African Swine Fever (ASF) Response Strategy

Samoa

MINISTRY OF AGRICULTURE AND FISHERIES
SAMOA

Pacific Horticultural & Agricultural Market Access Plus Program

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Prepared by Dr. Ron Glanville and Dr. Hugh Millar, through
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This document may be updated from time-to-time by the Samoan Government Ministry of Agriculture and Fisheries (MAF), in consultation with other stakeholders, to reflect the most recent or up-to-date policies and procedures.

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Contents

Abbreviations

ACDP	Australian Centre for Disease Preparedness
ARP	At Risk Premises
ASF	African swine fever
CA	Control Area
CEO	Chief Executive Officer
CVO	Chief Veterinary Officer
DCP	Dangerous Contact Premises
IMT	Incident Management Team
IP	Infected Premises
MAF	Ministry of Agriculture and Fisheries
NCC	National Coordination Centre
OA	Outside Area
OIE	World Organisation for Animal Health
POR	Premises of Relevance
PPE	Personal protective equipment
RA	Restricted Area
SQS	Samoa Quarantine Service
SP	Suspect Premises
TP	Trace Premises

1. Introduction

African swine fever (ASF) has been identified as one of the Asia-Pacific's top animal health priorities in recognition of the potential to severely impact on commercial and domestic pork production and the local economic, cultural and social environments. This ASF Response Strategy is one of a suite of documents being prepared in collaboration with the Government of Samoa to enhance Samoa's ability to prevent the introduction of ASF, detect it early if it is introduced and to prepare for a response, should ASF be detected. Other documents include:

- An ASF National Action Plan.
- Biosecurity Code of Practice for the Rearing of Pigs in Samoa.
- ASF Surveillance Strategy.

This response strategy should be read in conjunction with the overall plan for managing and responding to emergency animal disease outbreaks in Samoa. It deals specifically with the strategic and technical aspects of dealing with African swine fever ('ASF') should it be detected. The ASF surveillance strategy also contains general information about the disease, as well as investigation and testing procedures, hence these are not reproduced here. Ways to keep ASF out of Samoa are dealt with in the national action plan and the biosecurity guidelines.

2. Control and eradication policy

The default policy is to contain, control and, if possible, eradicate ASF. This will be achieved by a combination of measures, including containment (particularly movement controls and confinement/ housing of pigs), destruction of infected pigs where appropriate, safe disposal of dead pigs and disinfection.

The overall aim is to minimise severe production losses and pig deaths from ASF which impact on food security, economic well-being and the cultural traditions of Samoa, as well as returning the country to internationally recognised free status.

These activities will be carried out in association with other activities such as disinfection, tracing, surveillance and community awareness and education. Zoning or compartmentalisation may be used, where appropriate. The selected strategies will take into account that the disease is spread by direct contact with infected pigs and ingestion of contaminated pork products, by indirect contact with fomites and mechanical vectors (including clothing, vehicles and equipment, and possibly, insects) and, in some environments, by biological vectors such as ticks. It is unknown whether the latter will be a factor in Samoa. **However, by far the most common method of transmission within infected countries, with similar climates to Samoa, is through people moving infectious materials.**

While a stamping out policy is preferred in many countries and is generally appropriate for commercial piggeries; for traditional pig keeping in Samoa, this is not considered appropriate and is likely to be counterproductive. Hence the detailed strategies that follow are dependent on the type of pig keeping practiced where infection is found. It should be noted that in Timor-Leste, ASF has 'burnt out' in village situations where movements of pigs and pig products have been controlled.

Within this overall policy, the strategies selected will depend on a thorough assessment of the epidemiological situation at the time. For this Strategy, three basic pig keeping situations are considered, with response strategies suggested for each. However, an actual outbreak will need to be assessed at the time to determine what is most appropriate under the circumstances. Further, response strategies will need to be reassessed throughout an outbreak and altered if necessary. The three basic pig keeping situations considered are:

a) Commercial pig keeping.
b) Semi-commercial, small farms.
c) Traditional pig keeping, such as in a village situation.

3. Initial Actions to be taken

If there is a positive or highly suspicious finding of ASF in Samoa (see ASF surveillance strategy for surveillance investigation and testing procedures), the initial actions will depend to some extent on the situation. Note that this section deals with the initial actions only. Once ASF is confirmed, subsequent actions are covered in sections 4 onward.

