Nebraska Cooperative Extension Institute of Agriculture and Natural Resources

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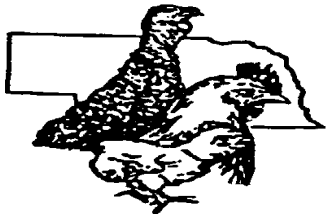
POULTRY NEWS



A Newsletter for Poultry Producers from the
Department of Veterinary and Biomedical Sciences

Nebraska Poultry Improvement Plan for 1999

by Dr. Del Wilmot, Assistant Deputy State Veterinarian, Nebraska Department of Agriculture

Nebraska has laws and regulations to control hatchery-disseminated diseases such as Salmonella, Pullorum and Typhoid. To accomplish this goal, the Nebraska Department of Agriculture (NDA) cooperates with the United State Department of Agriculture (USDA), and other states, by participating in the National Poultry Improvement Plan (NPIP). Anyone who buys or sells hatching eggs or poultry, except for immediate slaughter, should be a participant in the NPIP plan. This includes hatcheries, poultry dealers, and flock owners. All participants must sign an agreement to belong to the NPIP plan. Poultry for exhibition are also affected by these rules.

IN THIS ISSUE . . .

Hatcheries are assigned an NPIP number, are inspected annually, and follow guidelines to ensure they produce healthy chicks, free from Pullorum and Typhoid. To accomplish this, they obtain their eggs only from sources which also test free of Pullorum and Typhoid.

Dealers are inspected annually and must also obtain their poultry from NPIP-participating flocks and hatcheries. In addition, dealers are assigned an NPIP number to confirm they are a participant in the NPIP plan.

Flock owners who sell hatching eggs and poultry, except for immediate slaughter, should also participate in the NPIP plan. To do so, they need to complete a participating agreement and do testing of their laying flock. The number of poultry to be tested is as follows:

- Flock size 1 - 30. . . . . Test all
- Flock size 31 - 300 . . . . . Test 30
- Flock size greater than 300 . . .Test 10%, up to 300 maximum

Flock testing is done once per year, which allows the flock owner to sell hatching eggs and poultry without any further testing. Also, the owner may exhibit their poultry without any further testing.

We have attempted to greatly reduce the amount of testing done at county fairs, the Nebraska State Fair, and other poultry exhibitions. Therefore, any

poultry purchased within the calendar year from an NPIP-participating flock, participating dealer, or participating hatchery, will **not** need to be tested to be exhibited. The only requirement to exhibit is documentation that the poultry was purchased from a participating flock, dealer, or hatchery. If poultry to be exhibited did not originate from one of the sources listed above, they must be individually tested and found negative for Pullorum and Typhoid. Waterfowl are exempt from testing requirements for exhibition.

Flock testing for owners who have signed a participating agreement can be done by NDA and USDA employees, whenever practical, at no cost to the producer. In addition, individuals can request to become authorized agents to collect samples and conduct testing in the NPIP program. An authorized agent must sign an agreement stating they will comply with the provisions of the NPIP program, prove competency in conducting the blood test for Pullorum and Typhoid, and supply their own material for the testing.

For information concerning the NPIP program, you can contact Dr. Del Wilmot, Nebraska Department of Agriculture, at (402) 471-6837.

Commercial Egg Tip - The Induced Molt: A Critical Control Point for Hazard Minimization of *Salmonella enteritidis* Contamination of Eggs

taken from: The Univ. of Georgia Cooperative Extension Newsletter, Nov. 1998; A. Bruce Webster, Extension Poultry Scientist

Molting of hens is a common practice in the commercial egg industry to restore egg quality and egg production rate, allowing a flock to be kept through a second cycle of production. At any given time, at least 25% of the laying hens in the United States are either in molt or have been through a molt.

Unfortunately, a significant risk of *Salmonella enteritidis* (SE) contamination of eggs is associated with feed withdrawal, the usual method for inducing molt. Hens become very susceptible to cecal colonization by SE during an induced molt fast, needing a dose of only as few as 10 bacteria to become infected compared to the 30,000 generally necessary to infect an unfasted hen (Holt and Porter, 1992, Holt, 1994). So vulnerable are fasted hens to SE that airborne transmission of the bacteria is possible between hens without physical contact between birds (Holt, et al., 1998). Fasted hens which develop SE infections shed large numbers of the bacteria in their feces, greatly adding to the contamination load in their environment, and increasing the likelihood that their fasted neighbors will be exposed to the bacteria. These hens subsequently may lay eggs internally contaminated with SE (Holt and Porter, 1993). Although it is not known how long chickens generally retain SE once infected, it is apparent that some birds can hold the bacteria for a long time, and thus could shed SE whenever circumstances dictate, e.g. after an illness which curtails feed consumption for a few days. A few hens appear to become carriers of the bacteria and shed SE continuously (Holt and Porter, 1993).

