



Exercise Ivy Lessons Identified Report 2021

DRAFT VERSION

Exercise Ivy Lessons Identified Report
National (Scottish) African swine fever exercise
Evaluation and Lessons Identified Report
October 2021

Security Classification

This evaluation report is OFFICIAL. It contains information relating to the lessons identified from the Scottish African swine fever exercise, Exercise Ivy, held virtually on 06 and 07 October 2020. Details in this report and the subject matter itself is of a non-sensitive nature and can be shared with members of the public.

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EXERCISE IVY

1. Introduction

1.1 This report contains an evaluation of Exercise Ivy, a virtual Scottish African swine fever (ASF) exercise held in October 2020, organised by the Scottish Government (SG) in co-operation with the Animal and Plant Health Agency (APHA) and a major Scottish pig producer. This report evaluates the exercise and records the lessons identified for further action.

1.2 The primary purpose of Exercise Ivy was to test the Scottish Government's contingency plans and policies for the control of an ASF outbreak. It also tested APHA's preparedness for an ASF incursion on a large-scale commercial pig premises.

1.3 Exercise Ivy took place on 06 and 07 October 2020. It was a two day virtual table top exercise that began by discussing the actions that would be required following suspicion of swine fever in a large commercial pig premises that is part of a breeding pyramid. On day two, ASF was then confirmed on the suspect premises and disease was suspected in a second premises, which was also part of the same pyramid. Exercise participants were required to describe the actions that they and their organisation would undertake during each scenario.

1.4 Some key documents were circulated in advance of the exercise to help raise awareness and familiarity with their content, including:

- Introduction to the disease
- Exercise format
- Exercise aims and objectives
- Agenda for the exercise
- Scenario overview
- Details of how the outputs and feedback would be gathered.

2. Executive Summary

2.1 Over fifty participants took part in Exercise Ivy, including representatives from Government, APHA and various operational partners. A full list of participating organisations is at **Annex A**.

2.2 Feedback provided by the delegates indicated that Exercise Ivy has brought improvements to Scotland's overall preparedness, highlighting key opportunities for collaborative working between industry and government agencies to prevent the entry of ASF into Scottish pig farms.

2.3 Feedback from participants and observers of the exercise has been very encouraging, with many commenting that the online format was a good way of

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communicating with a large number of people and probably allowed more people to get involved than if it had been held face-to-face.

2.4 While this feedback is encouraging, the exercise has identified a number of key areas for further improvement, including (a summary of all lessons identified can be found in **Annex C**):

- APHA should undertake a review of all PRIMO breeding company pyramid data and liaise with producers to ensure it is accurately recorded. Data should be reviewed on an annual basis.
- APHA should liaise with industry to arrange opportunities for APHA staff to gain further experience in pig bleeding and potentially pig handling and snaring, as part of regular staff training and preparedness for a disease outbreak.
- SG should liaise with APHA, the Pig Veterinary Society and the SPDCC to look at how best to target messaging to private vets, encouraging them to report unexplained deaths and providing them with more information on the clinical signs of swine fever, which will improve early detection of disease.
- Government and APHA should work together with the SPDCC and the GB Pig Core Group to help producers further develop their own contingency plans in the event of an outbreak of notifiable disease.
- APHA, in conjunction with UK administrations and industry, should undertake a review of culling and disposal options, reviewing past and present methods, as well as those used in other countries.
- APHA and the UK administrations should commission a review of current research and risk assessments on the treatment of waste material infected with ASF, and produce clear guidance on options for disposal.

3. Objectives and planning

3.1 The purpose of Exercise Ivy was to test the Scottish Government's contingency plans and policies for the control of an ASF incursion on a large-scale commercial pig premises.

3.2 The key objectives of the exercise were to:

- Explore SG's, APHA's, operational partners' and industry's preparedness for an incursion of ASF, whilst identifying issues and improvements in policies, plans, instructions and structures employed in managing an outbreak.
- Explore SG's, APHA's, operational partners' and the producer's incident management and decision-making in response to the outbreak of ASF within a large commercial business.
- To identify appropriate enforcement actions to undertake disease control and licensing measures, as identified in the [African and Classical Swine Fever GB Control Strategy](#).

