**Update on Jackal Rabies in KZN Midlands**

*(Prepared by Kevin le Roux, Rabies project Manager KZN, in collaboration with the Bill and Melinda Gates foundation and the World Health Organization)*

**Key to map:**
- **Positive Jackal cases (5)**
- **Positive dog case (puppy in remote community most likely infected by jackal)**
- **Positive bovine (1)**
- **Submitted Negative jackal samples (6)**
- **Yellow outline = Communal areas vaccinated**

**Situation:** Jackal rabies continues to spread in the midlands area of KZN and considering the vast distances jackal are capable of moving we must consider the entire midlands endemic. Another jackal was positive north of Nottingham rd and tragically the first bovine near the Kamberg area. All these samples will now be sequenced genetically to determine origin and transmission pathways.
Threat to livestock: In the previous correspondence it was stated that we can expect rabies to occur occasionally in livestock, as jackal will obviously have the opportunity to meet these in the lands. It must be remembered that rabid jackal lose their fear of things that would normally frighten them off, and it is common for a jackal to wander into a yard through an electric fence and get killed by the farmer’s dogs. Cattle by nature will investigate a sickly looking animal and so exposures are relatively easy. It is also normal for dogs to attack any suspicious or sickly looking animal as was the case in Nottingham rd recently with three dogs attacking a jackal. (ENSURE ALL DOGS ARE VACCINATED)

Questions from farmers regarding rabies in livestock.

1. How does rabies get into a dairy herd?
   - From the bite of an infected animal(Dog-Jackal are the main vectors)that is showing signs of rabies (Virus is normally only present in the saliva once clinical symptoms appear in which case that sick animal will be dead in three – five days.)
   - (See picture below) A jackal’s behavior will change and it will become unafraid and will enter a herd, often as a disorientated animal. Cattle are naturally inquisitive and will approach a strange behaving animal as seen with this dog. The jackal will then attack as rabid animals usually attack after being stimulated (This dog lunged at the cow seconds later). Once this has happened there may be some panic in the herd and is rare that many other animals will receive a bite.

   ![Image of cattle and jackal](image)

   - Rabies also does not spread very efficiently, it is considered that each rabid animal will infect only 1.2 other animals, and so even with multiply bite victims not all will be infected. Many factors affect the virus ultimately entering the nervous system.
   - It is extremely rare that the virus will be transmitted through contact with feed and water troughs that a rabid animal has been feeding or drinking at.
   - It is also unlikely that direct contact between bovines will result in rabies being transmitted from one animal to another, and bites are virtually unheard of.

2. What precautions can be taken?
   - Be vigilant.
   - Vaccination of herd – (see discussion later)
   - Vulture restaurants will congregate jackal on the farm(can spread virus in fights).
   - Feeding infected bovines at Vulture restaurants although low risk, could potentially infect jackal.
   - Limit food resources of jackal, by managing calving and afterbirth in veld, and any other potential resources.
   - Fence them out?
   - Vaccinate all dogs on farm(This is a legal requirement and is the responsibility of the owner – Where possible the State Vet will visit farms)
• Shooting – Already there is a certain amount of shooting being done. However this could in fact have a negative impact as vacuums left by shooting can attract new jackal into the farm and create unwanted movement. The State does not support widespread culling of jackal! However if a necessary harvest is required we would encourage the submission of carcasses for analysis.

3. What symptoms will an infected cow exhibit?
• Change in Behavior!!!!
• Wind Sucking /Bellowing
• Appears to have foreign object stuck in throat
• Profuse Salivation
• Aggression
• In coordination
• Paralysis and death

4. What should we do / how should we handle a cow that we suspect is infected?
• Isolate – Rapid deteriorations over a few days is expected.
• Warn staff to avoid contact due to possible aggression.
• Do not stick hand down throat. This is very common!
• If handling is required wear protective clothing.
• Notify State Vet.

5. Is a vaccination program an economically viable option?
• Only the farmer can decide this? Costs for the first year at (Approx) R10 per head if done by farmer after this R5 per year.
• Vaccine can be purchased possibly through a coop and could be anywhere between R 2- R5 per dose. Farmers should be able to do this themselves.

6. What would a vaccination program look like? (Active and inactive vaccines, dry and young stock)
• Inactivated vaccines should be safe for all ages and circumstances(See manufacturers specifications).
• Initial vaccination at 4mths, except where mothers have been previously vaccinated, in which case primary vaccination should be delayed to 9mths.
• After this a booster at a year and following that every 3yrs While the outbreak persists.

7. What precautions should staff who work with cattle take?
• Be vigilant and report presence of jackal or any other wild animals in the herds.
• Be vigilant for unusual behavior and other symptoms described.
• Do not handle suspect animals without protective clothing.
• Beware of possible attacks – Especially horses become VERY aggressive.
• Isolate animals and call State Vet or Private Vet.
• Rabies Virus is very sensitive to most disinfectants and so hands, cloths and environment can be disinfected.
• Vaccinate all dogs!

