



Buffalo bulls are moved to bull camps.

Breeding disease-free buffalo

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In this article attention is given to the diseases buffalo are most susceptible to. A short history of these diseases is given as well as the basic principles of disease control.

Background

The African buffalo (*Syncerus caffer*) is wonderfully adapted to the harsh conditions of the African continent. It is because this animal has adapted so well that it is often blamed for causing disease outbreaks among domestic stock (especially cattle). The problem is that the buffalo has adapted so well to certain diseases that, once it has had exposure to one of these diseases, it remains a vector or carrier (or a reservoir) for such a disease, and domestic stock can then die or become diseased if they come into contact with the buffalo.

The two main diseases of importance here are foot-and-mouth disease and corridor disease. Foot-and-mouth is a virus disease affecting cloven-hoofed animals. Corridor disease is a tick-borne disease affecting cattle. Two

other diseases where buffalo themselves are affected and can infect cattle are tuberculosis (TB) and brucellosis.

There are three main classification groups of buffalo when it comes to disease status:

- Endemic foot-and-mouth areas: All the buffalo in these areas carry foot-and-mouth disease and corridor disease. Furthermore, 38% of **Kruger National Park buffalo** are affected by brucellosis and nowadays tuberculosis is affecting a large percentage of buffalo. (In the RSA this area covers the Kruger National Park and Lowveld adjacent to the park.)
- **KwaZulu-Natal buffalo** (Umfolozu and Hluhluwe) (and buffalo adjacent to KwaZulu-Natal corridor area): They do not carry foot-and-mouth disease but have corridor disease, tuberculosis and possibly brucel-

losis. Eastern shores buffalo, seem to be free of tuberculosis at this stage.

- **Addo buffalo:** This is a small group of buffalo that were geographically separated from the rest of the diseased buffalo areas, and that fortunately have not picked up corridor disease or foot-and-mouth disease. At this stage they seem to be clean of tuberculosis and possibly brucellosis as well.

History

Until 1989 the only 'clean' buffalo that could be ranches with in the open areas of the RSA were the Addo buffalo. It is a small gene pool and there was quite a demand for buffalo as the game industry was growing rapidly.

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Buffalo in their natural environment.



Buffalo are tested in a boma before they are sold.



Buffalo, tagged and microchipped, are kept in a boma until their results are known.



Jersey cows are excellent surrogate mothers for buffalo calves.

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In 1989 a disease-free buffalo breeding project was negotiated with the veterinary department and the first pilot project was launched in the Northern Cape in a vector-free area. Since then a few more projects have been started in vector-free areas. A vector-free area is an area where there is no vector (or tick) to transmit the disease from buffalo to cattle. Corridor disease is transmitted by the brown ear tick (*Rhipicephalus appendiculatus*), which is absent from the Northern Cape.

Because of the serious tuberculosis threat in the Kruger National Park, where up to 70% of southern herds are infected, and that was slowly but surely spreading northwards, veterinary services allowed a project to be undertaken to extract a viable Kruger buffalo gene pool. The initial idea was to get these animals away from the TB threat in case the entire Kruger National Park buffalo population was wiped out due to this disease. These disease-free buffalo were moved to the Northern Cape to start a disease-free breeding project. Even though they might have tested negative for corridor disease they would be treated as corridor buffalo to breed with in a vector-free zone. Unfortunately, this protocol was adapted to produce disease-free buffalo in vector areas – in other words where brown ear ticks are abundant – and quite a few projects were started in the red areas.

HOW DISEASE-FREE PROJECTS WORK

Foot-and-mouth

All buffalo in the Kruger National Park harbour the foot-and-mouth virus in their pharyngeal crypts and are known to have had life virus for up to 12 years. Under stress these carrier buffalo shed the virus into the air and an outbreak of foot-and-mouth then occurs. Calves only pick up the foot-and-mouth virus from their mother at about six months, so if calves are separated within the first few months they will be free from foot-and-mouth. This can easily be confirmed with blood tests. It is therefore relatively easy to get rid of foot-and-mouth disease.

Corridor disease

This is a protozoal infection that is

transmitted from the carrier buffalo to cattle or other buffalo by the brown ear tick. If there is no vector then all calves of such carrier buffalo mothers should be clean or free of corridor disease. However, a 1% chance of transplacental transmission does exist and this is why calves have to undergo three negative blood tests (blood smears for piroplasms and fluorescent antibody tests) at six-week intervals to rule out the possibility of this type of infection. As a result, projects in the vector-free areas are really safe! In the vector areas buffalo cows have to be kept 100% free of ticks to prevent this transmission or calves are removed from the mothers at birth and reared by hand (bottle-fed). Calves were reared by Jersey cows in the past, but this is no longer allowed.

Tuberculosis

This involves regular testing and all positive cases are put down and subjected to a post-mortem. Breeding stock is tested at three-month intervals until no more positive cases are picked up. Thereafter a check of the parent stock is done every two years. Calves are tested twice for tuberculosis with bovine and avian tuberculin skin tests and the blood interferon test.

Brucellosis

All buffalo entering a breeding project have to test negative for brucellosis. All positive cases are removed. There is a 38% incidence of brucellosis in Kruger National Park buffalo. This is a disease that can really be difficult to eradicate from a herd, as positive cases will only show up in a blood test after cows have had their first calf (± 4 years).

Conclusion

These projects have contributed greatly to broadening the gene pool of disease-free buffalo. It has also contributed substantially to the South African economy through the wildlife and hunting industry. However, it can be very detrimental to the country if this is not controlled properly by the department of veterinary services, especially if diseases such as foot-and-mouth should break out.



Basic principles of disease control on game ranches

Do not mix breeding cattle and buffalo on a game ranch. Cattle are often carriers of diseases like brucellosis. This is a disease that causes abortions in animals and animals keep shedding the bacteria in vaginal discharges, with the potential risk of infecting not only buffalo but other wildlife too. Animals that test positive for the disease cannot be treated and are put down (or shot). Taking into consideration the prices of clean buffalo, please take the necessary care to prevent this disease from spreading.

Bovine cows are often used as surrogate mothers to rear young wildlife orphans. Jersey cows are especially good mothers. Make sure that your Jersey cow has been tested for brucellosis and tuberculosis before using her to rear wildlife orphans.

WARNING: I think it is important to warn all fellow game ranchers about the real danger of hand-rearing all species of game, especially the males. When it comes to wild animals, there is no such thing as a tame, hand-reared male! I know of many casualties due to injuries by springbok, duiker, mountain reedbeek, black wildebeest, impala, kudu, eland and buffalo. If you rear any wild male animal, break human contact as soon as it is weaned and release it back into the wild. I cannot overemphasise the importance of this – many people could still be killed or injured if they do not heed this warning.



A buffalo bull is moved during a disease-free buffalo project.