

Exercise Juniper

DRAFT VERSION

Exercise Juniper 2018
National (Scottish) Avian Influenza Exercise
Evaluation and Lessons Identified Report
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EXERCISE JUNIPER

Security Classification

This evaluation report is OFFICIAL. It contains information relating to the lessons identified from the Scottish avian influenza exercise, Exercise Juniper, held on 5 July 2018. [Redacted text]

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1. Introduction

- 1.1. This report contains the details of Exercise Juniper, a Scottish avian influenza (AI) exercise, organised by the Scottish Government (SG) in co-operation with the Animal & Plant Health Agency (APHA) and a major Scottish table egg producer. The report evaluates the exercise and records the lessons identified for further action.
- 1.2. The primary purpose of Exercise Juniper was to test the Scottish Government's contingency plans and policies for the control of an AI outbreak. It also tested APHA's preparedness for an AI incursion on large scale commercial poultry premises.
- 1.3. Exercise Juniper took place on 5 July 2018. It was a one day table top exercise that began by discussing what actions would be required after confirmation of highly pathogenic avian influenza (HPAI) H5N1 in a dead wild bird. The disease was then confirmed on a poultry farm (table egg producer) in close proximity to the location of the dead wild bird finding. Disease then spread to parts of the business. 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. The documents circulated were:
 - United Kingdom Contingency Plan for Exotic Notifiable Diseases of Animals;
 - Scottish Government Exotic Animal Disease Contingency Framework Plan;
 - Scottish Regional Resilience Partnerships' Framework for Exotic Notifiable Animal Diseases Contingency Plans;
 - Notifiable Avian Diseases Control Strategy for Great Britain.

2. Executive Summary

- 2.1. Over thirty participants took part in Exercise Juniper, including representatives from various operational partners. A full list of participating organisations is at Annex C.
- 2.2. Feedback provided by the delegates indicates that Exercise Juniper has brought improvements to Scotland's overall preparedness for an AI outbreak on a large scale egg producers premises. This learning and development opportunity has increased awareness of AI and the response structures set up to help control an outbreak. Responses to the post-exercise online survey show that almost 69% of delegates had read Scottish Government's Exotic Animal Disease Control Framework Plan, and over 68% had read the Notifiable Avian Diseases Control Strategy for Great Britain. In addition more than 68% had read their own organisation's contingency plans before the event.
- 2.3. Feedback from participants and observers of the exercise has been very encouraging, with around 95% of respondents noting that the objectives of the exercise were either fully or mainly met. Responses also showed that 89% of

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delegates felt that their knowledge of AI in a large scale egg production had improved as a result of attending the exercise.

2.4. While this feedback is encouraging, the exercise has identified a number of areas for further improvement. These lessons are reflected in more detail throughout this report. Lessons have been grouped into eight broad categories:

- **Communication**
- **Collaborative working**
- **Public health and animal health interaction**
- **Depopulation**
- **Drones**
- **Cages**
- **Secondary cleansing and disinfection**
- **Disposal of litter, manure and waste water**

A summary of all lessons identified can be found in Annex A.

3. Objectives and planning

3.1. The purpose of Exercise Juniper was to test the Scottish Government's contingency plans and policies for the control of an AI outbreak. It also tested APHA's preparedness for an AI incursion on large scale commercial poultry premises.

3.2. The key objectives of the exercise were to:

- Explore the SG's, APHA's and the producer's incident management and decision-making, in response to the outbreak of HPAI H5N1 within a large commercial premise.
- To identify appropriate enforcement actions to undertake disease control and licensing measures as identified in the Great Britain HPAI H5N1 Control Strategy.
- To identify best practice through testing the producer's existing local contingency plans.
- Enable policy and regulatory bodies to gain an improved understanding of the operational aspects of the producer's egg production business and the wider pathways involved in poultry production.
- Enable the producer to appreciate the regulatory framework during disease control.
- Test secondary cleansing and disinfection (C&D), without the need for complex equipment dismantlement.
- To identify keys tasks, roles and capability/capacity gaps for partners involved in a HPAI H5N1 outbreak.
- Examine the co-ordination and flow of information between SG/APHA/the producer.
- Exercise Juniper was the product of a project, spanning a period of 8 months in planning and delivery. The project was managed by the Scottish Government, who established a project board comprising of representatives from APHA and the producer. The project board managed and controlled the planning of the exercise.