If SE is in a layer house environment, there is potential for the bacteria to spread to large numbers of hens during an induced molt. If this were to happen, the flock would have increased likelihood of producing internally contaminated eggs after the molt, would probably continue to output small numbers of SE-positive eggs throughout the second cycle of production, and would be at risk of occasional episodes of increased egg contamination and fecal SE shedding whenever the flock was stressed. The Pennsylvania SE Pilot Project (1995) found that incidence of SE-positive eggs increased 7-fold to 14 per 10,000 eggs during the first 5 weeks after an induced molt in houses which were environmentally positive for SE prior to the molt. Egg contamination rates subsided thereafter to levels typical of unmolted flocks in SE-positive environments. The USDA-FSIS SE Risk Assessment Final Report (1998) concludes that SE-infected flocks tend to have increased production of SE-contaminated eggs for 10 weeks after the molt.

Since induced molting of hens may significantly increase the likelihood of SE-infected flocks, molting could be considered a critical control point (CCP) in a commercial egg HACCP plan. A CCP is defined as a step in a production process where a significant hazard occurs and where control can be applied to minimize the risk of the hazard affecting the finished product. It must also be possible to monitor and document the control of the CCP. The following steps are recommended for SE control at the time of an induced molt.

1. Swab the house environment no earlier than 5 weeks before the molt is planned and culture for SE.
   a. SE-positive? Go to 2.
   b. SE-negative? Go to 3.
2. If the house has widespread SE contamination, it would be wise not to molt the flock. If there is only light SE contamination in the house (i.e., 1 in 10 swabs SE-positive), molting may be considered, but eggs should be tested for SE immediately upon the return of hens to production after the molt (go to 5).
3. Molt the flock. Go to 4.
4. Swab the house environment shortly before hens return to production (5 - 7 weeks after the molt) and culture for SE. (Note: a negative SE culture before the molt does not guarantee that the house is free of SE.) - SE positive? Go to 5.
5. Collect an adequate sample of eggs for SE testing and continue collection four times on a bi-weekly basis in accordance with guidelines in the Pennsylvania Egg Quality Assurance Program (PEQAP).
   – if any egg samples are SE-positive, go to 6.
6. Divert eggs for hard cooking or breakout and pasteurization. Go to 7.
7. Collect four additional biweekly egg samples as per PEQAP protocol and test for SE.
   a. If any egg samples are SE-positive, continue sampling eggs until four consecutive biweekly samples are SE-negative.
   b. If four consecutive biweekly egg samples are SE-negative, eggs can be redirected to the shell egg market. Egg testing for SE contamination should continue in accordance with PEQAP guidelines for the life of the flock.

Air Locks

–taken from "Water Works"; Issue Number Two; pages 4-5.

How do you spell relief when your watering system gets gas? Air locks has been one of the subjects most requested by readers of WaterWorks. From interviews with industry experts, we know air inevitably occurs with the warming of water. The solution lies in management and properly equipped watering systems. Here are the answers to your questions.

What are the effects of air locks in poultry operations? In extreme cases we've witnessed mortality. These are cases where birds are deprived of water for several days. Clearly, this is a result of poor management on top of a serious air lock situation.

In broiler houses, day old birds will activate drinkers a few times when first placed. If only air is present at the drinker, birds quickly give up and mortality occurs.

Severe problems can also result in loss of production. In the case of layers, birds can stop laying eggs, in broiler houses growth can be stunted. Also, when birds pound away at a drinker that's not releasing much water, the struggle can create wet spots below the drinker.

Who has these problems? The biggest problems are in cage layer houses because birds are confined to a cage with one drinker. If it stops delivering water, the bird goes thirsty and doesn't have access to another drinker.

The problem exists in systems installed on the

floor as well, but the results are usually less severe because they have the freedom to drink from other outlets.

In what locations is the problem most prevalent? Air locks are not weather related, so climatic conditions have little effect, except that heat can bring on air locks faster. Air locks are water related. What's in the water effects the severity of air buildup. One farm might have major problems, while next door may have very little trouble if its water source is different.

What causes air locks? There are several possible causes as listed in figure 1. But most problems come from gases dissolved in the water itself. All water contains dissolved gas, some more than others. Usually, this is not in fact, air, but is any number of dissolved gases. Think about Perrier® . Perrier® is naturally carbonated water. That carbonation is dissolved oxygen. As long as pressure is maintained (as it is under ground), the gas remains dissolved. When pressure is released, bubbles form and rise to the top.

