

Spotting Disease Early

Introduction

An effective on-farm disease control program depends on spotting an abnormality or a problem **EARLY**. If we are not capable of detecting an early disease process or challenge, then the financial burden of bird mortality and production parameter losses will increase. Not only is the early detection of a disease critical for the immediate flock but also surrounding flocks or successive flocks to follow. Disease transmission of an infectious organism could cause severe repercussions for the operation and the industry.

As critical to the early detection of a disease or problems is a quick and accurate diagnosis. This is hopefully followed with immediate professional support for therapeutic indications and or managerial advice.

Water and Feed Intake

Water is the most critical input in poultry production yet can be taken completely for granted. Water is by far the largest single component of the bird's body representing some 70% of the total body weight in a mature bird. Unlike other farm animals, chickens and turkeys need a continuous water supply. They drink only small amounts at a time. The bird obtains its water by three routes; by drinking, by eating and by breaking down its body tissues which is part of its growth and development. When a disease or stress occurs, a decrease in water consumption is usually noted a day or two before the decrease in feed consumption. For this reason, growers are advised to install water meters on all water lines and record consumption daily. Such records can give early warning of potential problems with the flock. Hence, using water meters and staying with a registered on-farm food safety program is critical to early disease detection.

Feed meters or scales are also provided as an on-farm management tool. Scales not only provide safety and

It is not only our responsibility to recognize the early stages of the disease process but to prevent or treat the disease as well. Knowing what is normal and how to detect what is abnormal for the flock is crucial to good management. *It is your business; hence protect it.*

The following will provide some input to "Spotting Disease Early". To accomplish this takes an objective thinker, a hard worker, and a clear understanding of normal versus abnormal. It also requires proper recording capabilities and open communication with professional support groups. Although there are many facets to disease recognition, some of the on-farm disease surveillance techniques are feasible to conduct immediately.

Other factors that can influence feed intake include the environment, temperature, palatability, feeder space, water deprivation, composition, pellet quality, energy levels and possible toxicosis. Mechanical breakdown not recorded, can lead to a moult in layers or undue stress in broilers, breeders and turkeys. Stress, a major factor in immunosuppression can leave the birds open for a targeted microbial insult.

Keep in mind that the feed:water ratio at 20oC is from 1:1.75 to 1:2. At higher environmental temperatures, birds will consume more, therefore, allow water for longer periods of time during the day. During drinking hours it is important to check that all drinkers are functional and filled with water. Water meters are used as a management tool to record daily activities in water consumption. As a rule, water and feed consumption must be measured and recorded at the same time every day. Call on an expert in water line mechanics or call upon professional advice and support on a possible disease process. Once again,

precision in daily feed restriction programs but they can also be an asset and a valuable tool for the daily consumption of feed. A reduction of feed intake could mean a disease process in progression or a mechanical failure in the feed line system.

measurements can be affected by things other than disease and should always be considered.

Behavioral Abnormalities

One should always check to see if normal bird behavior is occurring on the pen floor. Normal behavior can only be learned by walking the barn daily or observing the birds from a stationary stand. A stationary stand, at rest, can be achieved by observing the birds through a pen window or sitting on a seat amongst the birds. Daily behavior, even in intense farming is characteristic and predictable. Preening, strutting, reaction to light, fighting, dust bathing, feeding and drinking, personal space and distance are all patterns of normal activity.

Unfortunately the ability to observe is not easily acquired and is a gift. As mentioned, this comes from education and most importantly, experience. Getting into the barn and dedicating time to observe and record observations will eventually be rewarded, remembering that abnormal behavior is a sign of environmental imbalance or a disease process affecting the bird's normal activity. The person who is highly observant is likely to make a good member of the farm staff.

When it comes to assessing a flock there are two critical things that we can look at to see if production is right or not. These are the bird's environment and the flock records.

Bird Conformation

This simply refers to a gross individual appraisal of the bird. It is best to have a logical approach. The best is to randomly select birds or identify challenged birds and record observations starting at the head and proceed to the toes, examining everything as you proceed. For each body part or component ascertain whether it is normal or if abnormalities are present.

As far as the environment is concerned we need to use all our senses. Senses such as sight (abnormal droppings, litter, feathers, huddling), smell (ammonia, bird decay), touch (wet litter, consistency under foot) and what we hear (snicking, sneezing) are tuned in to look at abnormalities from the normal behavior process. Again the skill is to detect variations from normal, therefore an appreciation to just what normal is.

When it comes to documenting a challenge or problem, record keeping (monitoring) is a valuable tool. The on-farm food safety program is a vehicle to do just that. Food safety issues, disease surveillance and good management practices all require documentation. Write down what you do, do what you write down and prove it, are the keys to flock health and profitability. Become an auditor and not just an inspector of your birds.