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- Help government, operational partners and industry understand the impact ASF would have on industry; to identify critical points in the control strategy; and measures to help lessen disruption to industry.
- To use feedback from the exercise to produce best practice protocols that can be taken forward by producers to enhance their own contingency plans.
- To identify key tasks, roles and capability/capacity gaps for partners involved in an ASF outbreak.
- Examine the co-ordination and flow of information between SG / APHA / operational partners / the producer.

3.3 A small scenario sub-group was formed, comprising a representative from APHA, a large-scale pig producer and the Scottish Government. The sub-group was chaired by the Scottish Government Disease Control Branch and met several times to help develop the exercise scenario.

3.4 Originally, Exercise Ivy was due to be held in person in Saughton House. However, due to the COVID-19 pandemic, the exercise was adapted to an online format.

4. Exercise arrangements

4.1 The exercise consisted of a two-day virtual table-top event including presentations and discussions that were facilitated on Webex. Throughout the day, feedback was collected by noting conversations and collating comments from the chat box. Comments and feedback on the online format of the day were also collated, and lessons were identified in relation to the online format. These are addressed in section 7.

4.2 Presentations were given throughout the day, taking the participants through the scenario and prompting discussion using a series of questions from the host and participants. These scenarios are available at **Annex B**.

4.3 Participants were asked to discuss the scenario and assess their role and responsibilities at each stage, detailing what steps they may be taking. Discussions were led by a pre-designated facilitator, while notes and comments were recorded by other staff.

5. Participating Organisations

5.1 Over 50 participants took part in Exercise Ivy. It was also attended by representatives from a variety of key operational partners and industry representatives. A full list of participating organisations is at **Annex A**.

6. Evaluation and Lessons Identified Process

6.1 This evaluation and lessons identified report has been produced by collating inputs from the following:

- Feedback and comments from delegates captured throughout the exercise.
- Final comments from delegates at the end of the exercise and from emails following the exercise.

7. Lessons Identified

Lessons identified have been grouped into 8 broad themes. A summary of all lessons identified is included at **Annex C**.

7.1 Online web format

7.1.1 Exercise Ivy was originally planned as an in-person table-top exercise in Saughton House, Edinburgh. However the COVID-19 pandemic and the requirement for social distancing meant that the exercise had to go ahead using a virtual online format. This was the first time that organisers had conducted an online exercise and so particular attention was given to this factor to ensure the exercise went ahead successfully.

7.1.2 Participant packs were issued to everyone ahead of the exercise. These included:

- Introduction and background to the exercise
- An outline of the aims and objectives
- Details of the format of the day
- Easy start guide for Webex
- Scenario overview and agenda

7.1.3 Over the course of the exercise, organisers recorded a number of lessons to take forward for future online exercises, which included:

- Hosting and presenting on Webex was difficult, and it was felt that it would be useful to have a specialist IT person to assist on the day.
- Webex produces a noise when participants enter and leave the exercise, which was distracting during presentations. Future exercises should look to remove this functionality.
- Some participants highlighted that presenters used acronyms they were not familiar with and that it would have been useful to include a list of these in the participants pack.
- Some participants commented that two-hour periods between breaks was too long. Future exercises should look to break down sessions into smaller time periods.

7.1.4 The overall feedback from participants was largely positive, in that the online format worked well as a way to communicate with a large number of people. Some commented that the chat box function allowed more people to comment and participate than an in-person event would have done. This enabled a good level of engagement from all participants and stimulated discussion.

7.2 The Pigs Records, Identification and Movement Order (PRIMO) pyramid data

7.2.1 Day one of the scenario introduced the overall disease control policy along with disease information on swine fevers. It subsequently went on to introduce the structure and stocking numbers of the large-scale pig producer involved in the exercise.

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- 7.2.2 During the planning of the exercise, it was noted that the layout of the producer's pyramid structure did not match up to that recorded on APHA records, and this was shared with all participants on the day. Changes were made to APHA systems to reflect the correct layout of the pyramid structure ahead of the exercise, and this was displayed on a map.
- 7.2.3 It was felt that there is potential that other PRIMO pyramid records may have discrepancies too, and that a regular review of the records held by APHA should be undertaken. Industry representatives noted that in previous years they have been contacted by APHA annually to review the pyramid structure, but that this had not happened for some time. Industry advised they would welcome this annual review being reinstated.
- 7.2.4 Moving forward, APHA will ensure that PRIMO records are reviewed with the producers to ensure accuracy. It was noted that a review of these records would provide a further opportunity to understand UK-wide supply chains (not just the breeding company pyramids at the top of them).

