Fact sheet

Best practice management of eye disease in the livestock export supply chain

Introduction

Eye disease in cattle is a multifactorial disease that occurs sporadically in the livestock export supply chain. However, when outbreaks do occur, it is most commonly in pre-export quarantine, during the assembly and mixing of large numbers of livestock. It can also lead to the rejection of animals for export.

Most associate eye disease in cattle with pinkeye or infectious bovine keratoconjunctivitis. However, other viruses can cause eye disease, including bovine viral diarrhoea virus, bovine *parainfluenza* 3, infectious bovine rhinotracheitis caused by bovine herpes virus 1.2 and bovine respiratory syncytial virus. These "viral initiators" cause conjunctivitis and damage to the cornea (the transparent surface of the eye) and predispose the animal to infection with the bacteria that cause pinkeye. They also compromise the immune system, exacerbating any new infections. Therefore, all of these viruses should be considered when trying to minimise the occurrence of eye disease.

Risk factors

The risk of eye diseases increases with:

- Cattle that are young and stressed – weaning methodologies, time in transport, mixing in sale yards, and introduction to intensive systems like feedlots contribute to stress.
- *Bos taurus* animals – particularly Angus cattle.
- Conditions that are dry and dusty – this causes micro-abrasions on the eyes, which lead to secondary bacterial infections.
- When flies are abundant – flies spread the bacteria that cause eye disease.
- Feed that is too finely refined and is dusty.
- Hay that is fed without being rolled out. When animals push their faces into bales they may scratch and damage their eyes or have grass seeds lodge in their eyes.
- Cattle that lack immunity – immunity to microbes that cause eye disease is obtained through either exposure or vaccination. An animal's immunity can also decrease if they are stressed.
- Cohorts of cattle that are mixed in confined spaces – this predisposes them to stress and the spread of microbes.

Clinical signs

- Conjunctivitis – redness of the soft tissue around the eyes.
- Blepharospasm – blinking and squinting.

- Epiphora – over-production of tears that run down the face and leave a crusty residue.
- Corneal oedema and opacity – a cloudy white appearance to the surface of the eye.
- Central ulcer – a pinpoint to 10mm hole in the centre of the eye.
- Runny nose or cough associated with respiratory viruses.
- A rupture of the eye globe, in severe cases.

Minimising eye disease in the livestock export supply chain

1. Choose cattle that have been yard-weaned to minimise stress[1].
2. Gain access to cattle while still on the farm of origin to provide appropriate immunotherapeutics in enough time to allow immunity and antibodies to develop before pre-export quarantine (usually five weeks). Some vaccines need two doses to be protective against a disease, and these can be up to one month apart. Some of the available appropriate vaccines include those that protect against:
   - Bovine viral diarrhoea virus – (Pestiguard – Zoetis)
   - *Moraxella bovis* (Piliguard – Coopers Animal Health)
   - *Mannheimia haemolytica* (Bovilis MH)
   - Bovine herpes virus – a few products are available. However, note that the presence of antibodies produced after vaccination may be contrary to the requirements stipulated in export protocols.
3. Source local cattle if possible, to minimise truck transport times.
4. Minimise the handling of feed to reduce dustiness and introduce animals to new rations slowly.
5. Use insecticidal ear tags or fly traps to minimise fly populations in feedlots.
6. Employ dust mitigation strategies in feedlots, such as careful choice of bedding and laneway sprinklers.
7. Try to maintain cohorts of animals in their lines and minimise the mixing of cattle groups which facilitates the spread of disease.
8. Remove and treat affected animals as soon as they are identified as eye disease is very contagious. Treatment should include housing the animal in a hospital pen, checking for foreign bodies like grass seeds in affected eyes, the use of topical cloxacillin antibiotic ointment in mild cases or a long-acting intramuscular antibiotic (oxytetracycline) treatment and anti-inflammatory (meloxicam) treatment for more severe cases and the use of eye patches for severe cases.

Contact

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[1] Resources on minimising the stress of weaning are available on the Meat & Livestock Australia (MLA) website.