3.1. Commercial pig farming.

- The MAF CEO or delegate should be notified of the finding immediately.
- The piggery should be immediately placed under quarantine using the provisions of the *Quarantine (Biosecurity) Act 2005*. Primarily, this means that no pigs should enter the piggery and no pigs or potentially contaminated material must leave the piggery, at least until its disease status is clarified.
- If not already initiated, an initial investigation team should be deployed to manage the incident, collect the relevant history, conduct trace back and trace forward, as well as initiate surveillance on surrounding farms.
- Complete the initial investigation form to capture the essential details relevant to the disease finding.
- Disposable PPE and disinfectant chemicals should be arranged for surveillance activities.
- All people at the piggery should be provided with instructions regarding biosecurity precautions, for example, de-contamination of clothing and equipment when leaving the piggery, do not come into contact with other pigs or visit other pig-keeping premises. Animal feed and water supply should be maintained to the farm. Disinfect utensils prior to providing water and feed. They should also be provided with general information about ASF, including the fact that it does not affect humans.
- Neighbouring piggery(ies) should be notified to follow strict biosecurity procedures and not to panic.

- Discuss with the piggery owner what must be done with any pigs that have already died, for example burn or bury on the property. Establish other disposal methods such as deep burial if there are high numbers of affected pigs on the farm or in the area. Any transport equipment used for this task must be decontaminated.
- Establish isolation units in each piggery to isolate sick animals.
- ASF effective recommended disinfectants must be used.
- Samples should be collected for transport to an approved diagnostic laboratory[1] for confirmation of the disease diagnosis. Samples may also be taken for testing with a rapid antigen test as per the surveillance strategy.
- Complete initial investigation form to capture the essential details relevant to the disease finding (a generic form is provided in the surveillance strategy).
- Collect information that will be used to establish a plan for feral pig control around the farms of infected area (if infection is confirmed).

3.2. Semi-commercial, small farms.

- As for commercial pig keeping.

3.3. Traditional pig keeping, such as in a village situation.

- The MAF CEO should be notified of the finding immediately.
- Determine the extent of pig deaths or sickness within the village.
- Samples should be collected for transport to an approved diagnostic laboratory for confirmation of the disease diagnosis. Samples may also be taken for testing with a rapid antigen test as per the ASF surveillance strategy. Positive and suspicious samples should be sent to overseas reference Laboratory for confirmation.
- Assistance should be sought from village leader(s). Amongst other things, determine the best way to quickly communicate messages to the entire village, particularly pig keepers (for example a village meeting). This may also include locality and divisional level notifications regarding infection status and assistance with deployment of teams to contain and collect tracing information.
- People should be advised of the following:
    - The nature of ASF and its implications. A fact sheet should be distributed among the general public, including a statement that ASF does not affect humans.
    - Contact details of who to notify in case of suspicious sickness or deaths.
    - The vital importance of isolating pigs and placing them into enclosures.
    - The need to not move pigs around, including not bringing in pigs from other areas or villages (including wild pigs) and to not take any pigs or their meat products away from the village.
    - Simple biosecurity precautions, for example, always wash with soap and water after handling pigs, do not touch other people's pigs. Use detergents and disinfectants provided as per the emergency plan for ASF. Disinfectants for farmers are outlined in attachment 2.

1 This would normally be the Australian Centre for Disease Preparedness at Geelong.

    - Any pigs that die should be burned or buried according to an agreed protocol.
    - Any pig meat or material from infected pigs that is not consumed by village members must be burned or buried.

- Capture as much information as possible regarding the details of the outbreak to date, including information on the disease investigation form.

3.4. Reporting

- As indicated earlier, the MAF CEO or delegate should be notified immediately where ASF is suspected or positive test results are received.
- If the results are positive, then this must be immediately notified to the appropriate decision level within the Government of Samoa and an Emergency Response Plan activated.
- Situation reports are to be submitted at least daily to technical and response teams.
- Immediate notification of OIE should occur once the disease is confirmed, together with weekly update reports.

4. Epidemiological assessment

Epidemiological investigation or assessment draws on multiple sources of information to build understanding of the disease and how it is behaving in an outbreak. This, in turn, helps inform response decision making.

In the initial response to ASF, the key objectives for an epidemiological assessment will be to identify the:

- spatial distribution of infected and noninfected (domestic and feral) animal populations.
- how the disease is behaving in the infected location(s) and movement of the disease.
- virulence and phylogenetics of the virus strain present (to aid identification of the source). This will most likely need to be done at the Australian Centre for Disease Preparedness at Geelong (see surveillance strategy for details).
- source of infection and identification of possible pathways. (High risk period)
- risk factors for the presence of infection, disease spread and susceptibility to disease (e.g., weather, vectors, feral pig populations, interactions between feral pig populations and kept pig populations).
- estimate the potential economic impact and sustainability of response options (eradication, containment, etc).
- forward tracing, backward tracing.