- **Colour-** Is colour normal, pale (anemia), dark (dehydration, fever)?
- **Size-** Is a component larger than normal such as the infra-orbital sinus or a wing/leg joint? Are the birds light/skinny, depleted in muscle mass?
- **Shape-** Abnormal swelling as seen with the early stages of ascites.
- **Position-** Parts of the body abnormally positioned; drooping wings, twisted legs.
- **Heat-** Excessive heat to the touch such as hock joints, indicating a disease process.
- **Soiling-** Excessive soiling of the feathers, which could indicate an enteric problem or upset. Increased accumulation of fecal material or urates around the vent or of caked litter around the toes could reveal a disease process or managerial oversight.
- **Discharges-** Healthy orifices such as the nostrils, ears, eyes and oviduct do not have discharges. If discharges are present then look at the colour, consistency and smell of discharge. Eyes discharge could be a disease process (virus, bacteria) or environmental insult such as high ammonia or dust.
- **Stance-** A crouched or huddled position or stance could reveal general illness, chilling or fever, something is not right internally. Lameness reveals a stance favouring the good leg to alleviate pressure from the affected leg.
- **Alertness-** Birds are usually very interactive with their environment. A sick bird is depressed, lethargic, responds slowly to changes. How do birds respond when you walk through the barn?
- **Vocalization-** What is the normal level of noise in a production barn i.e.; layers when hungry? A variance from the normal occurring day to day indicates discomfort, stress or sickness.
- **Presence of Lesions-** Mucosal lesions such as pox, skin scratches, preliminary instigator of cellulitis.

If you keep a list from day to day and evaluate the abnormal and normal birds as part of a routine, one will be amazed at how much one will actually see or observe. This is truly a starting point for an on-farm disease detection program. As time progresses in the flock, as birds get older, standards and appearance change also. Keep these factors in mind in parameters such as feathering, colour, stance and position. With the collection and analysis of the bird data comes the easy transition to the appearance of the flock in general. Observations that become pertinent here are the distribution of the birds when sitting, feeding, drinking and milling about, or in the case of breeder flocks the mating activity and behavior.

Look For Non-Infectious Conditions First!

It is our responsibility to always consider infectious causes of morbidity or mortality in a flock that may be present. However, do not forget to investigate management errors immediately. A high percentage of bird submissions to the laboratory, or referenced to a professional source, are in fact non-infectious conditions related to management.

Such management factors to consider are; beak trimming errors, consumption of litter or bedding, water and/or feed deprivation, chilling of chicks due

It becomes clear that monitoring of the management factors is another important step in evaluating disease-causing organisms. Checking reports or records on these inputs quickly determines the need for professional support or reference to a laboratory for diagnosis.

to improper brooding factors, rough handling, electrical failures (lighting programs), overcrowding, poor spacing and position of feeders and waters, smothering, inadequate ventilation, low quality feed ingredients/vitamins and minerals, rodent and predator attacks.

Accurate Diagnosis and Corrective Action

The goal of the diagnosis is to determine the cause of impaired performance, the signs recognized, or the mortality collected. The examination of the tissues and organs, and the procedure to obtain the best specimens for virology, microbiology, serology and/or histopathology require expertise. The diagnosis is enhanced if the birds are submitted with proper records, a flock history and an open mind. A key to good poultry diagnosis is the art of “seeing the forest as well as the trees”.

The professional support team will try to identify the most significant flock problem(s), rather than becoming engrossed in individual bird disorders. However, their role and outcome is crucial on the submission and communication. Spot disease early and follow up with professional support from the veterinary field. Your diagnostic report and professional follow-up provides you with the corrective action that must follow. Managerial alterations and/or therapeutic regimes are warranted only if based on professional advice.

Conclusion

When it comes to checking the flock there is a whole host of parameters to look for. It is very important that you and your staff are capable of detecting when something is abnormal. If you cannot, then disease could get out of hand. Do not fall into the category of “look but do not see” farm management. If this is so, seek support or replace with knowledgeable staff. Try to assess yourself and/or staff regularly. This can be accomplished by literally sitting with the birds in the house for 30 minutes at a time. Ask yourself or the staff member what was seen. If the answer is chickens then there is a problem. However, if you can give or they share with you a detailed description of flock behavior or bird conformation then nurture this with further continuing education and training. Spotting disease early could make or break the profitability of the business.

References

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Accountability for ones actions and procedures must be documented as we are faced with increasing demands to record what we do. Records also validate treatment success and failure, hence the ability to make other corrective action. We learn by our failures as well as our successes.

When submitting birds think of **Pattern Recognition**. This simply means submitting enough birds so that the diagnostician (pathologist) has a representative sample size. It is best to submit 10 to 12 birds if mortality is present in the flock. Live birds representing the disease process are also an excellent reference source as clinical signs can be observed and fresh blood samples collected. Remember that diagnosticians are not magicians, they need your support and above all a representative number to evaluate the problem

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