Turkey Diseases

Year round turkey production is largely carried out by large integrated businesses producing indoor-raised white male (stags) turkeys. These birds usually end up in restaurants or sandwiches. There is a large Christmas turkey market in the UK. Most of these birds are bronze/black female turkeys (hens). They tend to be raised in batches of 50-500, usually on mixed farms and are sold locally either through butchers, Christmas markets or farm gate sales. These turkeys are usually hatched in July and are sold directly to the farmer as day olds known as poults. Some companies will raise the poults through the difficult early days to six weeks of age then sell them on to the farmers to rear and finish.

Turkey poults are very challenging to raise as they tend to struggle to find feed and water without the guidance of an adult mother hen turkey.

Pre-Placement

Most Christmas turkey producers use sheds designed for other livestock to house their Christmas turkeys. Hygiene is paramount to prevent disease. The shed should be washed out with a commercial detergent to remove any dirt and grease (if this is not removed then the disinfectant will be inactivated). Net the shed should be allowed to dry so that when the disinfectant is applied it can work- wet surfaces dilute the disinfectant so much that it doesn't work!!!!!!. Remember that most disinfectants do not destroy coccidiosis and as such, if coccidiosis has been an issue the previous year, then a specific anti-coccidial disinfectant must be selected. Coccidial oocysts can survive years in the environment. If a disinfectant doesn't specifically state on the label that it destroys coccidiosis then we must assume it does not.

Don't forget to ensure poults have access to clean water.

Brooding Setup

Turkeys are traditionally brooded in circular rings with a gas heater or infra-red lamp in the centre to allow the turkey poults to choose their own thermal comfort zone. The heat source should be put on 48 hours before the poults arrive to ensure the floor is adequately heated as more of the poult is in contact with the ground than the air. The temperature variation should be between 45⁰C under the centre of the heat source and 20⁰C at the coldest part of the brooder. Always ensure that if a gas heater is used that there is a light source in the pen to ensure that the poults can see the feed and water.

Yolk Sac Infection

A few days before hatching the embryo internalises its yolk sac to act as a source of nutrition for the first few days of its life. Occasionally either on the laying farm or in the incubator/hatcher the poult’s yolk sac may become infected- usually with *E. coli*. This infection can cause poults to become dull and lethargic during their first few days of life. The poults usually smell like rotting eggs and are best euthanized as they will ever recover. Even if they do live they will be stunted throughout life. On
post-mortem examination the poult will have an enlarged congested yolk sac together with signs of septicaemia (congested liver and spleen).

Prevention usually lies with the poult supplier in terms of nest and incubator hygiene.

**Starve-Outs**

In the wild a mother turkey will peck at food to encourage her young to eat and drink. In an artificial situation young poults can sometimes fail to lean to eat and drink. Such poults die around day 4 when their nutritional reserve in their yolk sac runs out. These poults will be noisy, small and dull. They will never learn to eat and drink and are best euthanized.

They can be differentiated from yolk sac infected poults by the absence of feed and water in their crop. They tend to have gout on post-mortem examination together with a pale liver (due to fat mobilisation ) and an enlarged gall bladder.

Prevention is key. Ensure brooding temperatures are correct. Ensure that the poults have good availability of both feed and water. Ensure that there is good lighting. The use of electrolytes will help encourage drinking and keep the poults hydrated.

**Brooder Pneumonia**

Fungal spores (Aspergillus) are normally present at low levels in the environment. If mouldy straw is used or the feed/bedding becomes damp- when it dries it can become mouldy. High levels of fungal spores can lead to fungal plaques forming in the respiratory tract (caudal air sacs) and even brain of young poults. Such poults are normally affected between a few days and a few weeks of age. They tend to gasp for breath. There is no treatment for such cases and affected birds are best euthanized.

Diagnosis is through post-mortem examination.

Prevention by ensuring the sourcing of good quality feed and good quality (dust extracted) wood shavings for bedding. Ensure litter is kept dry.

**Coccidiosis**

As in most species coccidiosis damages the intestinal lining leading to diarrhoea, dullness and inappetence and in some cases death in poults. Unlike in chickens, bloody droppings are rarely seen. The parasite affects birds between 2 weeks and 2 months of age. A diagnosis is made through post-mortem examination- scraping the intestinal lining (duodenum, jejumunum and caecum) and examining the scrapings under the microscope is necessary as gross lesions are not visible. Note the species of coccidiosis that affect turkeys are different from that that affects chickens.

Always remember that initially, when oocysts are passed out in the faeces, oocysts are non-infective and need to sporulate in order to become infective. This process can take between two days and a few weeks depending upon the environmental conditions, with warm damp conditions being most conducive to sporulation. We can’t take heat away from poults but we can ensure they are regularly re-bedded to slow down this sporulation.
Treatment is in the form of an anti-coccidial medication (Baycox®) or amprolium. In feed coccidiostats can be used in feed up to 12 weeks of age, but must be fed from day old in order to avoid toxicity.

Prevention is based upon maintaining good litter conditions along with ensuring the use of an anti-coccidial disinfectant (see above).

