

AFRICAN SWINE FEVER DISEASE MANAGEMENT STRATEGY

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A. INTRODUCTION

African Swine Fever (ASF) is a serious disease of swine and can cause very high mortality rates in domestic pigs. It is caused by a virus and currently, there are no vaccines or treatments available to control the disease. ASF is a disease that is notifiable to the World Organisation for Animal Health (OIE) and has trade implications when reported. In the last decade ASF has spread through Eastern Europe and the Caucasus and recently to many countries in Asia. ASF is arguably one of the largest constraints for pig production in Africa. Although total eradication of the disease is not possible throughout South Africa, due to natural vectors and wildlife hosts maintaining the virus in the sylvatic cycle, the disease can be successfully controlled and eradicated in domestic pig production systems by eliminating contact with the virus.

B. NATURE OF THE DISEASE

ASF is a virus that causes variable clinical presentations based on strain virulence, immune status, clinical signs and gross lesions.

There are three important modes of transmission:

- direct contact with infected pigs;
- indirect contact eg via swill feeding containing infectious pork or fomites (contaminated shoes, vehicles, equipment etc);
- vector-borne via soft ticks (*Ornithodoros* spp.)

The incubation period varies depending on route of transmission, ranging from 3-21 days (15d). Clinical signs vary, from finding dead pigs in the peracute form, to fever, anorexia, listlessness, incoordination, respiratory distress, abortions in pregnant animals as well as red patches on the skin and ears that may be seen in cases of longer duration.

ASF virus is persistent especially at low temperatures and in a proteinaceous environment and can survive for a long time (may be months/years) in blood and tissues (infected carcasses and pork products).

ASF virus does not affect human health.

C. SOUTH AFRICAN BACKGROUND

ASF is a controlled disease in terms of the Animal Diseases Act, 1984 (Act 35 of 1984). The Animal Diseases Regulations prescribe control measures in the case of an outbreak of ASF. Historically an ASF controlled area was described in the Regulations, with specific additional control measures due to the presence of the sylvatic cycle of ASF (between warthogs and soft ticks) in this area. It has been shown in this controlled area that, if pigs come into direct contact with these sylvatic carriers, spill-over to pigs occurs and an outbreak of ASF ensues. The article “Understanding African swine fever outbreaks in domestic pigs in a sylvatic endemic area: The case of the South African controlled area between 1977–2017” provides a comprehensive description of the ASF outbreaks in South Africa’s ASF controlled area (Janse van Rensburg et al., 2020).

Since 2012, South Africa has been experiencing ASF outbreaks in domestic pigs, in the area previously free from ASF, by means of the domestic cycle of ASF (spread via pig contact and contact with pig products). The article “Investigation of African swine fever outbreaks in pigs outside the controlled areas of South Africa, 2012–2017” (Janse van Rensburg et al., 2020) gives a full description that is summarized below with an update from 2018 onwards.

In 2012 an ASF epidemic occurred in Mpumalanga and Gauteng provinces, which was eradicated within six months. It is suspected that this epidemic was initiated by illegal movement of infected pigs from the controlled area.

In 2016 a second epidemic occurred and affected North West, Free State and Northern Cape provinces and showed a wider spread both temporally and in terms of distribution. This epidemic was eradicated in about 18 months. The original source of this epidemic, as well as a single outlying outbreak in Springbok, Northern Cape in 2018, is still unknown.

Since 2019, South Africa has experienced wider spread outbreaks of ASF in North West, Mpumalanga, Gauteng, Free State and Northern Cape Provinces, with the Western Cape and Eastern Cape Provinces affected for the first time - the latter posing a particular challenge because of the hundreds of thousands of free ranging and semi-feral pigs in certain areas of this Province.

The persistence and spread of these domestic pig outbreaks demonstrate that the eradication of the disease from the backyard and free-ranging pig sectors throughout South Africa will not be possible within the near future.

It is of interest to note that these domestic pig outbreaks are experienced at a time of increasing international spread of ASF, a major emerging disease worldwide with 60 countries reporting outbreaks of ASF between 2016-2020 (OIE Global situation of ASF – report can be found at https://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/Disease_cards/ASF/Report_47_Global_situation ASF.pdf)

Researchers have also found the ASF sylvatic cycle outside the previous demarcated controlled area in warthogs and soft ticks, which demonstrates that the current described controlled area is no longer relevant. Further research will be needed to determine the geographic distribution of the ASF sylvatic cycle in South Africa.

In South Africa the pig industry consists of a formal commercially driven pig sector, smallholder farmers, communal farmers and backyard pig keepers, these vary significantly in input costs, type of facilities utilised, productivity, marketing systems utilised and biosecurity measures practised.