Lesson Identified 1 – Review of PRIMO data

APHA should undertake a review of all PRIMO breeding company pyramid data and liaise with producers to ensure it is accurately recorded. Data should be reviewed on an annual basis.

- 7.2.5 It was felt that this visualisation of the pyramid structures on a map of the UK made it much easier to understand the complexities of movements being made within the pyramid, compared to the current recording on a spreadsheet on APHA systems. During an outbreak, having the visualisation to hand would be of benefit to APHA teams and it was felt that, during peacetime, maps should be prepared and held on APHA systems.

Lesson Identified 2 – Creation of PRIMO maps

APHA should undertake an exercise to visually map out all PRIMO pyramids that are held on APHA systems during peacetime.

7.3 Suspicion investigation

- 7.3.1 Following the initial suspicion stage of the scenario, there was a question from industry regarding whether or not it could be guaranteed that the investigating case vet from APHA would be 3 days pig-free before visiting a premises. It was discussed in detail that, although this was an industry standard and APHA staff would always try to adhere to this, there was no legislative requirement for them to be 3 days pig-free before entering a suspect premises. Veterinary officials across Government agencies agreed that investigating a suspect case of notifiable disease would always be the priority and, depending on what time the notification comes into APHA and the availability of staff, they cannot guarantee that the vet would be 3 days pig-

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free. However, the investigating vet would maintain the highest level of biosecurity when entering the premises, and that would negate the risk of spreading disease.

- 7.3.2 The question was asked whether the investigating vet will have experience of blood sampling pigs, as that has not always been the case historically. APHA advised that they have had some issues in the past getting staff experienced in bleeding pigs. Although APHA have access to a small number of pig farms in the Aberdeenshire area that they expose staff to, they cannot blood sample for research or training, so they need to wait for appropriate opportunities. APHA are currently ensuring that all staff are trained in blood sampling pigs.
- 7.3.3 Industry advised that they regularly take blood samples as part of routine sampling and could offer opportunities for APHA staff to gain experience in sampling and handling pigs. In particular, there could be opportunities for training as part of the Scottish porcine reproductive and respiratory syndrome (PRRS) virus eradication scheme.

Lesson Identified 3 – APHA to link up with industry for opportunities to train staff in pig bleeding

APHA should liaise with industry to arrange opportunities for APHA staff to gain further experience in pig bleeding, and potentially pig handling and snaring, as part of regular staff training and preparedness for an outbreak.

- 7.3.4 During the initial suspicion phase of the scenario, there was some confusion between industry and government around the restrictions placed on members of staff working at the suspected premises. As a result of the exercise, there was an agreement to review the legislation and clarify the position within the report.
- 7.3.5 The Diseases of Swine Regulations 2014 legislates under regulation 7(2), that once premises are designated as being suspect premises, the restrictions as detailed in Schedule 1 will apply. These restrictions include that a person must not enter or leave the suspect premises except under the authority of a licence granted by a veterinary inspector.
- 7.3.6 Some discussion was had around how to encourage producers and private vets to investigate unexplained deaths. ASF may not spread across a herd quickly and there was concern that a few initial deaths may not be cause for concern for a large producer. Disease may have a slow spread and give the opportunity for disease to spread if not picked up quickly enough. [Research](#) has indicated that it may take two weeks or longer to detect ASF in a finisher herd via mild clinical signs or increased mortality beyond levels expected in routine production. “A key factor contributing to the extended time to detection is the long latently infected period for an individual pig that results in relatively slower transmission during the initial stages of the herd infection.” The business impact of reporting the suspicion of exotic notifiable disease may increase the reluctance of business and their veterinary advisors from

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reporting the suspicion of swine fevers. It was noted that there were some serious financial and logistical implications for producers reporting a suspect disease case, and there would need to be a fine balance between early detection and preventing multiple false starts.

- 7.3.7 Further discussions are required between Government, producers and the Pig Veterinary Society to think about what messaging could go out to encourage vets to report early unexplained deaths, which would enable early detection of swine fevers. It was noted that information on how ASF is clinically presenting in different parts of Europe could help provide vets with more educational resources.
- 7.3.8 Following on from Exercise Ivy, some investigation was done into the number of report cases of suspect swine fever APHA receive, and it was very few compared to other notifiable diseases. Given the similarities in clinical presentation of swine fevers, compared to other diseases of pigs, this evidence provided further support to encourage the reporting of suspect cases amongst private vets.

