the amount of Calcium even before reducing the protein for the second phase.
 - Do not feed Calcium by consumption.

Egg Shell Quality Problems

- Particle size:
 - Larger particles are less soluble so release Calcium over a longer period of time.
 - Need both large particle and flour or very small particle size in a diet.
 - Crumbled diets should have large particle Calcium added after the crumble is made.

Egg Shell Quality Problems

● Phytase Enzyme:

- Reduces the amount of inorganic phosphorus needed in the diet therefore less goes out in the manure.
- Was given lots of credit a few years ago in the ability to do this.
- Some nutrition companies went overboard and created Cage Layer Fatigue problems with this product.
- Better now.

Egg Shell Quality Problems

- Often is equipment, not the shells.
 - Wash water temperatures.
 - Egg transfers.
 - Poor lay house management.
 - “Pencil grading”.

Egg Shell Quality Problems

- Feeding Times.
 - Last feeding should be within a few hours of the lights going out to ensure Calcium in the gut for shell formation.
 - Midnight feedings can be used.
 - Long time between feedings can lead to “belly bands” or body checks.

Cage Layer Fatigue

- Often misdiagnosed.
- Must have mortality associated to be CLF, often simply soft bones or merely Calcium depletion.
- Is some Calcium depletion normal in a high producing flock?
- Treatment and cause is the same.

Cage Layer Fatigue

- Causes:

- Lack of Calcium in the diet.
- Imbalance of Calcium and phosphorus in the diet.
- Inability to absorb Calcium of phosphorus.
- Lack of Vitamin D3.
- Intestinal problems.

Cage Layer Fatigue

- Most often results from a failure to get a flock onto layer feed soon enough.
- With crumbled diets see more due to birds getting fat and fat birds do not absorb Calcium well.
- Many nutritionist are still working with Calcium levels much lower than today's layers need.

Cage Layer Fatigue

- Remember first egg is the onset of production.
 - At 5% production, 5% of the chickens in a flock are laying an egg every day. They should be on a full layer diet.

Cage Layer Fatigue

- Response to CLF
 - Add 25# (12.5 kg) Calcium per ton of feed
 - Add 5 # (2.5 kg) dical per ton of feed
 - Add 10,000 I.U. of Vitamin D3 per gallon of drinking water.

Cage Layer Fatigue

- Use the treatment feed for two weeks and the vitamin D3 for three days in a row followed by twice each week for the rest of the flock's life.
- May have to repeat the feed treatment once a month until the flock goes out depending on the severity of the CLF.

Fatty Liver Disease

- I rarely see this in the US.
- One customer that feeds crumbled diets sees it in all flocks.
- Related to increased availability of the energy due to pelleting.
- Canola meal and Canola oil have factors that can contribute to the development of Fatty Liver.

Fatty Liver Disease

- Treatment:
 - None work consistently.
 - Usually consists of increasing Choline Chloride in the diet (add 1#/ton) and increasing the day length to stimulate more production.
 - Also recommend adding Vitamin K and E to the diet.

Intermittent Lighting

- Used to control consumption and occasionally to control cannibalism.
- Two common methods.
 - 15 minutes of light and 45 minutes of darkness for each hour of the normal day length
 - Several blocks of darkness between blocks of light

Intermittent Lighting

- Start slow in either case.
- Block lighting program :
 - First two hours of scheduled day is normal lights as is the last two hours of the day.
 - Begin with 30 minutes of darkness in the morning and then again in the evening.
 - Always maintain the first two hours in the morning and the last two hours in the evening as normal light.

Block Intermittent Lighting

- Gradually increase the two block from 30 minutes to 45 minutes then to 1 hour.
- Can gradually expand the dark blocks to be two hours in length.
- Can later add a third block if needed.

Standard Intermittent Lighting

- Give the first two hours of the day and the last two hours of the day as you normally do.
- Then begin with 15 minutes of darkness each hour of the day.
- Gradually increase the darkness to 45 minutes of darkness and 15 of light.

The background is a dark teal color with several lighter teal lines crisscrossing diagonally across the frame, creating a geometric pattern.

**Questions,
Comments,
Discussion???**