



Can we break the cycle? A Novel Approach to Controlling Rabies in Gauteng Province

GVS always strives to optimise animal rabies control in line with the Gauteng Provincial Strategy to Eliminate Canine-Mediated Human Rabies by the year 2030. Therefore, GVS launched a pilot project together, with the University of Pretoria, in the Cradle of Humankind area involving rabies vaccination of black-backed jackals with oral bait vaccine.

Although oral bait vaccination has been successfully used to immunise wildlife populations in other countries, no such programs exist yet in South Africa. The most cost-effective way to eliminate dog-mediated human rabies is to eliminate the disease in the domestic dog population through mass dog vaccination campaigns. This requires >70% vaccination coverage of the dog population (1). Since there is rabies virus circulating in domestic dogs elsewhere in the country the risk of re-introduction by the movement of dogs is ever present. Further, the disease cannot be eliminated if there are susceptible wildlife hosts present, which can propagate the rabies virus if it is re-introduced. There is a unique situation in the western region of Gauteng Province where a notable population of black-backed jackals exists. Previous data have shown cyclic outbreaks (every 4 to 5 years) in black-backed jackals in the Cradle of Humankind area.

The project commenced in June 2022. RABORAL V-RG® (Boehringer Ingelheim) was imported for the purpose of the study. It is a liquid oral live vaccine packaged inside a fishmeal block. Animals become immunised after biting the block and releasing the vaccine (2). The target area was identified using historical animal rabies outbreak data and black-backed jackal population data from recent research. Bait distribution is ongoing.

Awareness was carried out in the target area by GVS officials prior to bait distribution. We received some interesting and challenging responses. A large portion of individuals in the area, including farmers, game reserve staff and members of the public, were strongly opposed to the project. They felt that rabies outbreaks were critical to the ecosystem balance and that the cyclic outbreaks assist with jackal population control in the area. They considered rabies



Fig 1. RABORAL V-RG® oral bait vaccine packaged in fishmeal blocks.

Photos by Anndrea Yelliah

to be a natural culling system that prevents overpopulation and resulting livestock losses. However, the literature describes jackal population control by culling as ineffective due to the resulting influx of new jackals from surrounding areas (3). Population disturbances may even increase the incidence of rabies in jackals (4). Thus, a stable jackal population seems ideal.

The aims of the pilot project are to distribute the oral bait vaccine and monitor its effects in black-backed jackals in the target area. Testing methods to monitor the process will include serological blood tests and biomarker analysis of teeth or bones collected from carcasses. The community have been encouraged to assist by reporting any carcass sightings. The vaccination programme will be carried out annually for the next three years. GVS and the University of Pretoria will study the research data produced and analyse the trends in animal outbreaks to measure the programme's success. It is hoped that oral vaccination of targeted wildlife, done appropriately, will be shown as a useful adjunctive tool for rabies control in this area, providing an additional layer of protection for domestic animals and people.