3.3. A small scenario sub-group was formed, comprising a representative from APHA, the producer, the Centre of Excellence for Epidemiology, Population Health and Infectious Disease Control (EPIC), [Redacted text], and the Scottish Government. The sub-group was chaired by APHA and met several times to help develop the exercise scenario.

4. Exercise arrangements

4.1. The exercise consisted of a one-day table top event including presentations and group discussions. Throughout the day, feedback was taken on flip charts at each table and time was allowed for questions. Group discussions were structured around a series of questions based on an outbreak on the premises. These scenarios are available at Annex B.

4.2. Participants were broadly grouped by organisation. Each of the tables were presented with a series of injects during each scenario. All groups were asked

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to discuss the scenario and associated injects at their own table. Discussions were led by a pre-designated facilitator who also ensured that notes were kept on flip charts. Plenary sessions were held after each scenario, where tables were invited to share the responses to the pre-agreed questions.

5. Participating Organisations

5.1. Over 30 participants took part in Exercise Juniper. It was also attended by representatives from a variety of key operational partners. A full list of participating organisations is at Annex C.

6. Evaluation and Lessons Identified Process

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

- Feedback from the day from delegates.
- Individual evaluation – an individual electronic evaluation questionnaire was sent to all participants and the feedback collated. A summary of responses received is provided at Annex D.

7. Lessons Identified

Lessons identified have been grouped into eight broad themes: communication; collaborative working; public health and animal health interaction; depopulation; drones; cages; secondary cleansing and disinfection; and disposal of litter, manure and waste water. A summary of all lessons identified is included at Annex A.

Please see the [summary of lessons identified](#) on page 20 for individual lesson owners.

7.1. Communication

7.1.1. One of the primary aims of Exercise Juniper was to explore the procedures that would need to be applied for the control of an AI outbreak in a large scale egg producer's premises and surrounding area. The exercise provided an opportunity to test participants' preparedness for an avian influenza outbreak, and identify areas where improvements could be made both locally and nationally. In general, the level of communication was felt to be good. However, a number of lessons were identified where communication could be improved at a local level.

7.1.2. Scenario 1 concerned the report and subsequent identification of HPAI H5N1 in a dead wild bird. Participants were given a short presentation on how government responds to such findings, particularly if this strain was found in migratory species. There was a discussion around the actions that would be taken by each organisation at this early stage. Exercise participants noted that the presentation and discussion during each scenario had been a good starting point in helping to raise awareness of the impact of the Government's response to an AI outbreak in a large producers site. More could be done to improve understanding of the full extent of restrictions and their impacts on industry, particularly around movement controls/licences to aid business continuity planning. It is suggested that table egg producers and the poultry meat industry

build their knowledge in this area further, by working closely with the Scottish Government, APHA and other stakeholders.

Lesson Identified 1 – Additional training for industry

Scottish Government, APHA and stakeholders should work together to deliver further training and awareness raising about the impacts of AI for industry. This exercise, in workshop format, would be an opportunity for other large poultry businesses to send a representative.

7.1.3. The Scottish Environment Protection Agency (SEPA) and APHA had made several visits to the premises of the egg producer involved in this exercise in order to help develop site specific plans that could potentially identify locations for the safe and legal removal of a large amount of waste material such as litter, bedding manure and waste water. This waste material would need to be moved under licence as part of the secondary cleansing and disinfecting process if the site became an infected premises. This work should now help streamline one of the more challenging aspects of disease control (i.e. waste removal) from this particular site should it become infected with HPAI, making the recovery process more streamlined and will allow the UK to regain disease freedom status in a shorter timescale. Given the considerable amount of effort required from all parties in finalising contingency plans, businesses who have not gone into this level of detail may struggle to find suitable sites for safe and legal disposal of waste material if they were to become an infected premises. Therefore, it is recommended that the whole sector, those with large amounts of birds on site in particular, should be encouraged to work collaboratively with SEPA and APHA, to develop their own contingency plans further.

Lesson Identified 2 – Contingency plans

It is recommended that SEPA and APHA work collaboratively with industry, to improve individual business' contingency plans, especially in relation to removal of waste materials during a HPAI outbreak. Discussion was held with regard to making this mandatory for use by intensive agricultural units covered by the Pollution Prevention and Control (Scotland) Regulations.

