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A rare case of *Verbesina encelioides* toxicity

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In late February the Vredendal State Veterinary office was contacted by a farmer of the Sandveld region between Lambert's Bay and Clanwilliam. The farmer complained that he had lost 50 pregnant sheep (out of a flock of 265) overnight after moving them to a new camp. Two duikers were also found dead in the camp. The farm was visited to investigate the deaths and post mortems were done on some of the dead sheep (Fig. 1). No abnormalities were seen except for fluid in the chest cavity.

The camp was previously used for cultivating potatoes. The soil was very sandy and there was very little natural veld for grazing. The animals did not receive any supplementary feed. However, there was abundant growth of *Verbesina encelioides* (Fig. 2) in the camp. The plants were extensively grazed and found in the rumens of the dead sheep.

Verbesina encelioides, also known as golden crownbeard or wilde sonneblom, is a plant native to Mexico and the south-western United States of America. It has become naturalised and invasive in many other parts of the world, affecting regions on all continents. It grows readily in sandy soils on disturbed land, such as roadsides and previously cultivated land. It has an allelopathic effect, which means it inhibits the growth of other plants around it, allowing it to dominate vegetation coverage. The plant is relatively resistant to drought and often remains green after other plants have turned brown and dried up.

Figure 1: Post mortems being conducted on dead sheep (I. Speelman)

Figure 2: *Verbesina encelioides* (I. Speelman)

Mature leaves of *V. encelioides* contain the toxic principle, galegine, as well as very high nitrate levels, posing a threat to grazing livestock. However, the plant is very rarely eaten unless animals are stressed or other sources of food are limited, such as in times of drought. Livestock can also ingest *V. encelioides* in contaminated hay. Sheep are affected worse than cattle by toxicosis, while pigs are the least affected.

Clinical signs of toxicity include lethargy and anorexia, progressing to bloating, dyspnoea and foaming at the mouth, resembling pneumonia. In severe cases, sudden death without any preceding clinical signs is seen.

Galegine is neurotoxic and causes hypotension, resulting in oedema and internal haemorrhaging. Post mortem signs include massive pulmonary oedema and hydrothorax, as well as lesions in other organ systems.

The recommended treatment is to provide animals with alternative feed. The affected flock in the Sandveld was moved to a clean camp and given dried lucerne. No further deaths occurred.

Outbreak events

Two **ostrich** farms in the **Tulbagh** and **Mossel Bay** areas were found to have **avian influenza** antibodies, with an indication of a possible previous clade 2.3.4.4b H5 (HPAI) infection. No virus was detected on follow-up testing.

Bluetongue was diagnosed clinically in **sheep** on three farms in the **Vanrhynsdorp** area. Clinical signs of lameness, nasal discharge, salivation, lethargy and fever were seen. Many sheep in the area have not been vaccinated recently, owing to the shortage of vaccines. Private veterinarians in the Malmesbury state vet area also reported seeing cases of bluetongue in February.

Severe skin lesions and wool disturbance were seen during shearing on a sheep farm in the **Beaufort West** area. **Sheep scab** mites (*Psoroptes ovis*) were seen on samples taken. In September 2022, new sheep had been introduced from a property that belonged to the same owner as other properties that had experienced outbreaks of sheep scab.

***Salmonella* Enteritidis** was cultured during routine sampling on three broiler **chicken** farms in the **Malmesbury** area and one in the **Worcester** area. Positive samples included chick box liners, boot swabs and dead-in-shell chicks.

On a farm near **Stellenbosch,** a pregnant **cow** with nasal discharge was seen by a private veterinarian. Blood samples taken tested positive for wildebeest-associated **bovine malignant catarrhal fever**. Wildebeest are kept on a neighbouring property.

A **pig** carcass from a farm near **Bonnievale** was condemned at the abattoir when skin lesions of **erysipelas** were seen after slaughter. The farm was visited and no signs of clinical disease were observed.

A sick **horse** in **Mamre** was attended to by a private veterinarian. Clinical signs included constipation, foam coming from the mouth, swollen tongue and trembling of the hind legs. The horse did not respond to treatment and died two weeks later. The cause of death could not be determined, but blood was collected from the remaining horse on the property and submitted to UP Veterinary Genetics Laboratory. The horse tested negative for African horse sickness virus but positive for ***Theileria equi***.

Large scale mortalities of wild **birds** at a dam near **Malmesbury** were reported to the local state vet. The dam was visited and 45 dead birds of three species were counted (Fig. 3). Live birds were also seen showing signs of lameness. Carcasses were collected and sent to Elsenburg for necropsy. Organ swabs taken were PCR negative for avian influenza and Newcastle disease viruses. A kelp gull was admitted to a rehabilitation centre and recovered after treatment with fluids and activated charcoal. A final diagnosis of **botulism** was made based on the clinical signs and exclusion of avian influenza and Newcastle disease.

Cattle on a property near **Grabouw** were heavily infested with ticks and some had pale mucous membranes. On post mortem of two mortalities, the gall bladders, livers and spleens were enlarged and thick, green bile was seen in the gall bladders. There was yellow fluid accumulated in the thoracic cavity and the large intestines contained dry faeces with mucus. Advice regarding prevention and treatment of **anaplasmosis** was given to the owners of the cattle.

Red lice were seen on **sheep** near **Bitterfontein** and **Lutzville**.

Figure 3: A yellow-billed duck near Malmesbury showing clinical signs of botulism (M. Swart)

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