Also note that epidemiological assessment, and tracing and surveillance activities are interrelated activities. Early findings from tracing and surveillance will be inputs into the initial epidemiological assessment (eg considering the spatial distribution of infection). The outcomes of the initial epidemiological assessment will guide decisions on subsequent tracing, surveillance and control priorities. Further molecular diagnostics such as haplotype analysis will be performed in OIE reference laboratory (for example, Australian Centre for Disease Preparedness).

Ongoing epidemiological assessment is important to aid evaluation of the continued effectiveness and value of response measures, and assessment of the progress of disease control measures.

For further, detailed information on the conduct of epidemiological assessments, please refer to separate document, 'Serious Veterinary Epidemiology' by Roger Paskin and Grant Rawlin.

5. Movement controls and biosecurity

5.1. Declared areas and movement controls

In a response to a positive diagnosis of ASF, movement controls will be immediately imposed on all premises and areas on which infection or contamination with ASF virus is either known or suspected (through imposition of individual notices). Through the appropriate legal instruments, the following declarations may be imposed.

5.1.1. Declared areas

A **restricted area** (RA) may be declared around the known affected farm(s) and/or villages. The size of this area will depend on the situation and epidemiological assessment, for example:

- for a single, large commercial piggery, it could be just the piggery itself. It could also include a logical buffer area around it depending on the level of biosecurity practiced by the piggery. This would be based on geography and potential interaction with other local pig keeping, including semi commercial and village pig production; perhaps a 2-5km radius around the piggery.
- for a small commercial piggery, the considerations would be similar.
- for a village / traditional pig keeping situation, it would include the entire village and any surrounding areas where there is regular movement of people and/or pigs between the areas. It could be an entire island.

Emergency declarations can be gazetted under appropriate legislation and/or regulations.

A **control area** (CA) may be declared (optional) depending on the situation. For example, if an RA did not include an entire island, the remainder of the island may be declared a CA.

Irrespective of the size and location of restricted and control areas, all inter-island movement of pigs should be prohibited as soon as ASF is confirmed in Samoa.

5.1.2. Movement controls

Controls should be placed on the movement of any pigs into, out of and within the RA, as well as any potentially contaminated items (including pig products and by-products and associated equipment). This includes feral pigs and their body parts as well as moving any pig meat between villages. The latter has been the most common way of spreading ASF within Papua New Guinea. See section 14.1 regarding control of feral pigs.

Enforcement measures will need to be considered regarding how best to curb illegal slaughter and sale of pig meat and any other pig products.. Traditional practices of presenting live animals or pig meat for functions such as funerals, weddings, birthdays etc will also need to be taken into consideration.

Any movements would require the issue of a permit by an authorised officer. Collaboration with other stakeholders will also be required.

There should be no movements out of a CA into the remainder of Samoa unless allowed under a permit. Movement of pigs within the CA should be discouraged, including cancelling of any sale of pigs within local markets.

See attachment 1 for a suggested movement control matrix. Note that movement of pigs to abattoirs, even from DCPs, SPs and TPs may be warranted for animal welfare reasons and to salvage the pig meat. Cooking and/or processing may be considered to minimise the chances of spread through this means. Cleaning and disinfection of transport vehicles used for these purposes will be essential.

Any further measures to prevent contact between feral and domestic pigs should also be implemented to avoid infection of domestic pigs from feral pigs and vice versa. For example, a commercial piggery should construct a pig-proof boundary fence if not already present. The primary aim of this fence is to prevent any possibility of nose-to-nose contact between feral pigs and domestic pigs. Double fencing or electric fencing is ideal.

Boundary fencing would also be advisable for a village if practical.

5.2. Biosecurity measures

Specific human biosafety measures are not required for ASF because it is not a zoonotic disease.

All pig owners in the RA and CA, particularly the RA, should be required to enclose their pigs within a pen or fenced area to prevent nose to nose contact with other people's pigs and feral, free roaming pigs. Until the distribution of the disease is reliably known, all owners of pigs in all parts of the country should be strongly encouraged to enclose their pigs in pens or behind fences.

Stringent biosecurity measures to manage the movements of people on and off infected premises will be important for controlling ASF. Movements of personnel onto or off high-risk premises (IPs, DCPs, trace premises and disposal sites) should be limited, where possible. Biosecurity legislation should have provisions to control people movements. Irrespective, cooperation from the public and pig owners / workers should be sought. The stringency and practicality of those measures will depend on the type of pig keeping property/s involved.

The workforce should be provided with adequate disposable PPE and disinfectants for containment during operations, including worker movements from infected premises. The latter are to be restricted and disinfection protocols followed to prevent further spread through fomites. These requirements can be included in the Emergency Declaration.

5.2.1. Commercial pig keeping operations

Personnel involved in handling pigs and/or potentially contaminated items or areas should be considered contaminated. These may include response personnel, farm personnel, truck drivers and abattoir workers.

