



Update: Two years of African swine fever in Gauteng Province

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In South Africa, there have been three epidemics of African swine fever (ASF) in domestic pigs outside of the ASF-controlled area since its inception in 1935. These epidemics occurred in 2012, 2016-2017 and 2019-current. Historically, the ASF virus follows a sylvatic cycle between warthogs (*Phacochoerus africanus*) and argasid ticks (*Ornithodoros moubata* complex), with domestic pigs being accidentally infected via a tick bite. This is usually the case within the ASF-controlled area. However, the three epidemics occurring outside of this were driven by a domestic cycle of virus transmission. This is when the virus circulates between domestic pigs without the involvement of a tick vector, through direct contact with infected pigs or indirectly (consumption of contaminated meat products or contact with fomites). Here we describe the current ASF epidemic and the difficulties for Gauteng Veterinary Services (GVS) to bring it under control.

Description of epidemic. To date, at least 90 outbreaks outside of the ASF-controlled area have been reported to the OIE since the first one in April 2019. More than half (n=51) of them started in 2021. In total, about 41000 pigs have been reported to be at risk during these outbreaks, and the provinces with the most outbreaks are Gauteng (n=38), Western Cape (n=20), Free State (n=9) and Mpumalanga (n=9). By now, 43 of outbreaks have been resolved (Fig 1). Almost all the provinces have now experienced an ASF outbreak except for KwaZulu-Natal. There was an outbreak in Limpopo Province in 2021, but this is within the ASF-controlled area with possible warthog involvement. Genotypes I and II have been implicated in the outbreaks causing the current epidemic.

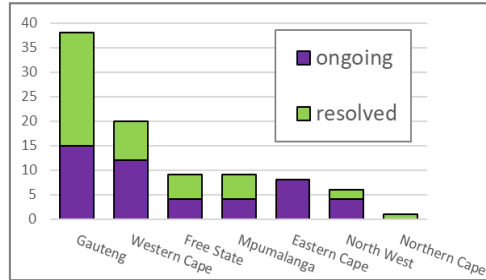


Fig 1: ASF outbreaks reported to the OIE by province, 2019-current.

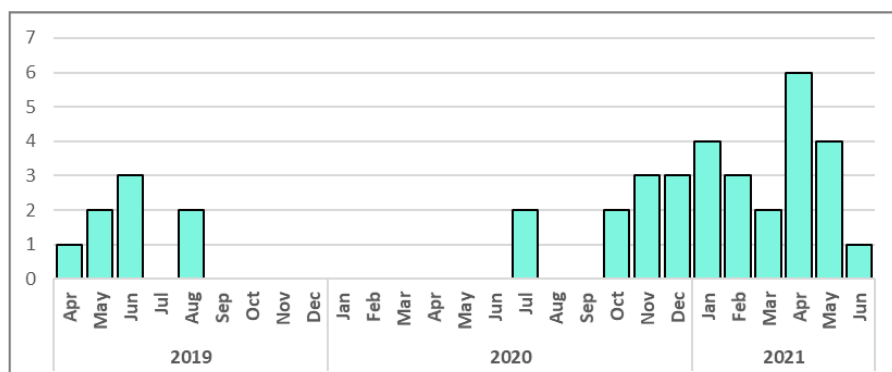
General control measures. At each outbreak, provincial veterinary services implement strict quarantine and movement controls. A biosecurity plan is implemented in consultation with the owner. There is no compulsory destruction (culling) of infected and in-contact pigs anymore. The decision by an owner to cull animals is voluntary and may be taken 1) for welfare reasons or 2) to eliminate the source of infection as quickly as possible. There is no compensation for the loss of animals due to ASF or the control measures to manage the disease spread. If an owner elects to cull his herd, then provincial veterinary services may assist with the process. The owner is responsible for the disposal of carcasses, cleaning, and disinfection of the site, which is supervised by the state veterinarian. Whether disposal of the carcasses is done by burial, landfill or composting, the state veterinarian ensures that appropriate approval from the relevant local environment authority is obtained by

the owner. Awareness about ASF and important biosecurity principles to prevent introduction of the infection is ongoing especially in the affected communities.

Description of Gauteng outbreaks.

Thirty-eight outbreaks have been detected since April 2019, with the bulk in 2021 (Fig 2). There has been no obvious geographic pattern to the outbreaks so far. Although none occurred in the Pretoria state vet area, all the municipalities in the Randfontein and Germiston state vet areas, except Merafong, have been affected. Most affected premises kept pigs informally on a small-scale (63%, 24/38), involved groups of owners ranging 1-125 (total of 351 individuals), and the pigs-at-risk varied from 2-2537 pigs. These premises used temporary structures for housing/fencing or made makeshift pens from any available material and had limited to no biosecurity (Fig 3). Although the remaining premises were farms/plots with better housing at some of them, all had poor biosecurity except for one commercial farm. Since the herd sizes tend to be bigger on the farms, most of the pigs-at-risk were kept on farms (65%, 11248/17235) with numbers ranging 15-9000. From preliminary figures, the average case fatality rate was 79% (2542/3199), and the overall mortality rate before interventions were applied was 15% (2542/17235).