D. SCOPE

This ASF Disease Management Strategy is a broad strategic document outlining the challenges faced with the control of ASF in South Africa and proposes recommendations on the interventions and the focus of these interventions to assist in prevention and control of ASF in South Africa.

E. PROBLEM STATEMENT

The following problems for ASF control have been identified with particular reference to the South African situation:

- There is no vaccine and no treatment for the disease; even if and when a vaccine may be developed, it is unlikely to be within the financial reach of the average pig keeper in South Africa, nor is it likely to be protective against all the genotypes that have been identified in South Africa.
- ASF is spread by live wild and domestic pigs and pig products – as well as by tick vectors;
- The areas of South Africa inhabited by the main wild pig carrier, the warthog, is expanding and now encompasses almost the whole country – while the soft tampan tick vector is also expanding its range as a result of climate change and increasing movement of wild pigs.
- The virus can possibly survive in pig products for years (if frozen);
- Safe disposal of pigs that died of ASF is difficult and can result in contamination of the environment;

- Many pigs are being kept in peri-urban areas that are not really suitable for agricultural activities causing welfare and disease concerns for the pigs and the people in the area;
- The value chain of pig buyers/speculators and informal slaughter and selling of meat to urban communities is not clearly described;
- The number of outbreaks in South Africa have increased since 2012 and show a domestic epidemiological cycle;
- Several virus strains distinguishable at genotype or sub-genotype level have been isolated, indicating multiple introductions into the previous ASF free area of South Africa;
- The number of pig farmers (non-commercial) has almost doubled between 2011 and 2016 from 112 678 to 210 504 (StatsSA, 2016);
- The number of pigs in informal pig sector at risk already exceeded 1.6 million pigs in 2016;
- The best way to protect pigs is by confining them in biosecure accommodation and feeding safe feed (no swill consisting of leftover catering waste). Non-commercial pig owners may not have the means to protect their pigs, as they generally don't have the resources to confine pigs or to buy safe feed;
- Many owners are resistant to movement controls and culling even when incentives are offered – and movement controls are difficult to enforce due to having a poor traceability system and insufficient resources eg shortage of personnel, overtime for roadblocks etc;
- Paying of compensation for culling for disease control purposes will not be sustainable due to Government's limited fiscus;
- Passing laws that prohibit pig keeping under unsafe conditions would immediately declare at least 200 000 pig keepers illegal and thus worsen their economic situation;
- The disease will cause devastation in some communities due to the large number of informal pig keepers and the threat to food security;
- Thus far Veterinary Services have been unable to stop the spread of the disease despite attempts to quarantine and cull (kill and destroy) all sick and in-contact pigs in affected areas.

It is evident that the domestic pig cycle of ASF is more of a socio-economic rather than a veterinary animal disease problem. The control of ASF therefore needs to have a holistic approach; i.e. deploy a think tank consisting of national, provincial and local authorities, commercial and non-commercial livestock sector, veterinary, agricultural production, finance, social services. Veterinary Services on its own is not able to control ASF any longer and this has also received recognition at the OIE, who indicated that ASF is not only a veterinary issue and that political commitment is of huge importance.

In the end the main responsibility of protecting the health of their pigs lies with the producers at all levels, so empowering them to do so using simple and affordable but effective biosecurity measures provides the most sustainable solution.

This approach to sustainable disease control needs to explore the future of pig keeping and pig centred agriculture in SA in such a manner that it does not promote the spread of diseases such as ASF, FMD, cysticercosis (pig tapeworm) and Pseudorabies (which is currently not present in the country).

F. OBJECTIVES FOR THE FUTURE PREVENTION AND CONTROL OF ASF IN SOUTH AFRICA

The ultimate goal would be to eradicate ASF from circulating in the domestic pig population, however this will need partnership between the public and the various government institutions. The following objectives are proposed as a means to achieve the goal in South Africa:

1. Communication of preventative measures
2. Support with the implementation of appropriate biosecurity
3. Active and passive surveillance programs at identified high risk areas
4. Early detection and containment of outbreaks
5. Prevention of further outbreaks and spread of ASF in domestic pigs by:
 - a. empowering pig farmers through knowledge on how to protect their herds from infection
 - b. information on high risk ASF areas
6. Providing systems to support international trade from farms with good biosecurity practices

To achieve these objectives, there are interventions that can be initiated by the Veterinary Services of South Africa but some interventions will need multifactorial and interdepartmental assistance.

G. INTERVENTIONS BY VETERINARY SERVICES:

Communication

- Awareness campaigns on biosecurity (safe buying, safe keeping and safe feeding) and other diseases risks will be undertaken jointly with other role-players;

Empowerment

- Minimum biosecurity standards that will prevent ASF introduction will be distributed to empower pig farmers (see [ASF prevention recommended biosecurity standards](#)).