By Dr Anndrea Yelliah

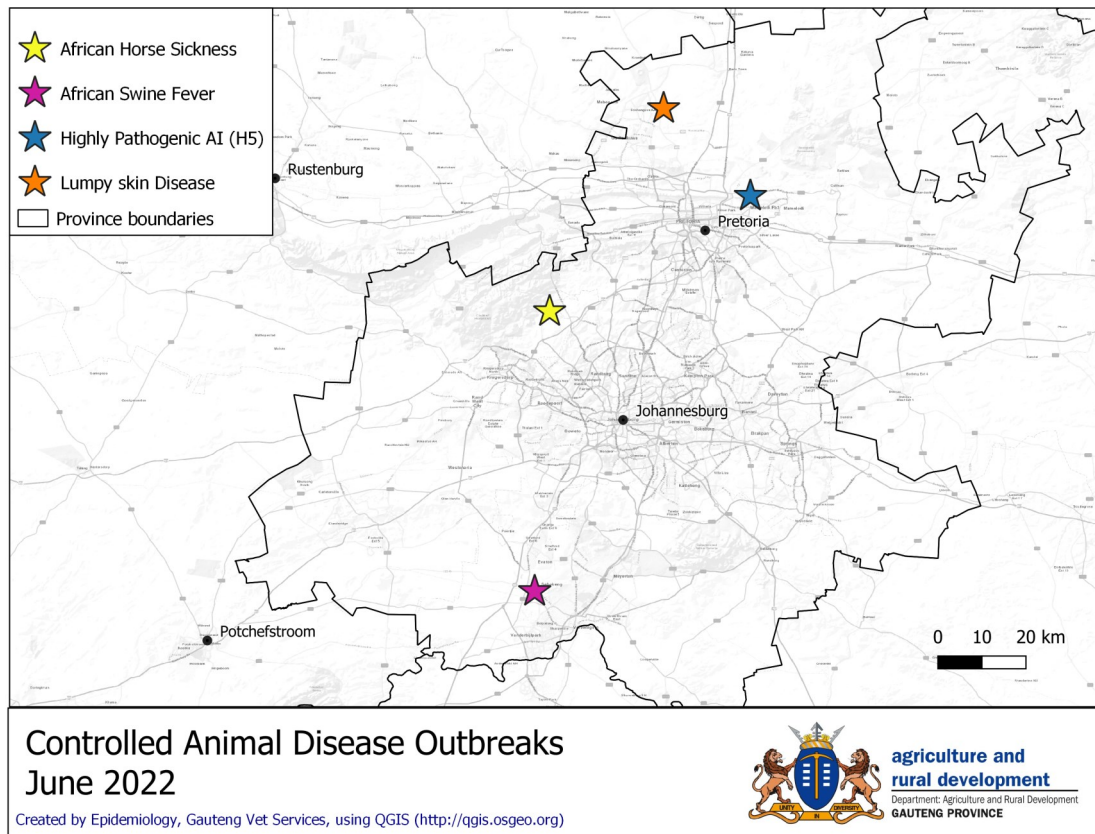
Animal Disease Outbreaks during June

One outbreak of **African horse sickness (AHS)**, with one horse affected, was reported in **Mogale City** near Kromdraai. It was a young warmblood colt which presented to a private veterinarian with swollen supra-orbital fossa's, cyanotic mucosae, elevated heart rate. Unfortunately, he died after 12 hours. The PCR test results showed that this case was probably complicated by concurrent equine encephalosis virus (EEV) infection, because specimens tested positive for both AHS and EEV.

An outbreak of **African swine fever (ASF)** was detected in **Emfuleni** causing 110 pigs' deaths. The affected pigs were owned by about 17 different owners, with varying herd sizes and some being totally confined and others allowed to roam freely. All were fed kitchen waste. The mortalities started after new pigs were brought in from another hostel nearby. The area was placed under quarantine and owners were instructed on correct carcass disposal. The municipality will assist with this and GVS have provided materials such as lime.

Highly pathogenic avian influenza (HPAI) H5 was confirmed in a free-ranging backyard poultry enterprise near **Mamelodi**. The mortalities started after new birds were bought in from an auction. This resulted in the deaths of 150 poultry and 12 turkeys. Only a few chickens and ducks remained on the property, which was placed under quarantine. The owner was instructed on biosecurity and mortality disposal.

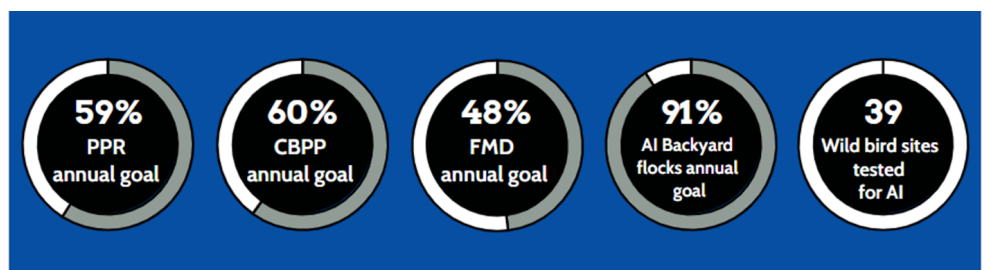
A herd of forty cattle were diagnosed with **Lumpy skin disease (LSD)** near **Soshanguve**. They demonstrated the typical skin lesions with oedema of the legs and brisket too. The farmer was advised on vaccinations and prevention strategies.



Some points may be superimposed.

Fig 2. Distribution of Animal Disease Outbreaks, Gauteng Province.