Figure 1.

Why does air accumulate?

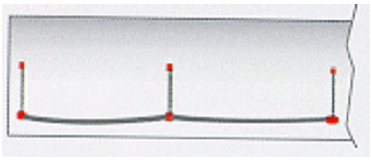
- Dissolved oxygen in the water becomes air as water warms
- Insufficient water supply line, undersized pipe
- Restrictions in water line
- Clogged filters
- Switching from municipal to well water
- Fogger nozzles in summer creating lack of volume
- Pressure tank problem
- Certain systems allow birds to out-drink supply regulator

At lower temperatures and/or high pressure, gases remain dissolved in the water. As water warms or pressure is reduced, oxygen is released, creating bubbles. If it has no way to escape, it remains in the line, growing in volume and eventually can stop water flow. This is an "air lock". At this point, birds are deprived of water. In low pressure systems, the water flow is not great enough to push the air out. During the first few weeks of growth, the flow rate is particularly low as birds do not drink as much. So the water gets even warmer and gas production peaks.

What can be done to solve air lock problems? Of course the solution depends on the problem. If there's a physical problem with the pressure tank, drinking system or water supply, it should be fixed.

In case of oxygen being released from the water, the best solution for many systems is to install extra stand pipes ("riser vents") to help release the air (see Figure 2).

Figure 2.



Using riser vents at high points can bleed air from system.

Bad plumbing is a problem. By bad plumbing we mean water lines that are not level and have a high point. This high spot is where the gas collects and air locks are most likely to occur. The best solution is to level the system. The alternative is to put a "riser vent" at the high point.

Flushing the water line is another way to move air locks out of the system. While this can work, "riser vents" are a longer term solution as they help discharge air before it's a problem. Flushing the system may remove air, but the water is simply replaced with more cool water that has dissolved oxygen in it and the cycle begins again.

High pressure flushing is critical for other reasons such as removing sediment and medication residue and providing cooler water, but it must be done daily to prevent air locks.

What else can be done? You can naturally bleed air from the system by deliberately raising the line ½" to 1" higher than the rest of the system wherever a rise tube is installed (at the regulator, end assembly or mid-line shut-off).

Installing the system level in the first place would

also help. This means the building needs to be built level. Today's new cages tend to stay level better, which helps, but more thought should be put in when the house is constructed. Also take a look at your water source. Check out the water to see how much gas it releases. This should tell you how much potential you have for air lock problems.

Gibbon Turkey Plant Addition Dedicated

by Susan S. Joy, General Manager, Nebraska Poultry Industries

On September 14, 1998, members of the Nebraska Turkey Growers Cooperative turkey processing plant in Gibbon, Nebraska, along with Governor Ben Nelson, other dignitaries and local and state politicians, celebrated the dedication of a one million dollar addition that will allow the plant to produce table-ready turkey, something they haven't been able to do before. Norbest, Inc. is the largest whole turkey marketer west of the Mississippi and the marketer of the Nebraska Turkey Growers Cooperative.

The two-story, 20,000 square-foot addition will allow the plant to produce oven-roasted whole birds and smoked products. The expansion will increase the size of the plant to around 90,000 square feet. It is also expected to create 25-30 more jobs to add to the current 200-employee work force at the plant.

Part of the ceremony was the unveiling of the new "NORBEST/NEBRASKA GROWN" label, a joint venture between Norbest and Nebraska turkey producers. The goal of the new promotion is to move the market share of the 10 million pounds of turkeys used each year in Nebraska from its current 30 percent to 50 percent.

The new addition should be operating by Spring, 1999.

1999 White House Easter Egg Artistry Contest

by Mary E. Torell, Public Information Officer, Poultry & Egg Division, Nebraska Department of Agriculture

Nebraska The Good Life was the theme of this year's White House Easter Egg Artistry Contest winner. Grace Johnson of Cook, Nebraska claimed the prize again this year, becoming a three-time winner. The Poultry & Egg Division of the Nebraska Department of Agriculture organized the state contest.

Johnson's egg was sent to the American Egg Board, which will work with the White House in creating the 1999 Easter Egg Display. One egg from each state and the District of Columbia will make up the White House Easter Egg Display, initiated by First Lady Hillary Rodham Clinton.

Johnson's egg was chosen from an assortment of eggs entered by amateur Nebraska artists. Second place went to Brenda Bentzinger of Fairbury.Karmon Johnson of Culbertson received third place. The entries were on display for public viewing and voting at the Sheldon Memorial Art Gallery Gift Shop, in Lincoln in September.