Early detection and containment of outbreaks

- All suspicions of ASF, including all significant increases in pig mortalities must be reported immediately and must be investigated promptly and appropriate samples taken for confirmation; (see [ASF Contingency Plan](#) for details on what to do in the case of a suspect outbreak);
- Quarantine must be placed on affected holdings and the focus of this quarantine placement will not be to prohibit all movement, but to put movement control by means of permits in place and to inform the owner and surrounding properties of the risks involved in the movement of these animals (This may need the support of the municipality and/or the SAPS);
- Once a diagnosis is confirmed, a disease control plan for that area must be compiled by the local state veterinarian, following a consultative process involving the veterinary services in the area, the community affected and other role-players (eg SAPPO, local municipality, social development, environmental affairs etc.)
- Surveillance activities for early detection of disease should be planned.

Prevention of further outbreaks and spread of ASF

- The selling of live pigs at auctions in affected areas will be temporarily suspended to prevent the mixing and distribution of infected pigs;
- Movement controls (require certification) and movement restrictions to be implemented in specified areas (as determined to be necessary);

For trade purposes

- Veterinary services have compiled standards for high biosecurity farms to maintain a pig sub-population of a specified health status (VPN 39). Farms that comply with these standards will be audited for compliance and the National Veterinary Authority will keep a register of these officially approved biosecure pig compartments that can be certified for freedom from certain diseases (including freedom from ASF).

H. RECOMMENDATIONS TO THE INTERDEPARTMENTAL ASF TASK TEAM FOR OTHER NEEDED INTERVENTIONS:

Declare disaster areas where ASF outbreaks occur

In order to obtain resources to deal with the effects of an ASF outbreak, including dealing with the environmental contamination, the potential human health risks (due to the presence of rotting carcasses and influence on water sources etc), the effect on food security and other impacts, it is necessary that disaster management structures on municipal level be activated.

Clear and consistent message

Political engagement is needed to promote widespread awareness of the threat and prevention of ASF amongst the public. This information for distribution must be factually correct and given in a clear and consistent manner.

Disposal of waste

Carcasses of dead pigs as well as kitchen waste that include off-cuts of infected pork are potential sources of further infection. This waste needs to be removed in a safe and responsible manner to limit spread of the disease. Facilities and resources on a municipal level would be needed to assist with the responsible disposal of this hazardous waste. This may require disaster management structures to become involved for that municipality. Other waste, such as pig manure should also be considered. Simple composting systems can turn waste into a safe asset and should be further explored.

Cooperation with animal production structures

Where animal production structures are providing assistance to pig farmers or promoting/establishing pig farming, awareness on the threat of ASF as well as minimum biosecurity measures to prevent the disease should be advocated and included in planning procedures.

I. CONSIDERATIONS FOR REVISION OF ASF CONTROL MEASURES

1. Limitations of culling as an ASF control measure

Culling of animals for disease control is usually only considered if:

- The intention is to eradicate the disease;
- The disease is diagnosed early (before it has spread);
- The area can be effectively quarantined and policed and the number of pigs to be culled is known or a reliable estimate is available;
- Resources in terms of safe disposal of carcasses and disinfection are available;
- All the animal owners in the area/community are in agreement that culling is the best course of action;
- Resources for incentives (eg monetary, food parcels or replacement animals) are available.

Considering, the increasing outbreaks in various provinces of the country and the presence of the virus in warthogs and ticks, eradication of all sources of ASF in South Africa is not a feasible option. Since culling on a large scale is mainly done where complete eradication is the goal, it can no longer be justified to cull all healthy pigs that may have been in contact with infected

pigs and thought should also be given to the loss of an important protein source in resource-poor environments. Alternative strategies to control the disease should be investigated that would be easy to implement with the available resources and in cooperation with the producers. The use of culling as a main control measure for ASF is brought into serious question, as this strategy merely deals with the symptoms and does not address to the main reasons for the outbreaks. The compensation that pig owners receive for the diseased and in contact pigs that are culled, does not empower pig owners and keepers to improve biosecurity in order to prevent introduction of infection and better manage their herds. It has been shown internationally that the tool of culling and compensating has to be used judiciously, because indiscriminate deployment may distract from the message that diseases should be prevented through good biosecurity. There is also an ethical question of the use of culling, which may lead to trauma for the pig owners as well as officials involved in the culling procedures. Euthanasia may however be advocated for animal welfare purposes in instances where pigs are already sick and found to be suffering.

2. Proposal for control measures

In view of the above it is proposed that the current prescribed ASF controlled area and measures be amended in a consultative process to address the concerns raised and support the objectives of this strategy.



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