Fig 2: Epidemiologic curve of monthly ASF outbreaks in Gauteng Province, 2019 to current.



Until July 2020, GVS implemented culling at all ASF outbreaks, with assistance from the private pig industry for financial incentives to owners. However, the directive from DALRRD changed and shifted towards containment instead of stamping out. About 10110 pigs have been destroyed to date. At 13 of the outbreaks where large numbers of pigs were destroyed at one time, carcasses were disposed of at an approved landfill site. At the remaining outbreaks, they were buried on site with lime.

Risk factors. Only a few ASF outbreaks in Gauteng Province have been linked by investigations and tracing activities, and this was a common finding in other African outbreaks of a domestic cycle. However, numerous risk factors have repeatedly emerged. Buying pigs with unknown health status either at auctions or from unknown individuals, not separating new introductions, allowing free-roaming (scavenging) and swill-feeding are risky practices that have been identified at the infected properties. There were three outbreaks that were not epidemiologically linked in time (August 2019, December 2020 and March 2021) in the same area where pigs are kept communally. Even though the pig keepers here remembered the ASF disease education they received from GVS in 2019, risky practices (free-roaming, swill-feeding, speculating with pigs bought at auctions) were still commonly used.

Challenges. The change in policy for controlling ASF and subsequent lack of direction in the middle of an epidemic hampered outbreak responses and sometimes caused communication issues. This together with the lack of resources to compensate/incentivise farmers have led to

disillusionment with the situation and the state's ability to control the disease. Delays were experienced with service providers who provided trucks late and some of them broke down, compounding delays. When trucks arrived too late for the load to be delivered at the landfill site on time for the end of the day, disposal was further delayed by another day. Weather conditions in late summer of 2020 also hindered prompt disposal of one outbreak when it rained constantly for a week making it too muddy for vehicles at the landfill site. In communal areas, inappropriate disposal of carcasses and delayed/under reporting compounded to create high levels of environmental contamination (Fig 4). The issue of disposing large quantities of carcasses has become a big problem and better solutions/cooperation are needed. Quarantine times have been prolonged by insufficient cleaning and disinfection procedures at infected premises. GVS provides effective disinfectants to farmers who cannot afford them. Outbreak control actions have severe financial consequences for pig keepers and their families. The psychological effects on both owners and responders are profound. Some officials became ill due to inhalation of lime dust. Finally, an abattoir failed to notify a problem when they received a load of pigs with high numbers of 'dead-on-arrivals' and above normal numbers of septicaemic carcasses as well as injection site lesions on the same consignment. This could have notified an ASF outbreak up to a week earlier.

Pig keeping offers a source of family income with little or no infrastructure or capital outlay needed, therefore entrance into the market is easy. GVS is faced with a situation of rapidly expanding peri-urban populations

who keep pigs informally (sometimes illegally), often lacking the knowledge of pig farming and having limited financial resources to take good care of them. Although education may assist to address some of these



Fig 4: Inappropriate disposal of carcasses at communal settings.

problems, literature shows that many decisions not to invest in biosecurity practices are economically driven.

Recommendations. Considering the change in ASF control policy, increased preparedness, better coordination with disaster management committees, risk mitigation at livestock auctions and trauma counselling are recommended. Veterinary services should modify their communication to pig keepers in a way that harmonises the individual's economic motivations for pig keeping with the greater need for disease control. Long-term, informal pig keeping practices should be formalised and better controlled to prevent these situations from occurring. This could include providing farmer education, more suitable infrastructure for housing pigs, veterinary support, and disease surveillance. We need to move from small-scale scavenging production systems to more bio-secure semi-intensive systems, considering the environment and socioeconomics of each scenario. Under and delayed reporting of outbreaks could be reduced if incentives and better feedback are given for reporting. The abattoirs' role in surveillance for ASF should be emphasised. Ultimately, a multi-sector approach with resource mobilisation and partnerships with the private sector are essential for ASF control to be achievable and sustainable since eradication is currently impossible.