All potentially contaminated personnel should shower / bathe (including washing hair) before entering and after leaving infected premises, with complete clothing changes. If showering facilities are not available on-site, showering / bathing may occur elsewhere but should occur as soon as practicable after leaving the premises. Personnel could also be encouraged to remain on the farm during the eradication response. However, the associated logistics would need to be arranged after discussion with farm owners.

Premises-specific boots and overalls or disposable PPE should be used. Decontamination of premises-specific footwear after each use and hot laundering (≥60 °C) of used overalls is required. These requirements should also be met by workers and drivers entering and leaving processing facilities that handle pigs from IPs, DCPs, etc.

On-farm, personnel should work a 'one-way flow' from clean areas to dirtier areas within a production shed. Sharing of personnel between production sheds (or production units within a shed) should be avoided.

Movements of vehicles and equipment onto or off high-risk premises (IPs, DCPs, etc.) should be limited. Vehicles and equipment that are moved must be thoroughly cleaned prior to their movement, where possible. These requirements can be used in the Emergency Declaration.

Equipment used in handling infected (live or dead) pigs and/or potentially contaminated items or should be considered contaminated and either disposed of on site or decontaminated (see later).

Non-reusable equipment should be disposed of in a biosecure manner (e.g. incineration or burial). Reusable equipment (including vehicles) must be decontaminated on exit from the premises (or at another approved place) and allowed to completely dry before reuse.

5.2.2. Traditional/village pig keeping

All pigs should be enclosed in pens or fenced areas. Experience with the ASF outbreak in Papua New Guinea was that this was one of the most effective ways to protect pigs and minimise pig deaths in village situations, linked with other biosecurity measures at the property and village level.

Pigs or their meat products should not be moved between properties and must not be moved from the village to other areas or brought in from other areas or villages. Moving infected pigs and contaminated pig products is the most effective way to spread ASF to other properties or areas.

People who have had contact with pigs should not have contact with pigs on other properties or places. People should always thoroughly wash their hands after handling pigs, and if possible change their outer clothing and footwear. As much as possible, the movement of people between different groups of pigs should be avoided.

All pigs that die should be buried or burned according to instructions issued by the biosecurity team that ensure carcasses cannot be accessed by other pigs, domestic or feral. Similarly, any pig meat or material from infected pigs that is not consumed by village members must be burned or buried to avoid contact with pigs including feral pigs.

Very detailed information is available within the AUSVETPLAN disposal manual which can be found at: **https://animalhealthaustralia.com.au/ausvetplan/.** As a rough guide for burial, the pit should be large enough to take all pigs, allocating roughly 0.3 m3 per pig; the bottom of the pit should be at least 2m above the water table; and there should be at least 2m of earth above the pigs.

The feeding of any untreated pig meat or remains to pigs [unless treated by an approved method such as boiling the material for at least 10 minutes] should be strictly prohibited in affected areas and villages and should be strongly discouraged across Samoa.

Security at municipal and village garbage tips should be improved to prevent feral and domestic pigs from gaining access to domestic food scraps. A feral animal control program may also need to be established as per section 14.1.

Biosecurity enhancements will be encouraged on all pig premises in Samoa – in accordance with the **Biosecurity Code of Practice for the management of pigs in Samoa.**

6. Tracing

While tracing of the movement of pigs and risk items from individual properties is ideal, in practice in village situations this may be impractical. In these situations, it may be necessary to consider the village as the unit of interest (i.e. the whole village is an 'Infected Premises" (IP)) with tracing involving identifying what has moved into and out of the village. In the case of commercial and semi-commercial piggeries, the piggery is the Infected Premises for tracing purposes.

Trace-forward (spread tracing) and Track-Back (source tracing) of risk animals and items from infected premises (IP) will help identify the source of the disease, the primary case(s), and the location of potentially infected animals, contaminated items and trace premises (TPs). This will help identify the origin of the outbreak and define the potential extent of disease spread.

If possible, estimate the date when ASF virus is likely to have been introduced onto each IP, from which forward and backward tracing will be undertaken. Where the epidemiological investigation is inconclusive, tracing should consider movements onto and off IPs from a minimum of 15 days before the first appearance of clinical signs on the IP up until the time that quarantine was imposed.

Tracing should include:

- pig movements
- other animals, such as dogs or chickens, in contact with infected pigs
- animal products, including meat, reproductive materials and offal
- wastes and effluent
- vehicles, including livestock transport vehicles, feed trucks, farm visitors' cars, etc
- pig feed, medicines or vaccines, hay, straw, crops, grains and mixed feed that may have become contaminated
- fencing and contact with feral populations
- clothing, shoes and other footwear worn whilst in contact with infected pigs
- people, who may have been in contact with infected pigs or materials in neighbouring villages or towns.