Lesson Identified 4 – Government to speak to PVS about messaging to encourage the reporting of suspect cases of swine fever to enable early detection

SG will liaise with APHA, PVS and SPDCC to look at how best to target messaging to private vets, encouraging them to report unexplained deaths, and providing them with more information on clinical signs of swine fevers, which will improve early detection of disease.

7.4 Industry contingency plans

- 7.4.1 When introducing the structure of the large-scale pig producer, participants took the opportunity to ask the producer questions about the pig industry's own contingency plans.
- 7.4.2 Concern was expressed when industry representatives were asked how much room they had to support pigs during a movement standstill before space becomes a problem leading to concerns for the welfare of their pigs. Some industry representatives felt that they had measures in place to cope with movement restrictions for the first 7 days, but noted they would struggle if this continued for 30 to 40 days. Industry felt that Government could do more to work together with industry to ensure that companies have fully formed contingency plans in the event of an outbreak of notifiable disease.
- 7.4.3 Participants said it was useful to engage in conversations between Government and industry, but it was also important that Government recognise the realities of trying to run a business and make a profit in an environment where the public expect cheap food. This means that planning for the unexpected is problematic and expensive. Future collaboration

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between Government and industry to develop contingency plans should ensure there is input from the Scottish Environment Protection Agency (SEPA) to provide input into the storage of waste products.

Lesson Identified 5 – Government and APHA to work with industry to help them to develop their own contingency plans

Government and APHA should work together with the SPDCC and GB Pig Core Group to help producers further develop their own contingency plans in the event of an outbreak of notifiable disease.

- 7.4.4 It was noted by participants that it was unfortunate Exercise Ivy did not have the chance to fully explore the impacts of movement restrictions within the pyramid, and the ramifications for units with pigs being unable to move off premises. It was noted that this issue should be highlighted at the future National ASF exercise, Exercise Holly.

Lesson Identified 6 – Government and APHA to explore long-term impacts of movement restrictions on the pig industry

Government and APHA should work together with industry to explore in detail the realities of movement restrictions, as laid out in the Diseases of Swine Regulations.

7.5 Tracings and movement data

- 7.5.1 Some discussion was had around who has access to County Parish Holding (CPH) data through the CPH viewer system. SG officials confirmed that there is a feed of Scottish CPH, GIS data to APHA. However, the SGs understanding is that APHA are unable to use the Scottish data in the CPH viewer but they can use it in other ways. ScotEID also have access to the same SG data which is linked to their own mapping system, which could be utilised by APHA if need be. It was commented that this is used regularly for PRIMO inspections by APHA staff.
- 7.5.2 There was also some discussion around tracings activities following the first confirmed case. It was felt that we should consider the pyramid holistically as soon as possible, given that moves are not necessarily 'protected' by standstills within the pyramid.
- 7.5.3 It was generally agreed that our ability to trace movements was very good, as the tracings team in Cardiff, along with local APHA staff, could easily feed into the Central Disease Control Centre management team, led by the Head of Field Delivery Scotland.
- 7.5.4 During the preparation for the exercise, the tracing abilities of the Scottish Pig Disease Control Centre (SPDCC) were also tested and showed an extensive system of tracing the hauliers and drivers used to move pig. This highlighted

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the advantages of continuing to ensure links are maintained between the tracing units and industry representatives at the SPDCC.

Lesson Identified 7 – Maintaining relationships between APHA and SPDCC

APHA should ensure that they continue to maintain a relationship between the tracing team in Cardiff and the SPDCC, in order to supplement tracing activities in event of an outbreak.

- 7.5.5 On day two of the scenario, it developed that pigs from the second suspect premises had been traced as having moved to an abattoir the previous day. This led to much discussion around what controls would be placed upon the abattoir to prevent further spread of disease and to protect the welfare of consignments of pigs that might already be en route to the abattoir.
- 7.5.6 Industry representatives were confident they would be able to redirect pigs to other abattoirs, as they had previous experience when Brechin abattoir suffered a large fire. However, it was felt that it would be useful for FSS to undertake a small internal exercise to further explore their own preparedness to deal with a suspect swine fever case at an abattoir or meat processing premises. Industry were keen to be involved in this to help improve their own contingency plans.