8. Guidelines on disposing of infected carcasses?
• Rabies virus is fragile and dies quickly, and a carcass does not constitute and huge risk. HOWEVER! You do not mess around with Rabies and precautions must be taken.
• Confirm diagnosis
• DO NOT EAT!
• Do not feed at a vulture restaurant, as could congregate scavengers other than vultures, and there remains a small chance of infection through ingestion.
• Avoid dissecting carcass as people who slaughter carcasses are high risk. If dissection is necessary take precautions with protective clothing and guidance to people doing the job.
• Virus is fragile and so burning will destroy.
• Bury carcass deep enough to avoid scavenging.
• Disinfected contaminated areas.

10. Should staff who work with cattle be vaccinated?
• No. Rabies vaccine is prohibitively expensive and as a standard practice is unnecessary.
• Bovines pose little real threat to staff if basic precautions are taken.
• If staff are exposed in any way to any suspect animal they must be afforded medical treatment immediately! Timing is everything for Post Exposure treatment, which if correctly applied is 100% effective.

11. What other wildlife have and can become infected on our farms? (Jackal, baboon, dassie etc)
• In KZN we have had many other animals positive over the years – Baboon, Dassie, Zebra, Kudu, Hyena, Aardwolf, mongoose, etc However until this outbreak in jackal we have never had another host species in KZN. (There are no cycles in monkeys, mongooses or rodents)
• Almost all other species of animals(All warm blooded animals can be infected) and are simply victim species of dog and in this case jackal rabies. This infection normally stops with the death of that victim animal. However all precautions must be taken in every case as all have some potential to spread.
• THERE HAS NEVER BEEN A MONKEY OR RODENT BESIDE THE DASSIE AND A CANE RAT DIAGNOSED WITH RABIES IN KZN!
• The baboon in Bergville was only the second recorded in history and was very aggressive. Unlikely to be a common occurrence.
• Tourists need to be warned of any strange behavior of any wildlife species, as most will appear unafraid of humans.

12. What action is the State taking / has already taken on farms, rural and peri urban areas? (Numbers of animals vaccinated / areas / success record.)
• It must be understood before criticism is leveled at the State, that the rabies control program in KZN has been one of the greatest success stories in Agriculture in many years. It is also the only program that has been recognized internationally and is leading the way in an African strategy for dog rabies elimination. NO human deaths have been recorded for almost 2 yrs and dog rabies has been virtually removed from the province.

- This outbreak is an unfortunate series of events that have to do with an outbreak in 2012 in Bergville that was quickly eliminated but jumped the species barrier due to the very high numbers of jackal present.
- In 2012 the outbreak in dogs was brought under control in 4mths without a single case being reported since.
• All communal areas around the outbreak will or have been vaccinated and 752 dogs have been vaccinated in the Nottingham rd area by the state, not to mention those vaccinated by the Private Vets and Welfare organizations.

• 7 additional vaccinators have been trained and approved by the Rabies Project in the Mooi River SPCA who have been active in the area. The State Supplies vaccine to this organization.

• It must be noted that the State is not responsible for every dog out there! And often is accused of missing dogs.” Well they do miss dogs!” as ultimately it requires an owner to produce or be available to inoculate their pets. However the track record of the control program in KZN speaks for itself in that Rabies has been removed from the province bar one or two small persistent pockets. The State has very limited resources and the 160 Technicians of the province achieving control is a remarkable achievement and so we need to encourage cooperation rather than criticism.

13. What support can commercial farmers expect from the State? (Vaccines etc)

• Will the state Vaccinate my cattle? Unfortunately NO! as the limited resources that the State Vet services have are to prevent the disease at its source which is the domestic dog, and this has been a huge success in KZN. However there are simply not enough resources and manpower to vaccinate all the cattle, goats etc in KZN.

• Where can one source the vaccine/Price? There are a number of companies that supply effective vaccines in SA . It is possible that farmers can secure a good price from the company’s maybe through private vets or co-ops and vaccinate their own cattle.

• State will continue to vaccinate dogs in the surrounding areas to stop the reinfection of the dog population, which could then become a source for reinfection of the jackal. In most cases jackal cycles are dependent on reintroduction from the dog population. This outbreak for now however is operating independently of the dog population.

• Increased surveillance in the area.

• Investigating the use of bait vaccines for the control in Jackal, however this is a long shot as safety issues prohibit the distribution of baits due to the vaccine being a live vaccine with potential dangers to humans if ingested.

14. What are contact details of the relevant people within State structures?

• Contact Details State Vet Services:
  o StateVet Umgungundlovu - 033 3476245
  o State Vet Uthukela(Estcourt) -036 3523119
  o State Vet Uthukela(Ladysmith) -036 6346300
  o Rabies Project Allerton(Kevin le Roux) -033 3476279(0795062059)
  o Allerton Veterinary Laboratory - 033 3476200

• Contact Details Human Treatment:
  o Northdale Hospital – (Main Treatment centre)
  o Mr Thando Gwele (CDC coordinator for Umgungundlovu) 0338971000
  o Thandekile Ngwenya (CDC Coordinator Uthukela) 0366312202/129