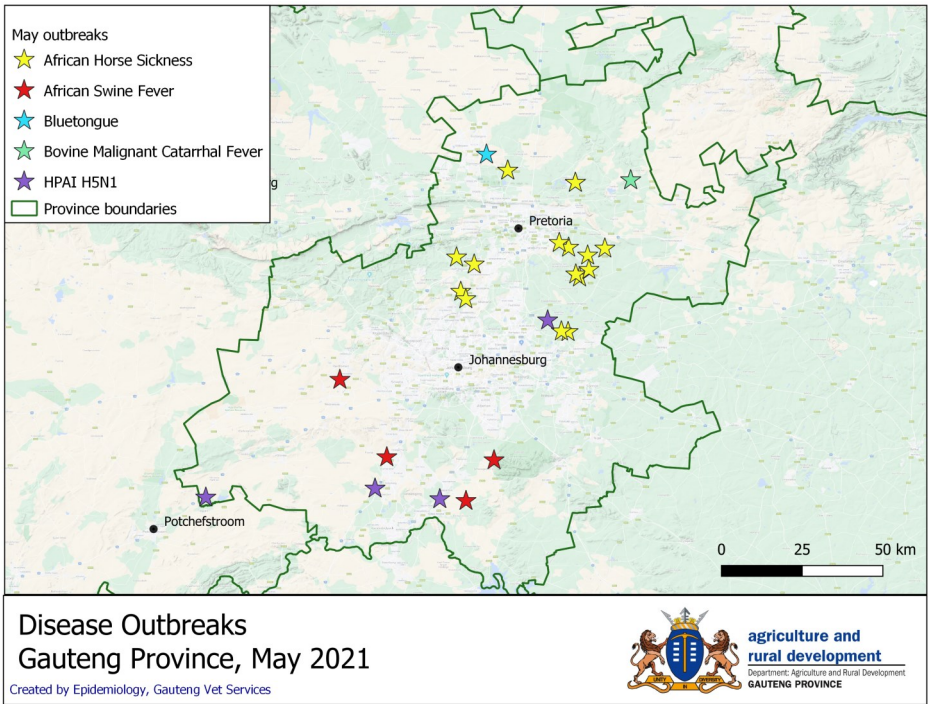


Fig 3: Example of housing/fencing structures at many outbreaks.

Animal disease outbreaks in Gauteng Province

* African swine fever (ASF)

Four new outbreaks were detected since the previous report. We appeal to pig keepers to assess and improve biosecurity practices at their premises. Keep pigs confined to the property and avoid feeding any swill. If swill (kitchen waste) must be fed to pigs then it should be thoroughly cooked (e.g. boiled for 30 minutes). Avoid buying new pigs with unknown health status - rather buy directly from a safe/trusted source. Do not allow visitors to interact with your pigs and insure that any workers and/or vehicles follow proper biosecurity protocols if they must enter the farm. **Cleaning & disinfection principles are vital.**



* Highly pathogenic avian influenza (HPAI) H5N1

Six outbreaks of HPAI H5N1 have been detected & quarantined in Gauteng Province so far, four commercial farms (three layer farms & one broiler breeder farm) and two backyard chicken farms. The four detected in May are shown in the map. So far about 173 000 chickens have been destroyed. Most of the chickens at the two backyard farms had already died from the illness, and only a few remained to be destroyed. All veterinarians should keep HPAI high in their list of differential diagnoses for acute onset of high mortalities or drop in egg production. Veterinary personnel should familiarise themselves with DALRRD's [proposed guidelines to control HPAI outbreaks](#) in chickens, released in May. Inputs for recommendations specific to certain production types (e.g. broilers, hatcheries) were welcomed.

* African horse sickness (AHS)

There were 18 outbreaks of AHS reported in May, affecting 20 horses of which five died. Most of these outbreaks were in the Pretoria region. One case was a dog, which presented with pyrexia after staying at kennels. On suspicion of a gastrointestinal foreign body, an exploratory laparotomy was performed and proved to be negative. When it died post operatively, the main post-mortem findings were rubbery, congested and oedematous lung tissue - a sample of which tested positive for AHS virus by PCR. The kennels are in an AHS-prevalent area with horses present.

* Other

There was one outbreak of **bluetongue** and another of **malignant catarrhal fever**, both in Pretoria.

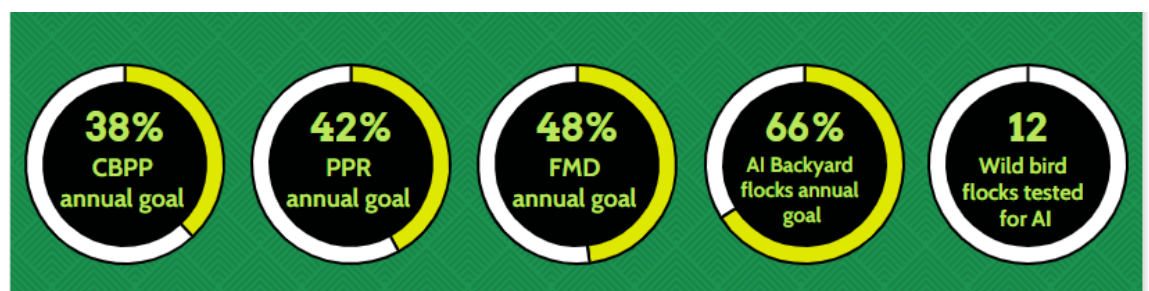
GVS were notified of a human case of **Brucella abortus** in Pretoria that was confirmed by blood culture. The investigation of the possible route of exposure is in process. Human brucellosis is often underdiagnosed, due to lack of awareness among clinicians as a cause of febrile illness, serological tests being unavailable or challenging to interpret and bacterial culture being difficult, with low sensitivity.