7.1.4. From the point at which restrictions are applied to premises upon suspicion of disease through to confirmation of disease, there was a discussion on whether signs should be erected, where these should be located, who should put this signage up, what the signs should say, the legislation under which it should conform to (e.g. for road signage) and how the business should deal with visitors to these sites. Restriction notices will be displayed by the enforcement officer of the local authority at the entrance to the farm, but there was discussion over what exactly this notice should say (stating this was a suspect case of avian influenza could impact negatively on the business even if suspicion of avian influenza were to be eventually ruled out)

7.1.5. There was a discussion as to who would be restricted from entering the premises. This could be a problem for regular visitors if the private

dwelling was within the boundaries of the suspected infected premise. Therefore, prior planning and separate entrances should be considered as part of industry's individual contingency plans for situations where the dwelling house is located in close proximity to the poultry.

7.1.6. In this exercise the producer had multiple County Parish Holdings (CPH), with some of these holdings confirmed as an infected premise, whilst other sites within the business were under movement restrictions because either the site was deemed by APHA as a 'dangerous contact' or was caught in a wider protection or surveillance zone. As this one business was mapped under three different types of restrictions, the owner would have had to contact separate cells within APHA depending on the status of the premises to request a movement licence. This would have been a difficult situation for the business to manage and it is therefore recommended that one contact should be identified at the start of an outbreak for a producer with multiple sites where one of those site has become an infected premises.

Lesson Identified 3 – Signage

It is recommended that Scottish Government and APHA clarify what signage should be displayed on or around a farm during suspicion of AI and ensure it complies with all relevant legislation.

Lesson Identified 4 – Access

It is recommended that APHA work with poultry businesses to consider the issue of access to private dwellings during a HPAI outbreak. APHA should develop a VRA to assist in quickly removing domestic dwellings from the restricted area, and to facilitate quick and appropriate licensing if this is not possible. As part of the business' contingency plan, the business should consider separate access roads.

Lesson Identified 5 – Clear lines of communication

The head of field delivery for APHA Scotland to ensure that, for a site that has become an infected premises, the owner is provided with a single point of contact within APHA for the whole business 24/7. However, this named point of contact may change as staff are rotated to allow for rest periods. There may be a separate single point of contact for licensing.

7.1.7. During an investigation into an exotic notifiable disease, Government will be concerned that samples taken by APHA as part of its official veterinary investigation could potentially contain live virus of e.g. HPAI or Newcastle disease. The producer is also interested in testing the sample as soon as possible for an alternative diagnosis in the event that the official veterinary investigation rules out an exotic notifiable disease. This would allow appropriate treatment to the poultry as soon as possible. However, there is a difficulty with progressing parallel disease investigations. The suspect sample could be positive for a notifiable

disease and these pathology or microbiological samples can only be dealt with in certain high containment facilities. As such, only when notifiable disease is ruled out can the standard investigations be resumed.

Lesson Identified 6 – Parallel disease investigations

[Redacted text]

Consideration needs to be given to whether a different diagnostic mechanism for parallel investigations can be established to enable samples to go to a laboratory when a business wishes to test for another cause of disease when notifiable disease is not suspected, but has not yet been ruled out. This would need to be considered on a case by case basis and will depend on a veterinary risk assessment (VRA).

7.1.8. A discussion took place around the issue of dealing with egg packing centres (EPC) during an outbreak of HPAI. In some poultry business models, the main units for housing poultry are situated in close proximity to the EPC, so if the main poultry unit was infected, then the EPC operations may need to be switched to an alternative location in order to continue operating.

7.1.9. In this scenario, the affected producer has worked closely with APHA and SG poultry officers to allow the EPC to be pre-designated. This could allow the site to continue operating in the event of a HPAI outbreak. However, pre-designation is not designed to allow an EPC to become designated whilst the site itself is part of the infected premises. There was a discussion about how the EPC may be able to continue operating when it is in such close proximity to an infected flock or when the EPC has received eggs from an infected flock. Eggs from the affected farm that are caught in the EPC would need to be destroyed. Any additional requirements would be based on the circumstances unique to the individual situation. The producers considered looking at other routes in and out of the premises. For example, discussion was had around re-opening an old road in the event of a HPAI outbreak. There was also discussion around storage of packing materials, including options of different storage areas on the premises. In order for the business to effectively operate during an AI outbreak, contingency plans should be put in place. In the context of AI, Health Protection Scotland (HPS) would be concerned about which eggs would be safe for human consumption and can be released, and which cannot. FSS, SG and the owner of the EPC are recommended to work together to develop a template VRA for this EPC issue. This would help inform the policy of how to deal with EPC in the event of a HPAI outbreak.

Lesson Identified 7 – Egg packing centre

Industry to consider whether it is possible for them to have the ability to move production to a separate EPC, where their main EPC is caught up in an infected premise (IP), as part of the business' contingency plan. This would be expensive for the producer and likely not an option, but should be considered.

