An overview of African Swine fever outbreaks in South Africa (2016 to 2024)

Malesa R, K Montsu and Heath L

Transboundary Animal Diseases, Onderstepoort Veterinary Research, Agricultural Research Council, Onderstepoort, 0110.

INTRODUCTION

❑ South Africa has historically experienced sporadic African swine fever (ASF) outbreaks in domestic pigs in the northern parts of the country. In 1935 the country declared a controlled area for African swine fever (ASF) in 1935, consisting of the northern parts of Limpopo, Mpumalanga, North-West and KwaZulu-Natal Provinces (Figure 1. Shaded red area).

❑ The area was delineated based on the endemic presence of the sylvatic cycle of ASF, involving warthogs and argasid ticks.

❑ The first outbreak of ASF reported outside of the ASF-controlled area of South Africa occurred in 1996. This was an isolated incident, suspected to have been caused by the illegal movement of domestic pigs from the ASF-controlled area and did not spread beyond the index farm.

❑ Since 2016 outbreaks outside of the of the ASF-controlled area have been occurring at an increasing frequency, suggesting a significant change in the epidemiology of the disease in the country.

❑ Here we provide a brief epidemiological description of ASF outbreaks between 2016 and 2024 across part of South Africa that was previously free of the disease and highlight factors in the pig production systems that may have contributed to the spread and maintenance of infection in the domestic pig population (Figure 2).

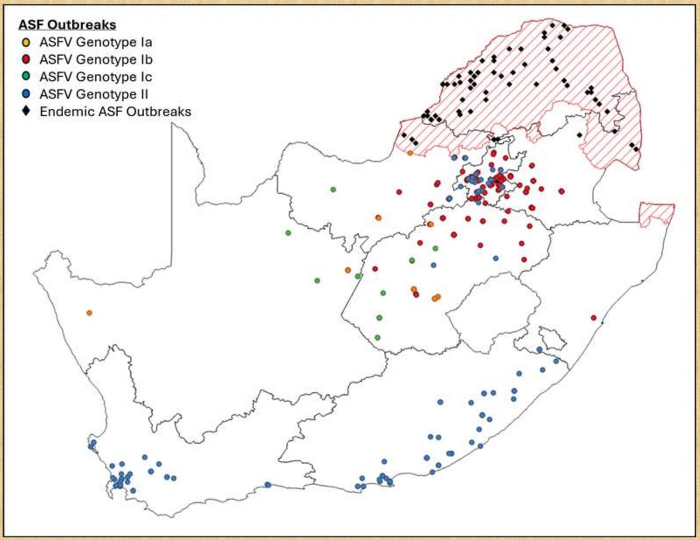

Figure 1: Spatial distribution of ASF outbreaks in domestic pigs from 2016 to 2024 in areas of South African previously free of ASF.

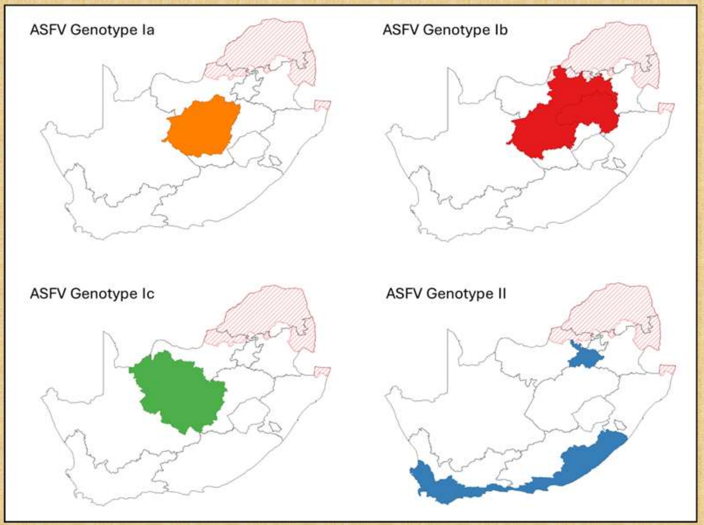

Figure 2: Spatial distribution of F genotypes associated with pig-to-pig transmission in areas previously free of ASF

RESULTS

❑ For confirmation of ASF, state veterinarians had submitted samples on suspicion of ASF to the Transboundary Animal Diseases Laboratory at the Onderstepoort Veterinary Institute for testing. All samples were tested using PCR followed by phylogenetic analyses of a portion of the p72 and CVR gene region (Figure 3).

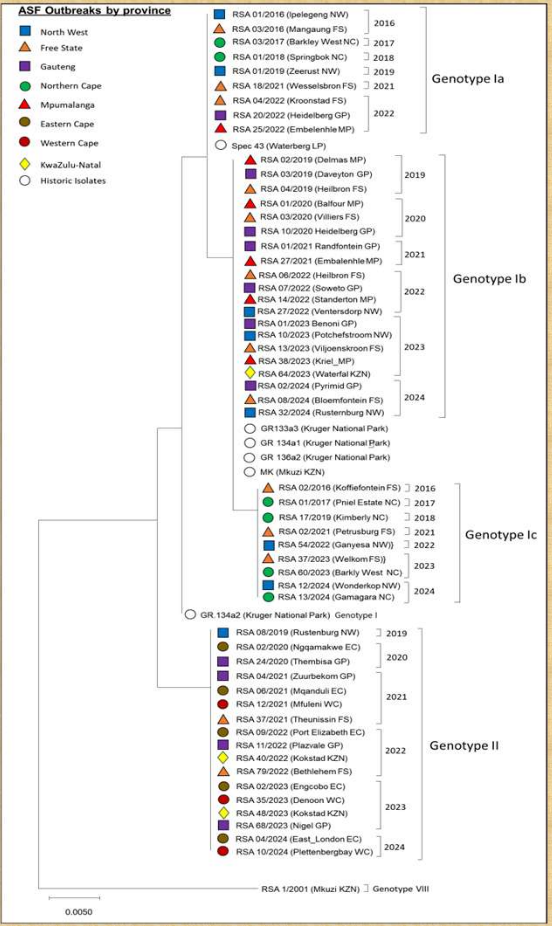

Figure 3: Neighbor-joining phylogenetic tree ASFV sequences representing outbreaks in South Africa from 2016 to 2024.

DISCUSSION

❑ The unexpected presence of genotype I & II highlights the evolving epidemiology of ASFV in South Africa.

❑ Three variants of Genotype I has been identified, each with distinct geographic distribution and epidemiological characteristics.

❑ Genotype II, first seen in 2019, has remained genetically stable.

❑ A domestic pig epidemiological cycle has been established in peri-urban settings in areas previously free of ASF.

❑ Continued spread of ASF is linked to:

  - ✓ Poor biosecurity in informal and peri-urban areas
  - ✓ Unrestricted movement of pigs between provinces

❑ The spread of ASF beyond the control zone has caused significant losses to the economy and has severely affected smallholder farmers. To limit the spread of ASFV, South Africa must strengthen its biosecurity and monitoring strategies.