Johnson used scenes that depicted Nebraska to create her egg. On the top of the egg she painted The Good Life. She then painted the letters Nebraska. Each letter contained different scenes, including the National Championship Trophy, the Sower, the Western Meadowlark, a covered wagon pulled by horses, Chimney Rock, Sandhills Cranes, stocks of corn, and a windmill.

First Lady Thanks Turkey Industry

by Mary E. Torell, Public Information Officer, Poultry & Egg Division, Nebraska Department of Agriculture

In recognition of the holiday season, representatives from Nebraska's turkey industry, presented Diane Nelson, on behalf of Governor Ben Nelson, with two Norbest holiday turkeys on

November 19, 1998 at the Governor's Mansion in Lincoln.

"We are grateful for the support Governor Nelson has given the turkey industry and the Nebraska turkey growers during his administration," said Bill Bevans, turkey grower from Waverly and President of the Nebraska Turkey Federation. "I am especially proud to present turkeys bearing the new Norbest Nebraska Grown! Label".

House Environment and Poultry Performance

taken from: The Univ. of Georgia Cooperative Extension Newsletter, Nov. 1998; Michael P. Lacy, Extension Poultry Scientist

Meat-producing birds are more sensitive to environment than ever before. Genetic selection of birds for fast growth, large breast muscle mass and good feed conversion has come at a price. Modern meat birds are not very tolerant of poor environmental conditions.

Ammonia levels as little as 25 ppm reduce final body weights by 4 to 8% and increase feed conversion by 3 to 6%. Studies have also shown that ammonia levels of only 5 ppm irritate and injure the lining of the young birds' respiratory system, causing increased susceptibility to respiratory disease.

High humidity levels (greater than 70% relative humidity) have been demonstrated to hurt birds growth and feed conversion. Removing humidity by providing adequate ventilation is key to keeping litter dry, and minimizing costly breast blisters and foot pad lesions.

Proper environmental temperature appears to be more important for today's bird than ever before. From both a heat and cold perspective, the modern meat bird is unable to deal with even moderate temperature extremes. Recently, a veterinarian give an excellent talk on chick quality. He argued that the feed and water a bird consumes during the first few weeks of life are two of the most important factors in the ultimate performance of that bird. If the bird is able to find feed and water quickly and easily right after it is placed, it is going to get off to a good start. A good start equals a strong finish. Ensuring that birds are encouraged to seek feed and water immediately after placement is an aspect of management I think needs particular attention. The ideal environment promotes bird activity. Birds are naturally curious and want to explore their surroundings. A lively and mobile bird is more likely to venture out and discover feed and water. If the temperature is right, they will readily move about and locate and consume feed and water. If they are too cold (or too hot), they will not move and may not obtain the early nourishment they need.

Thermometers are useful tools for monitoring environmental temperature, but nothing can replace the observation abilities of the grower. Every flock needs a slightly different temperature depending on time of year, litter condition, check characteristics, etc. Growers that watch their birds closely and fine tune temperature to promote activity during the first week are going to be rewarded.

Today's birds respond best to a consistent environment. Temperature or air quality swings hurt performance. A steady, gradual decrease in temperature throughout the growout appears to promote the best performance. Even small time periods of temperatures that are too hot or too cold may stunt growth or cause inefficient feed consumption that ultimately impact performance.

Air quality can be compromised in a very short period of time in today's tight, well constructed housing with high density placements. A few years ago, a simple study was conducted that demonstrated how rapidly the environment can deteriorate without proper ventilation. This study took place on a cold, rainy winter day in a broiler house with about 20,000 six-week-old birds. Air quality measurements were taken while the minimum ventilation fans were operating and then 5, 10 and 15 minutes after the fans were turned off. The table below shows how quickly the in-house environment can change. Considering that most broiler houses are equipped with 10 minute timers that control minimum ventilation fans, these air quality measurements emphasize the importance of making sure generous minimum ventilation rates are maintained.

Time (minutes) after ventilation fans were turned off.				
	0 min.	5 min.	10 min.	15 min.

Ammonia	15 ppm	35 ppm	50 ppm	80 ppm
Carbon Dioxide	300 ppm	1500 ppm	2600 ppm	3500 ppm
Humidity	68%	78%	86%	97%
Temperature	68º	75º	82º	88º

As we enter into another cold weather season, it is tempting to start thinking about conserving heat, reducing gas usage and minimizing ventilation rates. This winter take the philosophy of providing the best possible environment for your birds first and then worry about conserving fuel.

Dates to Remember . . . .

February 18, 1999 - Iowa Poultry Symposium, Iowa State University, Ames, IA.

March 10 - 11, 1999 - Nebraska Poultry Industries Annual Convention, Columbus, NE.

March 15 - 18, 1999 - Midwest Poultry Federation Convention, St. Paul, MN.

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