Coccidiostat Poisoning

Turkeys are very sensitive to coccidiostats. They can lead to paralysis and eventually death. If coccidiostats are to be fed to turkeys to prevent coccidiosis early in life then they must be introduced in the first week and fed at the recommended inclusion rate for turkeys not chickens. If toxicity occurs then the best option is to remove the feed in question and support the birds as best as possible. Coccidiostat toxicity is accentuated if the birds are given tiamulin medication as it is competitively metabolised.

Haemorrhagic Enteritis Virus (HEV)

HEV is an adenovirus. For the first few weeks of life, a poult is protected by MDA. After 4-6 weeks these antibodies begin to run out. If poulters are exposed to HEV they can develop a bloody diarrhoea. The birds can develop anaemia (pale heads) together with being dull and lethargic. Treatment consists of electrolytes and antibiotics (usually amoxicillin). Surviving birds are often left with immune-suppression and are often stunted. Prevention is through vaccination of the poults from 4-6 weeks.

Respiratory Disease

There are two main pathogens that can cause respiratory disease in turkeys: Turkey RhinoTracheitis Virus (TRT) and Mycoplasma.

TRT is a pneumovirus and is spread through the air, fomites and can be carried by other poultry. The virus causes affected birds to develop swollen infra-orbital sinuses and watery eyes. They are often seen head shaking and are heard snicking (sneezing). As with other viruses, antibiotic therapy may help prevent secondary infection. Decongestants Bisolvon can also be used, and there are many essential oil based decongestants are available containing eucalyptus. Prevention is through vaccination from day old onwards.

Mycoplasma synoviae, gallisepticum and meleagridis can all infect turkeys. Mycoplasma sp. can cause similar signs to TRT, but once infected, poulters are infected for life. Treatment merely dampens infection down. The bacteria can be spread through infected poultry, fomites and vertically. Treatment with antibiotics (macrolides, fluoroquinolones or pleuromutilins) will help alleviate symptoms but as the infection tends to present later in life, treatment can become expensive. Take care if injecting birds as there may be a vaccine reaction at the site of injection putting off customers. Mycoplasma can also lead to stunting and hock synovitis. Vaccination is possible, though off-label. Sourcing clean poults and maintaining a reasonable level of biosecurity is often the best prevention.
Ornithobacterium RhinoTracheale (ORT) can occasionally cause respiratory signs and lameness. This bacterial infection is managed as for *Mycoplasma* infection and similarly, antibiotic therapy only dampens down infection.

Always ensure that turkey sheds are adequately ventilated as poor ventilation often triggers respiratory disease.

**Worms**

There are several round worms that can infect turkeys: *Ascaridia*, *Capillaria* and *Heterakis*. As with all GI worms species they cause inappetance, enteritis and weight loss. *Heterakis* can carry the protozoal parasite *Histomonas* (blackhead). Controlling worms is done either regularly or in response to faecal worm egg counts. Flubendazole is licensed for use in turkeys. Blackhead results from infected *Heterakis* worm eggs hatching in the caecum of turkeys. The Blackhead organism then invades the caecal mucosa causing typhlitis/enteritis. Subsequently the parasite travels through the hepatic portal vein to cause hepatitis. This caused the birds to become lethargic and inappetant. A cyanotic/black head is rarely a feature of the disease. The liver lesions are hobnail in appearance and are pathognomonic. There is no good treatment for turkeys with blackhead. Tetracyclines combined with tiamulin can help. This can be followed by treatment with oregano based supplements and worming. Chickens can be asymptomatic carriers and as such, chickens and turkeys should be kept separate. Worm eggs can be carried by earthworms which can survive several years. Once ground is infected with blackhead it should never again be used to keep turkeys on. If this is not an option then future flocks should be kept housed. Routine worming either every 12 weeks or in response to faecal worm egg counts is essential.

**Erysipelas**

Erysipelas is caused by a soil borne bacteria (*Erysipelothrix rhusiopathiae*). This bacteria enters the bird through scratches/wounds to cause septicaemia. Clinical signs include sudden death, lameness and dullness. Diagnosis is through bacterial culture at post-mortem examination.

Treatment with amoxicillin is usually effective. Vaccination is available.

**Aortic Rupture**

Aortic rupture can occur in stag turkeys and is associated with fast growing strains. The birds suddenly bleed out internally. Prevention includes: careful selection of breed, appropriate nutrition and reducing stress.

**Beak Trimming**
This procedure is necessary on most holdings to prevent cannibalism. Even FAWC recognise this. The upper 1/3rd beak can be removed with a cautery iron or cold cutters. This must be done before 3 weeks of age. Don’t forget analgesia. This must be done by a trained operator.

Increasingly common, is the use of an infra-red beak treatment machine in the hatchery to reduce the growth rate of the upper beak.

Legal Requirements for Slaughter

A WATOK license is needed. This is issues by Trading Standards but training is done by a DEFRA vet at their hourly rate.

Stunning is a legal requirement and a WATOK approved stunner must be used.

Salmonella

Salmonella sampling within 3 weeks of slaughter must take place using paired boot swabs unless:

- The birds are for private consumption
- There is direct supply to the final customer
- Sold through local establishments that sell direct to the final consumer (local is within the same county or the neighbouring county.)