A month in which no outbreaks of controlled diseases occurred is a good month to focus our attention on the threat that exotic diseases can pose to our country’s livestock. A recent report from Zambian Veterinary Services announcing that a suspect outbreak of peste des petits ruminants (PPR) was resolved in the north of the country serves as a good reminder that as animal health professionals in South Africa, we need to be aware of PPR.

Peste des petits ruminants (PPR) is a viral disease of sheep and goats (hereafter referred to collectively as shoats). It is caused by a highly contagious morbillivirus, antigenically similar to the eradicated rinderpest virus, and causes similar clinical signs. The virus has an affinity for epithelial and lymphoid tissue of the respiratory and gastro-intestinal tracts, causing the typical clinical signs of pneumonia, necrotic stomatitis and gastroenteritis.

Transmission between animals usually occurs through the respiratory system as a result of inhalation of exhaled infective droplets or aerosolised virus from secretions and excretions of infected animals. Infection can also be a result of contact with fomites shortly after contamination, as the virus is inactivated by ultraviolet light and desiccation within four days. On a larger scale, spread of the disease is facilitated by movement of livestock for trade.

Although PPR is primarily a shoat disease, cattle and pigs can be infected. They subsequently seroconvert but do not show clinical signs of the disease and do not transmit the virus. Several species of wild ruminants are also susceptible, however, there is very little data available regarding whether clinical disease can occur in wild populations and what role wildlife plays in the epidemiology of the disease. In camels, clinical disease as a result of PPR seems to occur to a limited extent and experimental infections have shown transmission is possible to other camels and goats, but not sheep.

After an incubation period of approximately four to six days, infected animals present with acute pyrexia (up to 42°C), depression and anorexia. Shortly afterwards, a serous ocular nasal discharge develops, which becomes progressively catarrhal (fig 2). Concurrently, painful erosive lesions, which can become necrotic, develop in the oral cavity. In the later stages of the disease, a watery, bloody diarrhoea and pneumonia can develop. Post-mortem signs include a dehydrated carcass, necrotic lesions in the oral cavity, “tiger striping” of the caecum, colon and rectum, enlargement of the spleen and mesenteric lymph nodes and bronchopneumonia.

In susceptible populations in non-endemic areas, morbidity of PPR is usually 60-90%, but can reach 100%. In addition to losses from mortality, heavy production losses occur as a result of dehydration from diarrhoea and anorexia due to painful stomatitis. Pregnant animals may abort their foetuses. In endemic areas, younger animals are usually affected, as older animals that have been exposed to the virus can develop life-long immunity if they survive the initial infection.

In Africa, PPR was first reported in Cote d’Ivoire in 1942, and following this, in several other West African countries, from where it spread over several decades into North and Southern Africa. South Africa is currently separated from several countries in which there are active outbreaks by a buffer of single countries (fig 1), including some states which are experiencing economic depression, decreasing their ability to implement effective animal disease control measures. Increased vigilance against PPR is therefore necessary in South Africa. Introduction of the disease into the naïve animal population of South Africa would result in massive losses.
to the small stock industry from morbidity, mortality and loss of production as well as the cost of disease control measures such as stamping-out of infected herds, movement controls and vaccination. Food security for South Africans would also be affected and revenue from exports of ovine and caprine products would be lost. Additionally, PPR poses an unknown risk to the diverse wildlife species of the country.

Clinical surveillance is an important aspect of detection of PPR infection, but PPR can be confused with other diseases that are endemic in parts of South Africa, such as foot and mouth disease, bluetongue, pasteurellosis, heartwater or heavy helminth infestations. Thorough follow-up testing to confirm the cause of a suspicious outbreak of disease resembling PPR should therefore always be undertaken.

There is no specific treatment available for PPR. Affected animals can be given treatment to alleviate symptoms as well as to combat complicating bacterial and parasitic infections. The disease can be prevented by use of a vaccine that provides protection for more than one year, but it is not advisable to vaccinate animals in non-endemic countries as this practice may mask presence of the disease, causing a delayed response to an outbreak. Additionally, vaccinated animals will test positive on screening tests, and therefore cannot be differentiated from infected animals. It is thought that this was the case in the aforementioned Zambian event, and that the positive animals detected were in fact vaccinated animals introduced from neighbouring countries.

In South Africa, vaccination is not allowed without special permission from the National Director of Animal Health. There is currently a state surveillance programme in place for early detection of a disease incursion, targeting high risk areas along the borders of our country, or where illegally imported animals are likely to occur. In addition, it is the duty of every veterinary and animal health professional to be vigilant for signs of this disease, and to report them to state veterinary services without delay if detected.

### Outbreak events

- A case of bluetongue was detected in a sheep in the Murraysburg area showing lesions in the mouth and on the tongue, and with a serous nasal discharge. No clinical signs on the claws were seen. Unconfirmed reports of two other bluetongue cases occurred in this area as well. The affected sheep were treated and recovered well, and the entire flock was vaccinated against bluetongue. Farmers in the province are advised to make sure their bluetongue vaccinations are up to date.

- Three farms (two ostrich and one duck) showed testing evidence of low pathogenic avian influenza in January, and thus were reported in February. The duck associated event was determined to be residual to an outbreak that probably occurred in December 2015. Serological evidence pointed to an H5N2 AI subtype although further characterisation of the virus was not possible given that circulation was complete once the event was detected.

- An outbreak of pneumonia occurred in three week old Dorper lambs in the Beaufort West area. Vaccination of ewes and lambs in the flock with MultivaxP stopped the outbreak quickly.

- Severe *Paramphistomum* infestation caused the death of two affected lambs in this area.
Disease and Surveillance

Disease, Prevention, Surveillance and Census - February 2016

Farm visits - February 2016