Lesson Identified 8 – FSS to further undertake an internal ASF exercise

FSS should plan and execute an internal ASF exercise exploring the measures and actions required in the event of a suspect swine fever case or tracing to an abattoir or meat processing premises.

7.6 Culling procedures

- 7.6.1 During day two of the exercise, following confirmation of disease in infected premises 1 (IP1) and suspected disease in a second premises, the conversation was drawn towards the most effective method of culling out infected premises.
- 7.6.2 It was noted that the last time large numbers of pigs had to be culled on farm in the UK was during the Classical swine fever (CSF) outbreaks of 2000 and the foot and mouth disease (FMD) outbreaks of 2001. The methods used at that time included euthanasia for piglets by lethal injection and then either free bullet or captive bolt for adult pigs. It was felt that an exploration of on-farm culling methods should be undertaken, taking into account previous lessons identified and methods being used in other countries that might provide more efficient practices, better welfare for the animals, and increased safety for the staff carrying out procedures. It was also suggested there should be further exploration of national procurement strategy for mobile slaughter units and research – possibly with contribution from industry on the slaughter methods.

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- 7.6.3 It was noted that research into whole-house gassing for the poultry industry had been commissioned previously, but that cost had been a preventative factor in them being used. Mobile gassing units should be explored as a potential future option for culling pigs as part of the review.

Lesson Identified 9 – Review of culling methods

UK administrations should commission APHA to undertake a review of culling and disposal options, reviewing past and present methods, as well as those used in other countries.

- 7.6.4 Some concern was raised regarding the spillage of blood during the culling process, and the potential risk it poses to the spread of disease and environmental contamination. Assurances were given that disease control operations would have safeguard measures in place to prevent the spread of disease from these products and that SEPA would provide expert advice on preventing environmental contamination, particularly around the location of water courses.
- 7.6.5 It was noted that disease outbreaks continue to be a stressful time for producers, farm staff, APHA staff and delivery partners involved in disease control, especially around the culling of livestock. It remains important to ensure staff have access to mental health resources within Government and industry. The Scottish Government currently provides funding to [RSABI](#) who provide practical, emotional and financial support to all people involved in the Scottish agricultural industry.
- 7.6.6 The question was raised asking what effect the Certificates of Competence system has on the number of people qualified to slaughter in the UK. There was some suspicion amongst members of the pig industry that the pool of individuals licenced to slaughter may now be lower than it was during the FMD outbreak of 2001.

Lesson Identified 10 – Review of individuals licenced to slaughter

APHA should undertake a review of the number of individuals licenced to slaughter that are available under contract for disease control purposes.

- 7.6.7 Comments from participants highlighted that this scenario only dealt with one confirmed case and one suspect case. However, it is plausible that a real-life scenario could involve a lot more premises and this would put pressure on supplies of specialist equipment to cull out large numbers of pigs. It was noted that there is a national procurement team that could be called upon, as a similar situation arose during the 2001 FMD outbreak, when the UK dealt with fast moving outbreaks and called in nationwide resource quickly. This may be

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something that Exercise Holly will explore further to gain confidence in the UK preparedness to deal with a very large outbreak.

7.7 Cleansing and disinfection

- 7.7.1 During the discussion on cleansing and disinfection (C&D) it became clear that there was not enough information provided to industry on exactly what secondary C&D would entail. It was felt that during peacetime, APHA should work together with the pig industry to produce a document that details everything involved in secondary C&D.

Lesson Identified 11 – Production of secondary C&D document

During peacetime, APHA and industry should work together to produce a document detailing guidance for producers on how to complete secondary cleansing and disinfection.