Tracing should include consideration of vector involvement and contact with feral pigs. Follow-up investigation of premises identified by tracing should be prioritised by the likelihood of transmission and the potential consequences for disease control activities.

7. Surveillance

Surveillance in an ASF outbreak will initially be aimed at:

- identifying the source of infection
- determining the extent of spread, including identifying whether vector and feral pig populations are involved and, if so, their distribution
- identify infection movement patterns
- providing data to inform risk analyses and selection of appropriate control measures, and
- early detection of outbreaks in new areas.

Surveillance information is also used for OIE notifications, as well as updating of infection zones and restricted areas within the emergency declaration.

The surveillance aims will be achieved by prioritising surveillance:

- of premises where animals are showing clinical signs consistent with ASF-suspect premises (SPs) and where animals are not showing clinical signs but are considered highly likely to contain or have been exposed to an infected animal and/or contaminated animal carcasses, pig products, wastes or items (DCPs).
- of other premises found to be epidemiologically linked to the index case (identified through tracing) to determine if they may be infected and/or contaminated
- to identify premises containing infected animals that have not been identified through tracing, for further investigation and testing.

Regarding the latter, a critical aspect of surveillance is community awareness promoting the need to report any unusual signs of disease. Further, monitoring of social media and community networks may give information regarding where unusual disease events are occurring.

Field surveillance should be prioritised based on risk, as indicated by the premises classification categories (SPs, TPs and DCPs are the highest priority for investigation). Further prioritisation of surveillance should be risk based and consider the likelihood that subclinical infection may be present, and the risks of further disease transmission and dissemination. For example, SPs and TPs in areas otherwise believed to be free from infection (the OA and CA) may be a higher priority for investigation than premises in the area where infection is known to be present (the RA).

In a situation where ASF is found in a village with traditional pig keeping, the surrounding villages and any feral pigs in the vicinity would be a high priority for surveillance.

Disease control decisions and consequential changes to the emergency declaration should be updated according to surveillance findings, patterns of disease movement etc. Visual representations, for example, simple maps of disease occurrence and more sophisticated infection movement maps prepared from the surveillance outcomes are very useful decision and communication aids.

8. Actions on Infected and trace premises

Enforced humane destruction of animals will only occur under certain circumstances. Further, because ASF is significantly less contagious than many other diseases, for example foot-and-mouth disease, the need for rapid destruction of pigs is reduced. The circumstances where pigs may be destroyed include:

8.1. Commercial piggeries

Once ASF is diagnosed on a commercial piggery, then all pigs in affected sheds should be compulsorily destroyed humanely.

If there is more than one shed on the farm, then an epidemiological assessment should be made regarding whether to destroy pigs in all the sheds, irrespective of whether disease is evident. If there is no biosecurity separation between sheds (e.g., people and equipment is shared; pigs are moved between sheds etc), then they are all likely to become infected and destruction of all pigs should be considered.

8.2. Semi-commercial, small farms

Given that most, if not all pigs on these farms are likely to die from ASF, voluntary humane destruction of all pigs is encouraged.

8.3. Traditional pig keeping, such as in a village situation

The policy is not to destroy healthy pigs in a village situation. Pigs are very valuable culturally and official (enforced) destruction of pigs is likely to lead to negative messages being spread very quickly through communities. This will lead to widespread non-compliance with reporting of sick pigs.

Villagers should be encouraged to confine their pigs in pens, which in Timor Leste and PNG with similar pig keeping practices, has shown to limit their chances of becoming infected (refer Section 4.2 above).

Infected pigs and pigs displaying ASF-like symptom must be isolated from all other pigs and confined in secure pens.

With the agreement of the community, assisted destruction of sick pigs may occur for animal welfare reasons and to reduce risks of contaminating pig keeping areas. Sick pigs that are not confined in pens should be humanely destroyed and disposed of properly.

Infected premises / pig keeping pens should be disinfected to reduce cross contamination.

Experience in other countries with similar forms of pig keeping indicates that the disease is likely to 'burn out', with most, if not all, pigs in a village dying from ASF.

8.4. Dangerous Contact Premises (DCPs)

Examples of DCPs are:

- Where there are pigs originating from an IP (within the backward tracing window),
- Where pigs that have had direct contact with pigs on an IP,
- Where pigs that have had access to the faeces, urine and/or secretions of pigs from an IP,
- Where there are pigs that have been exposed to contaminated feed or water,
- Where there are pigs on which any equipment, e.g. hypodermic needles that have previously been used on an IP have been used without decontamination,
- pigs that have been handled by people immediately after they have handled pigs from an IP.

On a DCP, the premises should be placed under quarantine and the pigs closely monitored, with any sick pigs tested as soon as possible. Destruction of pigs will not be considered unless ASF is detected, and then will depend on the type of premises and the circumstances (see 8.1, 8.2 and 8.3 above).