Foot and mouth disease (FMD) in KwaZulu-Natal

The details of how FMD spread to Mtubatuba are yet unclear. All veterinarians, animal health technicians and farmers are urged to stay alert and report any animals with lesions suspicious for FMD. Auctions & abattoirs should be especially vigilant.

Surveillance summary 2021

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. All suspected cases are investigated.

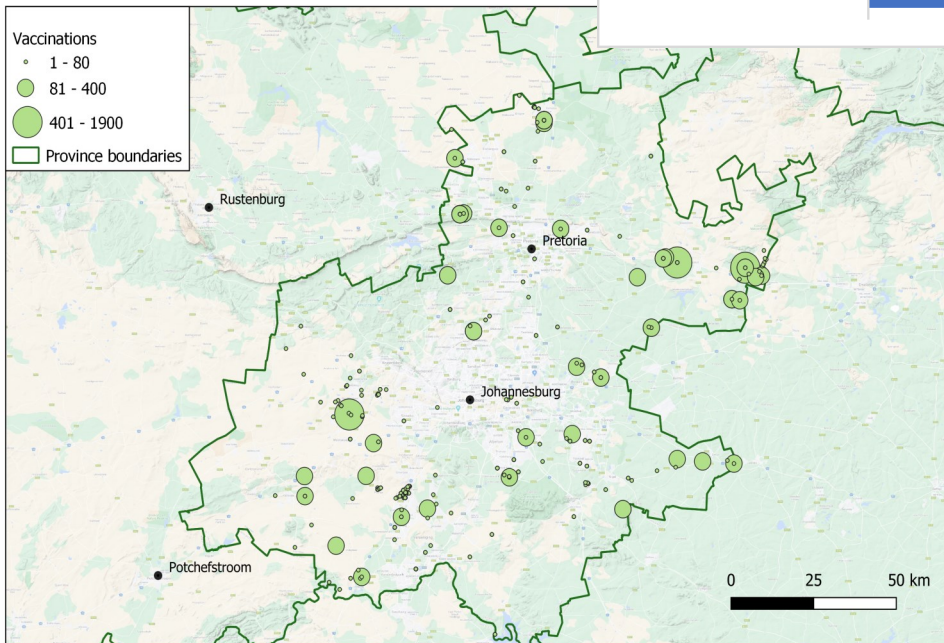
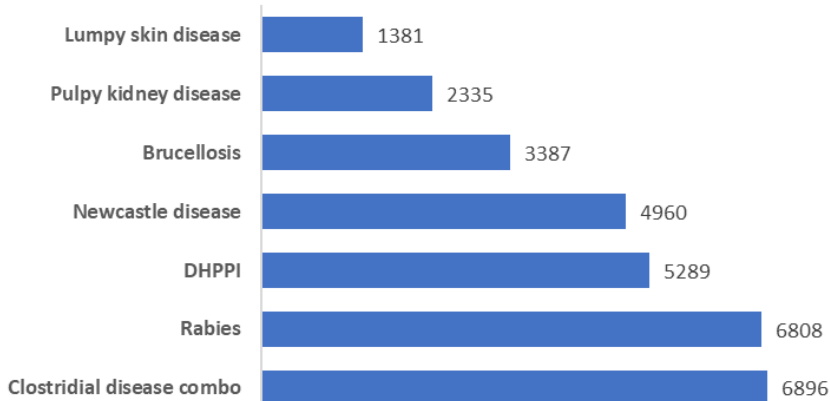


* Preliminary cumulative data

Animal disease reports and vaccination activities

GVS primary animal health and regulatory officials administer vaccinations to animals in the public sector on a daily basis. During May, a total of **31 056** animals (4960 poultry) were vaccinated.

Vaccinations by GVS, May 2021



Vaccinations Reports by GVS
May 2021

Created by Epidemiology, Gauteng Vet Services

DHPPI: Distemper, infectious hepatitis, parvovirus & parainfluenza virus.

Clostridial disease combo: Anthrax, botulism & black quarter.

(data may change and numbers are only estimates)

Join us:

GLOBAL POSITIONING SYSTEM AND DISEASE MAPPING

CPD EVENT

TARGET AUDIENCE
State veterinarians
Animal health technicians



WHEN
Wednesday 7 July 2021
13pm - 14pm

WHERE
Microsoft Teams

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GAUTENG PROVINCE