- 7.7.2 During the exercise, participants from the pig industry asked if there was a particular disinfectant that should be used for ASF and was it recommended that they should have a constant supply available. Participants were advised that there has not been any specific testing done on ASF to recommend a singular disinfectant. However, the virus is killed by the appropriate use of General Order disinfectants, which must be used. A list of government approved disinfectants can be found at Gov.uk.
- 7.7.3 Some concerns were raised that 40% of pig units in the UK are outdoor units, which may prove difficult to disinfect. There was also some conversation around the best method for completing C&D on concrete surface.
- 7.7.4 It was noted that the poultry industry have previously invested in research on avian influenza virus survivability on a range of surfaces in a range of environments. This helped formulate more specific C&D guidance and is something that the pig industry may wish to commission.
- 7.7.5 Some discussion was had around whether or not producers were experiencing haulage vehicles arriving to pick up pigs, but sending them away because the truck is dirty. Representatives were unanimous that this happened in very small numbers and many people said they had sent haulage vehicles away only a handful of times over the past decade. However, it was pointed out that although a truck may appear clean this does not necessarily mean it has been disinfected correctly, and Government and industry should continue to promote communication messages, such as [muck free truck](#).

Lesson Identified 12 – Promoting the C&D of haulage vehicles

Government and industry should continue to promote the proper cleansing and disinfection of haulage vehicles used to move livestock as part of overall good biosecurity practices.

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- 7.7.6 It was also noted that participants had concerns around some smaller abattoirs that do not have washing facilities on site for vehicles, which may prevent timely C&D of haulage vehicles.

Lesson Identified 13 – Promoting washing facilities for vehicles at abattoirs

Government should look into the washing facilities at all abattoirs and review this with industry to look at how these can be improved.

- 7.7.7 Some discussion was had around the practicalities of restocking units, in particular those that are outdoors. This was not explored fully, as the scenario only covered until day two of the outbreak period. [The Disease Control Strategy for Swine Fevers in Great Britain](#) states that for ASF-infected premises where disease is not linked to vectors, restrictions will remain in place until:
- More than 6 months has elapsed since the satisfactory completion of secondary C&D and the Veterinary Inspector is of the opinion that restrictions can be lifted without risk of spread of disease; or
 - Following satisfactory completion of secondary C&D, the premises has been tested for the presence of any remaining disease using sentinel pigs. If no disease is detected in these sentinel pigs, restrictions may be lifted.

Lesson Identified 14 – Government to commission a risk assessment around restocking an outdoor unit

UK administrations should commission APHA to undertake a risk assessment that explores the risks of restocking an outdoor pig unit following an outbreak of ASF.

7.8 Slurry and manure waste

- 7.8.1 The question was posed, how would slurry and manure be disposed of from the infected premises? The [Disease control strategy for African and Classical Swine Fever in Great Britain](#) states that, “manure and used bedding should be stacked, sprayed with disinfectant and left for at least 42 days or destroyed by burning or buried. Slurry from an IP should be stored for at least 60 days for ASF, after the last addition of infected or potentially infected material. A shorter storage period may be permitted if a VI has given instructions to treat the slurry in some way prior to storage. Slurry from an IP should not be used for spreading.”
- 7.8.2 Participants agreed there needs to be clearer guidance in place for how manure and slurry can then be disposed of. Depending on the time of year, if an outbreak happened towards the end of the closed spreading season slurry tanks could be holding very large amounts of waste. The climate in Scotland

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is also a factor that the group considered, as the ASF virus is stable in protein for prolonged periods, especially if cold, and is not as easy to destroy as some other viruses.

- 7.8.3 Discussions were had around different methods of treating and disposing of waste materials, which included anaerobic digestion, and it was queried whether or not the parameters for PAS 110 standards would be effective. It was questioned whether not the digested product could then be spread, and if controls would need to be placed on the digestate, ensuring it was spread on arable land rather than grassland. If the digestate cannot be spread on land, what other methods of disposal would be suitable?

Lesson Identified 15 – Research regarding disposal of slurry and waste products

UK administrations should commission APHA to undertake a review of current research and risk assessments on the treatment of waste material infected with ASF, and should produce clear guidance on options for disposal.

8. Conclusions

8.1 Exercise Ivy explored a wide range of topics relating to the response to an outbreak of ASF in Scotland. Continued exercising of Government and industry's preparedness is key to ensuring continued development and resilience across all agencies involved.

8.2 Undertaking an exercise in a virtual format during the COVID-19 pandemic brought about its own challenges for organisers, but possibly allowed greater participation from attendees on the day. There are a number of key lessons that will be vital for Government and the pig industry to take forward to continue to ensure their readiness to respond to an outbreak, but also prevent one in the first place.