On a case-by-case basis, slaughter for human consumption under strict supervision and biosecurity arrangements may be considered for healthy pigs on DCPs, provided that no clinical signs are evident.

Any other trace premises should be closely monitored for signs of infection.

9. Support/ Assistance

To be determined by Samoa government.

[Authors note: Support or assistance for owners of pigs which are destroyed to control ASF, or which die from ASF, could involve a financial payment or perhaps more usefully, free provision or assistance with replacement pigs once the area is free of the disease.

This could model the "Safe source, Safe destination" program in Timor-Leste. Determining support mechanisms/policies and mechanisms for restocking affected farms/areas with disease free pigs is an important preparedness exercise while Samoa is free from ASF.

A suitable approach for support needs to be discussed by the government with relevant stakeholders including industry and decided upon. It should primarily be perceived as a way to minimise impacts on affected communities and be an incentive to report disease. Limited or excessive support can encourage undesirable behaviours and impact control efforts. Often current market values of different animal species, considering their signalment, can be used. However, the use of direct cash payments can be problematic and promote poor behaviours. Other avenues for support could be used, such as providing replacement animals, feed or other relevant support approaches. The industry may also have their own insurance or support mechanism.

10. Disposal of animals, animal products and by-products

High-risk materials from quarantined premises should be disposed of in a biosecure manner on-site or at an approved disposal site (ADS). Similarly, and where practical, feral pig carcasses should be transported under permit and disposed of in a sanitary manner, which may include at an ADS. Where possible, materials should be disposed of in same premises, rather moving them. Mobile incinerators may also be deployed for this purpose.

High-risk materials include carcasses, culled animals, animal products and by-products, wastes, effluent and contaminated fomites (eg clothing, equipment, feed) that cannot be adequately decontaminated.

The method chosen for disposal will be influenced by the type and volume of material to be disposed of, the resources available, the local environment, the prevailing weather, legislative requirements (including environmental protection legislation) and the risk of spreading the virus.

Risk material should be disposed of in a way that prevents feral pigs and mechanical vectors (such as dogs, rodents and biting insects) from gaining access to contaminated material. Deep burial, burning, composting or above-ground burial may be considered. However, the risk of scavengers needs to be considered for the latter.

Decontamination of all equipment and machinery involved in disposal will be required.

Where disposal on-site is not feasible, an approved site for disposing of risk material (i.e. an ADS) may be used, taking into consideration the risk of transmission of ASF virus during transport of the risk material to the disposal site.

Very good guidance on disposal options and methods can be found in the AUSVETPLAN operational manual Disposal[2].

2 https://www.animalhealthaustralia.com.au/our-publications/ausvetplan-manuals-and-documents/

11. Decontamination

Under circumstances where ASF involves the feral population, disposal should be at a feasible site where minimum handling and transfers are involved, hence reduce risk of contamination. Consideration must be given to locations and sites bordering forests and disposal by burning or deep burial (supervised by a biosecurity officer or animal health or appointed agriculture extension officer).

Decontamination of contaminated premises, equipment and fomites (e.g., clothing, footwear, non-disposable equipment) is vital to prevent contaminated materials being moved between premises/places, and to prevent re-occurrence of ASF once restocking occurs. Decontamination plans should be developed for each premises to be decontaminated.

IPs should be decontaminated following depopulation (including the death of all pigs from the disease) and disposal of contaminated material.

Decontamination requires:

- pre-treatments to reduce and preferably, eliminate, the level of organic matter (eg combinations of physical removal such as scrubbing and scraping, soaking, detergents, high-pressure water)
- use recommended disinfection chemicals with recommended concentration
- adequate contact time and concentration of the active ingredients
- temperature and pH within the effective range for the agent being used.

The ASF virus is susceptible to a limited range of disinfectants, including sodium hydroxide, citric acid, calcium hypochlorite and glutaraldehyde in combination with quaternary ammonium (refer to the above AUSVETPLAN manual).

Where thorough, physical decontamination is not possible, an extended period of depopulation will be required. At the temperatures experienced in Samoa, there should be no viable virus remaining after one month. However, 2 months may provide an additional margin for error.

Guidance on decontamination can be found in the **AUSVETPLAN operational manual Decontamination**[3]. Note also that a simplified version that could be applied in the village situation is provided in attachment 2.

3 https://www.animalhealthaustralia.com.au/our-publications/ausvetplan-manuals-and-documents/

12. Zoning and compartmentalisation

Where it is not possible to establish and maintain disease freedom for the entire country, or the disease eradication activities in affected areas are prolonged, establishing and maintaining disease-free subpopulations or areas, through zoning and/or compartmentalisation, may be considered for domestic purposes. This will better protect the ASF free areas of the country and allow more normal pig keeping activities to continue in these areas, albeit with heightened vigilance for cases in accordance with the ASF Surveillance Strategy and heightened biosecurity procedures.

