MANAGEMENT-RELATED DISORDERS

I. DEHYDRATION/STARVATION OF CHICKS/POULTS

Losses due to so-called “normal mortality” should not be more than 1% in the first 10 days of the growout period. Any mortality higher than this should be investigated.

DEFINITION

These are the most common causes of mortality in chicks and poults during the first week. Young birds which cannot find water nor feed will eventually die of starvation and inanition, once the yolk has been absorbed i.e., before the fifth day.

ETIOLOGY

Failure to eat and/or drink can be related to farm management conditions. Since recently hatched chicks/poults are poikilothermic, optimal environmental temperatures are a must for the brooding period. A comfort zone i.e., an area where environmental temperature is ideal for the chick/poult must be established inside the barn. Check temperature charts since this temperature varies according to age and species. Feed and water must be located in the bird’s comfort zone in a brightly lit area, in order for the young bird to access them.

CLINICAL SIGNS

Birds that die of dehydration or starvation do not usually show other signs of illness than weakness before death. Bear in mind that uncomfortable chicks/poults will be noisy. Affected individuals are also smaller.

LESIONS

Dehydrated carcasses are light with darker feet and beak. Legs appear thinner with a prominent metatarsal vein. The skin adheres tightly to dark pectoral muscles. Upon opening the coelomic cavity, white chalky material (urates deposits) can be observed on various serosal surfaces. Ureters are often dilated with urates and there is none or very little feed in the gizzard.

DIAGNOSIS

Based on history and lesions.

TREATMENT AND CONTROL

Check temperature, luminosity and bird’s distribution in the brooding area as well as water and feed availability. Cold birds will huddle together while hot birds will be panting and lying on their belly, often too weak to be interested in finding the water.

II. HYPOGLYCEMIA-SPIKING MORTALITY SYNDROME IN BROILER CHICKENS

DEFINITION

Hypoglycemia-spiking mortality syndrome (HSMS) is characterized by a sudden increase in mortality in a previously healthy, normal appearing broiler chicken flock between 7 and 18 days of age. Two clinical forms have been described: type A more severe but of short duration and type B, a milder form occurring over a longer period.
MANAGEMENT RELATED DISORDERS

ETIOLOGY

Although the disease has been reproduced with tissue homogenates and viral particles have been identified in affected birds, the etiology is still unknown and the causal agent remains to be identified. Clinical signs and death are caused by hypoglycemia. Hypoglycemia could either be explained by a virus blocking pancreatic glucagon production or hypothetically related to melatonin deficiency and associated glycogenolysis. Melatonin deficiency could be caused by a lack of a long dark period. Stress and/or acute fasting could trigger HMSM in either situation.

CLINICAL SIGNS

Flock experiences a rapid, unexplained increase in mortality, which will decrease as quickly in a matter of a few days. Live chicks are found recumbent and uncoordinated, frequently lying on their breasts with legs extended. Evidence of blindness and hyperexcitability can be seen. Death occurs rapidly, often within a few hours. Blood glucose levels are lower than <150mg/dL. Birds with very low levels from undetectable to less than 60 mg/dL frequently occur.

LESIONS

There are no specific gross or microscopic lesions. Birds appear normal and typically have food in the crop. Infrequently sinusoidal congestion or small hemorrhages are seen in the liver.

DIAGNOSIS

Mortality pattern (a high spike in a mortality curve at 7-18 days of age) and low blood glucose levels are diagnostic. TheraSense FreeStyle glucose meter (Abbott Labs) works with avian blood (Note: other glucometers also may work, but have not been tried or reported).

CONTROL AND TREATMENT

Although it is important to give a 24 hour period of full light to day-old chicks, a progressively decreases day length resulting in a long daily dark period will usually prevent this problem.

III. HEAT STRESS and HYPERTHERMIA

High temperatures are stressful for poultry and frequently cause death from hyperthermia. Millions of birds die each year from hyperthermia usually because of high environmental temperature, but also because of electric power failure in closed buildings. Birds do not have sweat glands and thermoregulate via non-evaporative cooling (radiation, conduction and convection). Effect of ambient temperature on body temperature varies with body heat production which is directly related to body mass and feed intake (metabolism). If panting fails to prevent increase in body temperature birds will become depressed, then comatose, and soon die. Lethal internal high body temperature is 116°F for chicks and 117°F for adult birds. Dead birds are usually found on their breast, in good body condition. Breast muscles may have a cooked, pale appearance. Prevention of hyperthermia is based mainly on proper building insulation, optimal ventilation and evaporation techniques, feed removal early in the day to reduce metabolic heat production and adequate drinking water availability.

Panting and increased respiratory rates affect acid-base balance and cause respiratory acidosis. Higher blood pH will reduce plasma ionized calcium, which is needed for eggshell formation, hence the risk for increased thin-shelled eggs in summertime laying flocks.
IV. VACCINE REACTION (ROLLING REACTION)

DEFINITION

A normal respiratory (Newcastle disease or infectious bronchitis) vaccine reaction occurs within the week after hatchery vaccination. However, if environmental conditions are poor, or the flock is infected with vertically transmitted Mycoplasma spp., this reaction might aggravate with possible secondary Escherichia coli or Mycoplasma spp. infection.

CLINICAL SIGNS AND LESIONS

Affected chicks will show head shaking, wet eyes with nasal discharge and mild coughing or sneezing. Chicks will appear depressed and will huddle together or under a heat source. There will be increased mortality, growth retardation and loss of flock uniformity. At necropsy there will be serous to caseous exudates in the upper respiratory tract with airsacculitis in the case of secondary bacterial infection.

DIAGNOSIS

Based on poor environmental conditions, clinical signs and lesions. ELISA antibody titers to infectious bronchitis are within normal.

TREATMENT AND PREVENTION

Chicks must be provided with optimal environmental temperature and rearing conditions. Antibiotics can be administered if there is secondary bacterial infection.