8.3 In particular, Exercise Ivy has highlighted the importance of Government agencies and industry working together to build resilience. Exercise Ivy highlighted the willingness of industry to support Government, with opportunities to train vets and animal health officers to blood sample live pigs. It also highlighted opportunities for Government to support industry to bolster their own contingency plans, incorporating plans for long movement restrictions as legislated in [The Diseases of Swine Regulations 2014](#) in the event of a swine fever outbreak.

8.4 In July 2021, a further National ASF Exercise, Exercise Holly is taking place, which will incorporate all four UK administrations and expand beyond the scenarios played out in Exercise Ivy. The lessons identified in Exercise Ivy will be taken forward by Government and its partners in collaboration with the organisers of Exercise Holly.

8.5 Many of the lessons identified in this report are not restricted to Scotland, and we know that the pig industry through its breeding pyramids are very much interlinked

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across the UK. As always, disease knows no borders and it remains critical for all UK administrations to continue to work together to protect the UK from an outbreak of animal disease, such as ASF.

Annex A: Full list of participants

Name	Organisation
Lucy Sugden	Scottish Government
Annabel Scott	Scottish Government
Alastair Douglas	Scottish Government
Elizabeth Tidy	Scottish Government
Ian Murdoch	Scottish Government
Vivienne McKinnon	Scottish Government
Martyn Blissitt	Scottish Government
Sheila Voas	Chief Veterinary Advisor, Scottish Government
Scott McDowell	Scottish Government
Nick Ambrose	Scottish Government
Megan O'Brien	Scottish Government
Keith White	Scottish Government
Gerard Klein	Scottish Government
Iain Bell	APHA
Fernando Blanco Esporas	APHA
Lindsay Murray	APHA
Jo Wheeler	APHA
Alastair George	APHA
Catherine Grace	APHA
Owain Thomas	APHA
Matt Price	APHA
Paul McGuile	APHA
Rob Mathias	APHA
Tom Ogg	APHA
Robin Taylor	APHA
Anne Marie Wallace	APHA
Susanna Ramos	APHA
Susanna Williamson	APHA
Gordon Clark	APHA
Renata Vojtasova	APHA
Mark Rigby	APHA
Jill Thomson	SRUC
Thibaud Porphyre	EPIC
Maria Costa	EPIC
Alison Long	SEPA
Vikki Halliday	FSS
Grace Webster	Pig industry vet
Gordon McKen	Scottish pig disease control centre

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Andy McGowan	Scottish pig disease control centre
Jamie Wyllie	NFUS
Gemma Daly	DAERA
Laura Wallace	DAERA
Jim Blee	DAERA
James Lewis	Welsh Government
Neil Roberts	Welsh Government
Janet Dixon	Defra
Will Hubball	Defra
Gordon Hickman	Defra
June Fanning	Republic of Ireland
George Taylor	Quality Pork Processors
Mark Pratt	JSR Genetics
Grant Walling	JSR Genetics
Mark Houghton	Tulip
Martin Morgan	Scottish Association of Meat Wholesalers
Pauline Anderson	Aberdeenshire council
Helen O'Neil	South Lanarkshire Council
Alan Ward	QMS

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Annex B: Exercise Scenarios

Day 1 Scenario

A private veterinary surgeon (PVS) calls the Animal Plant Health Agency (APHA) at 3 pm on Friday 31 January 2020 to report a suspect case of swine fever in a gilt weaning premise in Aberdeenshire. APHA decide to investigate and place verbal restrictions on the premise.

APHA initiate their report case procedures and notify the Veterinary Exotic Notifiable Diseases Unit (VENDU), APHA senior management and the Scottish Government of the ongoing consultation case. An APHA case vet and Animal Health Officer (AHO) are identified and dispatched to the premises within 30 minutes of the decision to investigate.

When arriving on site, the case vet confirms the restrictions verbally placed on the premises with the PVS and conducts an investigation. Following discussions with VENDU, the case vet is unable to negate the presence of notifiable disease and decides to take samples for swine fever. Both African swine fever and classical swine fever samples are taken and sent directly from the farm to the Pirbright Institute and APHA Weybridge labs respectively for testing.

Day 2

At 9 am on 01 February 2020, APHA receive another suspect swine fever report case from a gilt grower site in the central belt. The premises is part of the same pyramid structure as the first report case and has sent a consignment of pigs to slaughter on 31 January 2020 (Brechin Abattoir). The animals were slaughtered on 01 February 2020 and post mortem examination showed a couple of carcasses suggestive of swine fever.