A containment zone may be established around the areas where the outbreak is occurring (for example, an entire island), with the purpose of maintaining the disease-free status of the rest of the country outside of the zone.

If zoning were to be considered for trading purposes, an internationally recognized zoning application would need to be prepared by the Samoa Government. Recognition of both zones and compartments would need to be negotiated between the Samoan Government and individual overseas trading partners. Zoning and compartmentalisation applications may require considerable resources and hence the benefits would need to be carefully considered. Under present circumstances, Samoa is not an exporter of pork and hence internationally recognised zoning would not be necessary or cost-beneficial.

The OIE guidelines for zoning and compartmentalisation for ASF can be found at: **https://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/ASF/ASF-CompartmentalisationGuidelines_EN.pdf.**

13. Animal welfare

Because morbidity and mortality resulting from ASF may be high, close monitoring and careful management of animal welfare on affected premises will be required.

The treatment of infected animals is not effective and should not be attempted. Clinically affected animals may be euthanized on welfare grounds. The OIE outlines animal welfare standards that should be followed during destruction and disposal procedures: **(http://www.oie.int/fileadmin/Home/eng/Health_standards/tahc/current/chapitre_aw_killing.pdf).**

14. Vaccination (not applicable for ASF)

There is currently no commercially available vaccine against ASF. A vaccination strategy and plan may be established once OIE approval has been given for vaccination with a recommended vaccine.

15. Wild animal management

The ASF virus may be spread by feral pigs, other pest animals (e.g. rodents) and possibly biting insects (e.g. flies, ticks, mosquitoes). The importance of the latter in an actual ASF response in Samoa is unknown. Control of rodents in the vicinity of an ASF outbreak will be good practice.

However, the highest priority during a response will be preventing feral pigs from becoming infected or controlling the disease in feral pigs if this occurs.

15.1. Feral pigs

Where possible, every measure should be taken to prevent contact between domestic and feral pigs. This may involve penning of pigs and/or perimeter fencing.

A ban on feral pig hunting or other activities that may disturb feral pigs and cause them to disperse may also be considered.

Surveillance of feral pig populations near IPs will be required. If feral pigs are infected, measures to manage the disease in these populations may need to be considered. A separate control or eradication program / plan should be developed in consultation with experts on the ecology and control of feral pigs.

Where eliminating infection from the feral pig population is not feasible, compartmentalisation of the commercial pig industry in areas where commercial farms and feral pigs co-exist, may need to be considered. Zoning may also protect the commercial farms as indicated in Section 12.

15.2. Rodents and biting insects

Rodent and insect control measures should be implemented to minimise the risk of contamination of these vectors with ASF virus and minimise the risk of transmission to and from neighbouring feral and domestic pig populations. Such measures are not likely to be practical except in association with commercial piggeries.

16. Vector management

Early epidemiological investigation into potential tick vector species will be important to inform vector management because it is currently unknown whether tick species in Samoa will play a role in disease spread. With input from an entomologist, a vector monitoring program should be implemented to identify whether ticks are implicated in the epidemiology of ASF in Samoa and, if so, the species involved. External researchers may assist in this regard.

If tick species are implicated in the spread of ASF, a targeted approach to vector control to break the transmission cycle should be developed, with entomological advice.

17. Public awareness and media

Public awareness and industry engagement is vital to support the response. The communications strategy should include mechanisms for raising awareness in pig owners and the community.

Key topics to be covered in public information messaging will include advice on:

- the safety of food and other products derived from pigs
- signs of ASF in domestic and feral pigs and how to report suspect cases
- modes of transmission of ASF virus, including spread by people, and pig feeding restrictions
- biosecurity controls for domestic and feral pig populations
- measures to minimise the presence, proximity and access of feral pigs to domestic pigs thereby preventing the entry of ASF to pig production premises
- where to find more information on the response and the control measures being used.

Feeding to pigs of pig meat or items potentially contaminated with pig meat or offal presents the highest risk of spreading ASF within Samoa. A multi-agency approach may be needed to ensure this message is received within all communities. A widespread, multilingual public awareness campaign should support this.

Direct engagement with commercial and semi-commercial piggery owners will be required.

18. Restocking

In the event of a piggery, farm or village suffering from an incursion of ASF:

- no pigs should be introduced to the piggery, farm or village until the disposal of any dead pigs and the decontamination of all pig-keeping facilities, equipment and clothing has been completed, inspected and approved by the appropriate authority.
- stock reintroduced to a piggery, farm or village must be from sources that are approved/ certified to be free of ASF and transported in an approved, biosecure manner.
- Introduced pigs must be kept isolated from any other pigs in the piggery, farm or village and closely observed for a period of at least (14) days.