Lesson Identified 8 – Egg packing centre policy

FSS, SG, APHA, Public Health and the owner of EPC to work together to develop a template VRA to inform decisions on the movement of eggs when the EPC has a close connection with the IP. APHA should then commission other template VRAs for businesses across Scotland and GB. In this case the producer has consulted with APHA regarding pre-designation, which would allow the site to operate when some of their satellite farms are in a restricted zone. However, this is not designed for what was being discussed, and FSS were unable to give any view as to whether they would be content for continued operation of the EPC. The considerable pre-designation work carried out by the Scottish Government Poultry Unit, APHA and the producer would be a good starting point. A firm answer now on whether this is acceptable would avoid the producer, the Scottish Government Poultry Unit and APHA doing further work for no end benefit.

Lesson Identified 9 – Eggs from infected premise

It is recommended that FSS consider and create a policy around what happens to other eggs that may have shared the same air space, conveyer belt, pallet or vehicle, as eggs from an infected premise.

7.2. Collaborative working

7.2.1. The exercise helped improve operational partners' understanding of their own roles and responsibilities, such as how they would work together, how meetings are organised and how they fit into the wider disease control operation. It was clear from these discussions that this knowledge could be improved. The Environment Agency (EA), Natural Resources Wales and APHA have quarterly meetings to discuss preparedness. The benefits of this collaborative working include the EA producing several documents, such as regulatory position statements (RPS), which are generated to allow an activity to happen without a licence, as long as the RPS conditions are complied with. These conditions include storage of litter, treatment of slurry and disposal of plant material, which is infected by an exotic animal disease. When assessing applications from highly polluting farms, such as intensive poultry farms, the EA provide the farm with a questionnaire that asks about contingency plans, especially with regards to disposal of waste. The benefit of having the documents considered by SEPA, having similar guidance produced, and also having SEPA on this group is that gaps in knowledge will be addressed and everyone will be more prepared for the event of a HPAI outbreak.

7.2.2. Local Authority representatives present at the exercise acknowledged a loss of experienced staff through early retirement and redundancies, which has led to an increase in work load and a reduction in staff with the relevant skills and experience and who are familiar with their roles and responsibilities in a disease outbreak. It was noted that there was a similar problem across many LAs. There may be benefit in neighbouring LAs working together at a local partnership level to develop and share training or work collaboratively with Regional Resilience Partnership

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Animal Health Sub Groups to put in place a training package to help raise awareness of LA roles and responsibilities ensuring capacity to respond to animal disease outbreaks.

7.2.3. The producer has done a lot of work preparing their own contingency plans, working with SEPA, APHA and the Scottish Government poultry inspectors to develop these plans. This has occurred because of the close interaction between SG/PHA and the producer. It is recommended that this model is adopted by all major egg producers to improve industry's preparedness in the event of a HPAI outbreak.

Lesson Identified 10 – Collaborative working

It is recommended that SEPA collaborate with APHA and the Environment Agency (EA) and attend their quarterly meetings to ensure contingency plans are in place in the event of a HPAI outbreak.

Lesson Identified 11 – Collaborative working

It is recommended that APHA set up meetings with major poultry producers to ensure contingency plans are adopted by all major egg producers. This would be supported by SG.

Lesson Identified 12 – LA staff training

It is recommended that LAs in each RRP AH Sub Group, particularly those with either a high concentration of poultry units or single sites with very large poultry numbers in their area, carry out a work shop to help improve their understanding of disease control response in the event of a HPAI outbreak. APHA could support this work.

7.3. Public Health and Animal Health Interaction

7.3.1. As the exercise scenario developed, there was ambiguity around the health advice provided to the producer's staff and who would supply this advice. APHA have a contract covering their staff for Tamiflu vaccinations and PPE equipment. However, the producer was unsure of who would supply medical support to their staff and contractors. All contractors would have to be vaccinated and be supplied with appropriate equipment before being allowed access to an IP during an AI outbreak. Therefore, this could delay the process of getting the business back up and running, if plans are not put in place for this during peace time. The producer has responsibility for the health and safety of their own staff, while APHA are responsible for their staff and contractors that they employ.

Lesson Identified 13 - Provision of prophylaxis and PPE equipment

It is recommended that APHA, HPS and the business have further discussions and to make sure their AI outbreak contingency plan covers the health and safety of all staff on site, including operational partners (LAs, emergency services etc.), APHA staff and producer's staff and contractors, including provision of prophylaxis and PPE equipment.