APHA undertake investigations at the source farm and the Scottish Government are updated. CVO Scotland convenes a CVO Case Conference, followed by an amber telecom, which brings together operational partners involved in the outbreak response. During the amber telecom, lab results are received and CVO Scotland confirms the first case of ASF in the country at the first premises, which is now referred to as infected premise 1 (IP1). The amber telecom now becomes a red telecom and next steps are discussed.

With disease being declared at IP1, a 3 km Protection Zone (PZ) and 10 km Surveillance Zone (SZ) are put in place. CVO Scotland gives permission to start culling animals at IP1.

EXERCISE IVY

Annex C: Summary of lessons identified

Lesson identified	Lesson Owner
1. APHA should undertake a review of all PRIMO breeding company pyramid data and liaise with producers to ensure it is accurately recorded. Data should be reviewed on an annual basis.	Mark Rigby, APHA
2. APHA should undertake an exercise to visually map out all PRIMO pyramids that are held on APHA systems during peacetime.	Mark Rigby, APHA
3. APHA should liaise with industry to arrange opportunities for APHA staff to gain further experience in pig bleeding, and potentially pig handling and snaring, as part of regular staff training and preparedness for an outbreak.	Susanna Ramos, APHA
4. SG will liaise with APHA, PVS and SPDCC to look at how best to target messaging to private vets, encouraging them to report unexplained deaths and providing them with more information on clinical signs of swine fevers, which will improve early detection of disease.	Lucy Sugden, SG
5. Government and APHA should work together with the SPDCC and GB Pig Core Group to help producers to further develop their own contingency plans in the event of an outbreak of notifiable disease.	Lucy Sugden, SG
6. Government and APHA should work together with industry to explore in detail the realities of movement restrictions, as laid out in the Diseases of Swine Regulations.	Iain Bell, APHA
7. APHA should ensure they continue to maintain a relationship between the tracings team in Cardiff and the SPDCC, in order to supplement tracing activities in event of an outbreak.	Andy Lavendar, APHA
8. FSS should plan and execute an internal ASF exercise, exploring the measures and actions required in the event of a suspect swine fever case or tracing to an abattoir or meat processing premises.	Elena Gafenco, FSS
9. APHA, in conjunction with the UK administrations and industry, should undertake a review of culling and disposal options, reviewing past and present methods as well as those used in other countries.	Owain Thomas, APHA
10. APHA should undertake a review of the number of licenced slaughtermen that are available under contract for disease control purposes.	Owain Thomas, APHA
11. During peacetime, APHA and industry should work together to produce a document detailing guidance for producers on how to complete secondary cleansing and disinfection.	Alastair George APHA

EXERCISE IVY

12 Government and industry should continue to promote proper cleansing and disinfection of haulage vehicles used to move livestock, as part of overall good biosecurity practices.	Lucy Sugden, SG
13. Government should look into the washing facilities at all abattoirs, and review this with industry to look at how these can be improved.	Ian Murdoch, SG
14. UK administrations should commission APHA to carry out a risk assessment that explores the risks of restocking an outdoor pig unit following an outbreak of ASF.	Lucy Sugden, SG and Gordon Hickman, Defra
15. UK administrations should commission APHA to a review current research and risk assessments on the treatment of waste material infected with ASF, and produce clear guidance on options for disposal.	Lucy Sugden, SG and Gordon Hickman, Defra

Annex D – Acronyms

ASF	African swine fever
SG	Scottish Government
APHA	Animal Plant Health Agency
PRIMO	The Pigs (Records, Identification and Movement) Order 2011
SPDCC	Scottish pig disease control centre
PRRS	porcine reproductive and respiratory syndrome
PVS	Pig veterinary society
SEPA	Scottish Environment Protection Agency
CPH	County Parish Holding
GIS	geographic information system
PAS110	The British Standard Institution's Publicly Available Specification (BSI PAS 110) provides a baseline quality specification for digestate, ensuring that it is safe and reliable to use. PAS110 includes requirements about how food waste and other materials can be processed, and is one of the fundamental pillars of the Biofertiliser Certification Scheme.
CSF	Classical swine fever
FMD	Foot and mouth disease
C&D	Cleansing and disinfection