Mechanisms for sourcing/supply of disease-free pigs should be explored during the course of the outbreak for restocking of farms / communities once they are no longer considered infected. This may include:

- purchase of pigs from uninfected areas, particularly remote islands or areas where infection has not occurred.
- rearing of pigs specifically for this purpose in a biosecure environment. This mechanism may be particularly important to preserve locally valued genetics.
- consider importation of genetic material or live pigs if necessary and coordination with MASF for assessment and restocking.

[Authors note: Examination and identification of mechanisms for the supply of disease-free pigs to affected piggeries and communities will be an important preparedness exercise, and could be linked with considerations of support policy. This is best done in consultation with stakeholders while the country is free from ASF].

[Further note: The Safe Sources Safe Destination program developed in Timor-Leste is a valuable reference regarding restocking during/after an ASF outbreak.

Attachment 1 - Recommended movement controls for live pigs within and between declared areas

To→ From ↓		RA					CA			OA
		IP	DCP	SP, TP	Abattoir	ARP	SP, TP	Abattoir	POR	
RA	IP	Prohibited	Prohibited	Prohibited	Prohibited, unless required under permit to assist depopulation and / or destruction	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
	DCP	Prohibited	Prohibited	Prohibited		Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
	SP	Prohibited	Prohibited	Prohibited		Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
	TP	Prohibited	Prohibited	Prohibited	Prohibited, except under permit with risk assessment	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
	ARP	Prohibited	Prohibited	Prohibited	Prohibited, except under permit with risk assessment	Prohibited	Prohibited	Prohibited, except under permit with risk assessment	Prohibited	Prohibited
CA	SP	Prohibited	Prohibited	Prohibited	Prohibited, except under permit with risk assessment	Prohibited	Prohibited	Prohibited, unless required under permit to assist depopulation and/or destruction	Prohibited	Prohibited
	TP	Prohibited	Prohibited	Prohibited	Prohibited, except under permit with risk assessment	Prohibited	Prohibited	Prohibited, except under permit with risk assessment	Prohibited	Prohibited
	POR	Prohibited	Prohibited	Prohibited	Prohibited, except under permit with risk assessment	Prohibited	Prohibited	Prohibited, except under permit with risk assessment	Prohibited, except under permit with risk assessment	Prohibited
OA		Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited, except under permit with risk assessment	Permitted under permit	Permitted with heightened ASF awareness

RA = Restricted Area
CA = Control Area
OA = Outside Area

IP = Infected premises (positive ASF diagnosis)
DCP = Dangerous contact premises (considered highly likely to contain an infected animal)
SP = Suspect premises (has pigs showing clinical signs similar to the case definition)
TP = Trace premises (tracing indicates it may have been exposed to the disease agent)
ARP = At-risk premises (a piggery or village with pigs in a Restricted Area)
POR = Premises of relevance (piggery or village with pigs in a Control Area)

Attachment 2 – Simplified decontamination guidelines for village situations.

Decontamination of contaminated premises (IPs, DCPs and DCPFs) and fomites (e.g. clothing, footwear, non-disposable equipment) is a critical part of the response to ASF. Decontamination plans should be developed for each premises to be decontaminated. Detailed guidance on decontamination can be found in the **AUSVETPLAN operational manual Decontamination**. However, the following basic information can be applied, particularly in village type situations.

An infected premises (for example, a household that raises pigs) should be decontaminated following depopulation.

Decontamination requires:

1. Disposal of any contaminated material by burning or burying (for example faeces, bedding etc).

2. Cleaning to reduce and preferably eliminate, the level of organic matter using combinations of physical removal such as scrubbing and scraping, soaking, detergents, and high-pressure water. Generally, this would involve physical removal of organic matter followed by cleaning using soaps or detergents.

3. Application, with adequate contact time and concentration, of an appropriate active disinfectant, either:
   (a) Oxidising agents:
   a. Sodium hypochlorite
   b. Calcium hypochlorite
   c. Virkon

or

   (b) Alkalis:
   a. Sodium hydroxide (caustic soda) (NaOH);
   b. Sodium carbonate: anhydrous (Na_2CO_3), washing soda ($Na_2CO_3.10H_2O$)

4. Where there is uncertainty regarding the standard of cleaning and disinfection that has been achieved, then an additional period of depopulation may be applied. One month should be sufficient in warm climates, provided the environment is reasonably clean and dry.

5. A small number of sentinel animals may be used before full re-population to assess whether the environment is no longer infectious.

AFRICAN SWINE FEVER (ASF) RESPONSE STRATEGY