7.4. Depopulation

7.4.1. There was extensive discussion throughout the exercise about which premises would be depopulated and which methods would be most appropriate given the size and complexity of the site and volume of birds involved. A variety of culling options were considered, taking into consideration the time taken to catch the birds, height of the cages, number of staff required to catch and load the birds and gas the birds, which would all be carried out using full PPE clothing and equipment. APHA have never dealt with an AI outbreak on this large a scale.

7.4.2. In this exercise, depopulation of the largest site through use of Containerised Gassing Units (CGUs) alone would be impractical, due to the length of time it would take to completely depopulate the site. [Redacted text] [Redacted text] Under normal catching conditions, a team of nine catchers and carriers, one forklift operator and one person on the module drawers, should take 2.5 hours to move 7000 birds. In an 8-hour shift, about 20,000 birds can be moved, as staff get tired. This can be scaled up if additional catchers are available. The CGUs would need to work in tandem with the catchers, to avoid a bottle neck situation. If depopulation takes too long, it increases the virus load and increases the length of exposure to the virus for operational staff involved in the depopulation. By the time depopulation is to be carried out, a significant amount of birds would likely already be dead. Therefore, it was decided that this particular method of depopulation would be inappropriate, from both a bird welfare and human health perspective. If the owner of the IP dedicates their own staff to become catchers to aid APHA's contracted catchers, this may deplete staff numbers available to carry out normal duties throughout other essential parts of the business. It has been recognised that a lot of the bird catching work is carried out by experienced foreign workers and some of their workforce could be affected by Brexit.

7.4.3. The novel depopulation method of using gas-filled foam for culling was explored. However, some doubt was expressed as to whether the foam would be able to reach the higher tier cages. These methods would need to be approved before use, but may be a potential alternative in some circumstances. It was noted that before the foam method could be used ventilation would have to be shut down which would give rise to welfare concerns because the birds would die due to heat exhaustion or suffocation. This adds another level of complexity to using this alternative option.

7.4.4. Ventilation shut down would ensure all birds were killed in a short space of time. Therefore, this would also keep the potential virus load to a minimum. This method of killing may only be considered where there is no practical alternative, all other methods have been exhausted and there is a threat to public health. It is only permitted in England.
[Redacted text]

7.4.5. No conclusion was reached in the exercise as to how depopulation would or could be approached in this scenario. In summary, depopulation of a large and complex site raises questions around APHA's current capability and resilience (including availability of existing contractors, particularly catchers and providers of equipment for culling, such as CGUs and the gas used in these units) to depopulate sites with very large amounts of poultry in a short period of time. APHA and Defra have Animal Health and Welfare Framework Agreements in place. This framework means that in advance of an outbreak, contracts are in place, a need to spend public money has been identified and an attempt to procure has been done. APHA stated that during a HPAI outbreak, they contact the producer to determine whether they can use their staff or equipment. If so, they use an EXD99 form to set up a contract with this producer. If not, they look to the Framework Agreement. Using farm staff as catchers is preferable, as they will know the layout and general running of the farm better, and it reduces the number of people exposed to the disease. In relation to CGUs, APHA have their own equipment. However, they also have the option to call in a 3rd party contractor, who can provide equipment and handlers if necessary. The 3rd party company offer commercial depopulation, so they are very efficient. Both APHA and 3rd party contractors can be, and were in 2015, deployed during an outbreak. Gas for these units can be supplied using the Framework Agreement. Legal protection for APHA comes from Defra. When using an APHA procured contract, Defra has legal responsibility to deal with issues relating to CGU services, poultry catchers and valuers. Although APHA deliver on behalf of Scotland, the Scottish Government would deal with challenges that arise as a result of this.

Lesson Identified 14 – Animal welfare legislation

It is recommended that SG policy teams liaise with the legal team to understand fully the legislation around the welfare of culling AI infected birds, while reducing the risk of spread and human exposure to the virus. Ventilation shut down should be discussed, as this is not currently allowed in Scotland, so other solutions would have to be explored.

Lesson Identified 15 – Culling options

APHA and the business should also have a discussion to identify appropriate culling options available in circumstances that involve a medium to large number of birds, particularly if there are multiple IPs within a business. Culling options should take into consideration the individual incident, species, age and number of animals. As mentioned previously, if resources and equipment (including gas) are in short

supply, contingency plans will need to cover alternative methods of culling. APHA are recommended to report on available options for culling and planned work on making these novel methods of killing available.