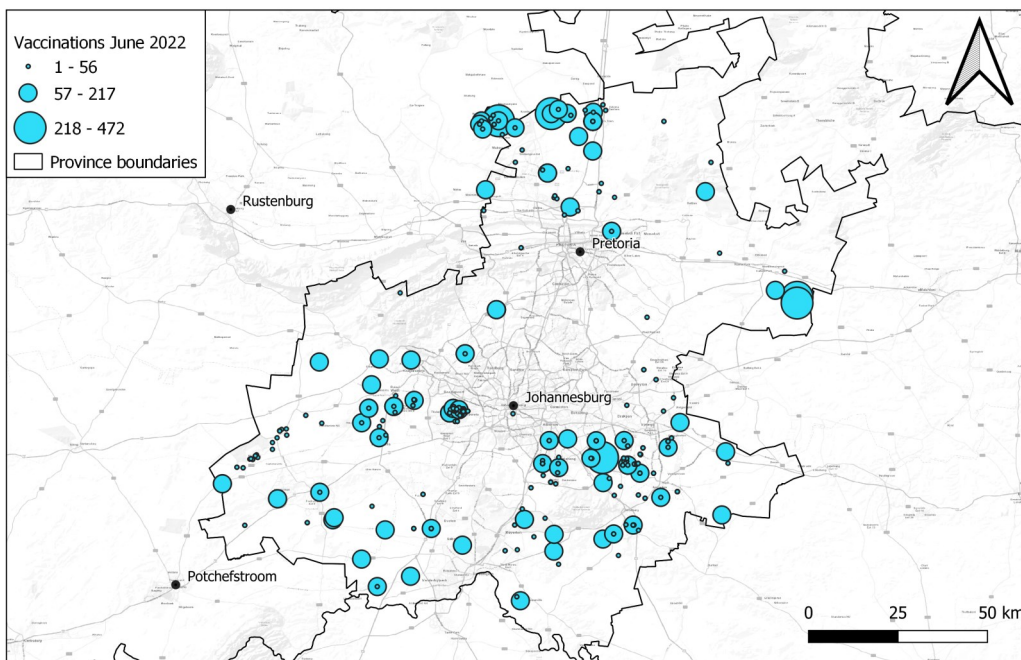
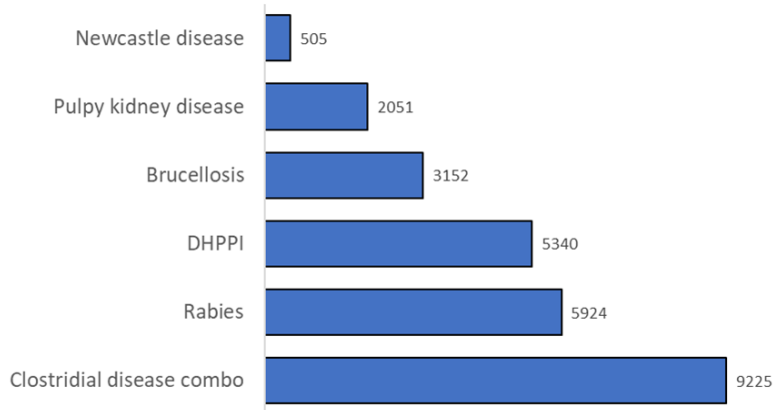
Fig 3. Cumulative Surveillance Summary 2022. Active surveillance for contagious bovine pleuro-pneumonia (CBPP), peste des petits ruminants (PPR), foot and mouth disease (FMD), and avian influenza (AI) is done monthly or quarterly (FMD) in Gauteng as part of the national program. All suspected cases are investigated.



Animal disease vaccination activities

GVS primary animal health and regulatory officials administer vaccinations to pets and livestock on a daily basis. The total number of vaccines administered in June was **26 304**. A breakdown of the types of vaccines and their geographic distribution are provided on the right hand side of this page.

Vaccinations by GVS, June 2022



Vaccination Reports by GVS, June 2022

Created by Epidemiology, Gauteng Vet Services Using QGIS (<http://qgis.osgeo.org>)

DHPPI: Canine distemper, infectious hepatitis, parvo & parainfluenza virus.
Clostridial disease combo: Anthrax, botulism & black quarter.

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agriculture and rural development

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GAUTENG PROVINCE