7.5. Drones

7.5.1. During the culling of livestock, as part of the disease control operation, APHA have a direct link to the Civil Aviation Authority (CAA) and can request they introduce a “no fly zone” around an infected premises. Reasons given to the CAA could include: to ensure the health and safety of staff on farms, as animals can be startled during handling; or the distribution of plumes of disease travelling through the air. This is usually only done in the event of a Foot and Mouth Disease (FMD) outbreak, but could be used for other outbreaks if necessary.

7.5.2. In terms of drones, if the drone lands and the operator enters the premises to retrieve the device, they are breaching legislation. However, there are currently no powers to restrict the use of drones flying over an IP. It is worth considering whether we can include drones in a restriction notice and license them onto a holding, as we do with vehicles, or make any domestic legislative changes.

Lesson Identified 16 - Restricting airspace

APHA and SG policy team to work with the legal team to find powers for restricting the use of drones over or near an IP during an outbreak. The recent consultation could be used to make changes to legislation in terms of adding drones to restriction notices and stopping their use that way.

7.6. Cages

7.6.1. It was mentioned during the exercise that the physical layout of housing sheds in the larger, older sites were not constructed to allow a fast and efficient removal of birds (even during a routine depopulation at the end of the life cycle). Consideration was already being given by the producer to replacing and upgrading some of the older cage units during peace time, in order to aid in quicker removal of birds during depopulation and allow for effective cleansing and disinfection. For example, currently, birds need to be caught individually by hand and taken outside the shed to be put in crates to go into the CGU. This is due to the rolling crates not currently fitting between the cages in the shed. Another issue is that as the cages are stacked so high, the novel foam method would not be appropriate in this particular situation, so an alternative would need to be identified. As cages reach the end of their production life they need to be renewed.

Lesson Identified 17 – Cages

Discussions between APHA and the business are recommended to decide on whether different cage designs in the housing units could assist in removal of the birds. Often this is too late once the buildings are designed and complete.

UPDATE: Since the exercise, the producer has taken on-board part of this recommendation [Redacted text]

7.7. Secondary Cleansing and Disinfection

- 7.7.1. Secondary cleansing and disinfection (C&D) involves cleansing, degreasing and disinfecting, and then repeating the process one week later. This is funded by the producer involved. The impact on delaying this is that it delays regaining disease freedom, as this cannot be achieved until 3 months after secondary C&D is complete. There is work that has been undertaken by APHA on behalf of the poultry industry (the Poultry Health and Welfare Group) to look at research on viral survival, to support a review of the requirements for secondary cleansing and disinfection after an AI outbreak. This was funded by industry, as it could reduce the time taken to regain disease freedom status by speeding up the C&D process (on a risk approach basis), thus allowing trade to begin again. It would also help reduce the cost to the business, at a time when it is unlikely to be bringing in money while under restriction or having just depopulated the premises, and consequently allows for faster restocking to allow business to start generating money again.
- 7.7.2. As part of the work APHA have done, the findings of this research paper on C & D in small broiler production units should be applied to large egg production units to help develop operational instructions to apply the findings in practice. The broiler industry is used to short turn around flocks where there is complete C & D between flocks; that includes removal of litter, washing and then disinfection. Egg layers appear to be different. Here the flock is present for 70 weeks plus and C & D appears to be a dry clean in enriched colony units, i.e. removal of manure and a brush down, followed by disinfection. The amount of equipment in a colony egg laying shed makes the use of water difficult, due to electrical wiring. The egg industry also appears to have less strict C&D procedures compared with the broiler industry. The result is that the standard of C & D does not approach what is acceptable.
- 7.7.3. Work was undertaken by APHA to look at the producer's C & D procedures during a routine depopulation. Further work is required by APHA, taking account of the review, to determine what levels of secondary C & D would be required and whether there are any steps that may now be unnecessary (particularly dismantling of complex equipment).
- 7.7.4. Although APHA attended two depopulation visits, further discussions are required in order to determine the practicality and proportionality of

risk in terms of what equipment would need or may not need to be dismantled (depending on the specific circumstances at the time of an outbreak). As industry have funded this work, they should be able to benefit from the findings of the research.

Lesson Identified 18 – Cleansing and disinfection

APHA are recommended to carry out further visits to other units to observe routine depopulation and C&D, ensuring industry have Standard Operating Procedures (SOPs) for C&D and are aware of what thorough C&D means for their business. These would be looked at on a case by case basis during a HPAI disease outbreak. C&D guidelines that are practical for a large scale commercial poultry premise need to be created.

The gap in perception between industry and APHA about what constitutes “clean” needs to be raised with wider industry.

7.8. Disposal of litter, manure and waste water

7.8.1. A significant effort has been made by the producer to review its contingency plans for the disposal of litter, manure and waste water as part of the secondary cleansing and disinfection process. Discussions are still ongoing between SEPA, APHA and the producer, as to where manure can be stored on the premises or off site. As mentioned previously (Lesson Identified 2) it is recommended that this work continues, and that SEPA engage with other large commercial poultry premise owners in the same situation, in order to agree a suitable area to store the manure both on and off the site in the event of an AI outbreak. [Redacted text] [Redacted text]. Due to the volume of waste produced, considerations also have to be given with regards to licenses to remove manure off-site, if the site is an IP or within a PZ/SZ. Businesses working with SEPA during peace time will save valuable time in the future, during an AI outbreak.

Lesson Identified 19 – Licenses

APHA, SG and SEPA are recommended to draft licenses that would be required for movement of manure from an IP, or PZ/SZ to another site.

8. Conclusions

- 8.1. Exercise Juniper provided an opportunity for participants to improve their knowledge and understanding of the procedures that would be applied for the control of an AI outbreak of HPAI H5N1 within a large scale egg producer's premises. It also covered the role of APHA, and the Scottish Government and other organisations if there was an AI outbreak. It encouraged delegates to consider their own roles and preparedness for an outbreak, and to identify areas where improvements could be made. The overall outcome of this exercise is for the SG, APHA, SEPA, FSS, EPIC, Local Authorities (LAs) and the poultry industry to know their individual roles in the event of an avian influenza outbreak.
- 8.2. The objectives of Exercise Juniper are set out at section 3 of this report. The vast majority (95%) of delegates who responded to the post-exercise online survey said that these objectives had either fully or mainly been met, and no respondents indicated that the objectives had not been met at all. Furthermore, 89% stated that their knowledge of an avian influenza outbreak in a large scale commercial poultry premises, had improved as a result of attending the exercise.
- 8.3. The exercise objectives included encouraging participants to explore what local structures are in place to respond to an avian outbreak on a large commercial premises, and to identify examples of best practice and areas for improvement. Just over 68% of survey respondents indicated that they had read their own organisation's contingency plan in advance of the exercise, and 35% of respondents indicated that they would be reviewing and updating their local plan as a result of the exercise. These responses indicate that the exercise will bring benefits as a learning and development opportunity, by encouraging participants to engage with and improve their local arrangements. The lessons identified in section 7 of this report also highlight areas where the SG, APHA and other organisations can take action to support and improve local response structures.
- 8.4. The exercise objectives included closer working, decision making between the SG, APHA and large-scale commercial poultry producers, identifying best practice through testing the producer's contingency plans, and deciding on a practical level of secondary C&D. The lessons in section 7 of this report identify actions which could bring improvements in these areas. It is clear that while there is expertise and best practice across the country, access to this knowledge can be irregular, so more can be done to ensure a consistent level of disease response across Scotland. Similarly, there is a need for greater clarity on who takes the lead in the multi-agency response during different stages of an outbreak.
- 8.5. In order to take the recommendations forward, each action will be assigned an owner and this will be monitored at the Operation Readiness Board (ORB) group.
- 8.6. Implementing these lessons will ensure that Scotland and the rest of GB is well prepared and able to deal with the possibility of an AI outbreak on a large-scale commercial poultry premises, and as a result, should also improve preparedness in the case of other disease outbreaks.

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- 8.7. The planning team would like to thank all those who contributed to the development of the scenario, and to those who took part on the day to make this a very worthwhile exercise.

ANNEX A: SUMMARY OF LESSONS IDENTIFIED

	Lesson	Main Owner
1	Additional training for industry: Scottish Government, APHA and stakeholders should work together to deliver further training and awareness raising about the impacts of AI for industry. This exercise, in workshop format, would be an opportunity for other large poultry businesses to send a representative.	SG
2	Lesson Identified 2 – Contingency plans It is recommended that SEPA and APHA work collaboratively with industry, to improve individual business' contingency plans, especially in relation to removal of waste materials during a HPAI outbreak. Discussion was held with regard to making this a mandatory for use by intensive agricultural units covered by the Pollution Prevention and Control (Scotland) Regulations.	SEPA
3	Signage: It is recommended that the Scottish Government and APHA clarify what signage should be displayed on or around a farm during suspicion of avian influenza and ensure it complies with all relevant legislation.	SG
4	Access: It is recommended that APHA work with poultry businesses to consider the issue of access to private dwellings during a HPAI outbreak. APHA should develop a VRA to assist in quickly removing domestic dwellings from the restricted area, and to facilitate quick and appropriate licensing if this is not possible. As part of the business' contingency plan, the business should consider separate access roads.	APHA
5	Clear lines of communication: The head of field delivery for APHA Scotland to ensure that, for a site that has become an infected premises, the owner is provided with a single point of contact within APHA for the whole business 24/7. However, this named point of contact may change as staff are rotated to allow for rest periods. There may be a separate single point of contact for licensing.	APHA
6	Parallel disease investigations: Consideration needs to be given to whether a different diagnostic mechanism for parallel investigations can be established to enable samples to go to a laboratory when a business wishes to test for another cause of disease when notifiable disease is not suspected, but has not yet been ruled out. This would need to be considered on a case by case basis and will depend on a veterinary risk assessment (VRA).	APHA
7	Egg packing centre: Industry to consider whether it is possible for them to have the ability to move	Producer

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	production to a separate EPC, where their main EPC is caught up in an IP, as part of the business' contingency plan. This would be expensive for the producer and likely not an option, but should be considered.	
8	Egg packing centre policy: FSS SG, APHA, Public Health and the owner of EPC to work together to develop a template VRA to inform decisions on the movement of eggs when the EPC has a close connection with the IP. APHA should then commission other template VRAs for businesses across Scotland and GB. In this case the producer has consulted with APHA regarding pre-designation, which would allow the site to operate when some of their satellite farms are in a restricted zone. However, this is not designed for what was being discussed, and FSS were unable to give any view as to whether they would be content for continued operation of the EPC. The considerable pre-designation work carried out by the Scottish Government Poultry Unit, APHA and the producer would be a good starting point. A firm answer now on whether this is acceptable would avoid the producer, the Scottish Government Poultry Unit and APHA doing further work for no end benefit.	APHA
9	Eggs from infected premise: It is recommended that FSS consider and create a policy around what happens to other eggs that may have shared the same air space, conveyer belt, pallet or vehicle, as eggs from an infected premise.	FSS
10	Collaborative working: It is recommended that SEPA collaborate with APHA and the Environment Agency (EA) and attend their quarterly meetings to ensure contingency plans are in place in the event of a HPAI outbreak.	SEPA
11	Collaborative working: It is recommended that APHA set up meetings with major poultry producers to ensure contingency plans are adopted by all major egg producers. This would be supported by SG.	APHA
12	LA staff training: It is recommended that LAs in each RRP AH Sub Group, particularly those with either a high concentration of poultry units or single sites with very large poultry numbers in their area, carry out a work shop to help improve their understanding of disease control response in the event of a HPAI outbreak. APHA could support this work.	LAs
13	Provision of prophylaxis and PPE equipment: It is recommended that APHA, HPS and the business have further discussions and to make sure their AI outbreak contingency plan covers the health and safety of all staff on site, including operational partners (LAs, emergency services etc.), APHA staff and producer's staff and contractors, including provision of	Producer

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	prophylaxis and PPE equipment.	
14	Animal welfare legislation: It is recommended that SG policy teams liaise with the legal team to understand fully the legislation around the welfare of culling AI infected birds, while reducing the risk of spread and human exposure to the virus. Ventilation shut down should be discussed, as this is not currently allowed in Scotland, so other solutions would have to be explored.	SG
15	Culling options: APHA and the business should also have a discussion to identify appropriate culling options available in circumstances that involve a medium to large number of birds, particularly if there are multiple IPs within a business. Culling options should take into consideration the individual incident, species, age and number of animals. As mentioned previously, if resources and equipment (including gas) are in short supply, contingency plans will need to cover alternative methods of culling.	APHA
16	Restricting airspace: APHA and SG policy team to work with the legal team to find powers for restricting the use of drones over or near an IP during an outbreak. The recent consultation could be used to make changes to legislation in terms of adding drones to restriction notices and stopping their use that way.	SG
17	Cages: Discussions between APHA and the business are recommended to decide on whether different cage designs in the housing units could assist in removal of the birds. Often this is too late once the buildings are designed and complete.	Producer
18	Cleansing and disinfection: APHA are recommended to carry out further visits to other units to observe routine depopulation and C&D, ensuring industry have Standard Operating Procedures (SOPs) for C&D and are aware of what thorough C&D means for their business. These would be looked at on a case by case basis during a HPAI disease outbreak. C&D guidelines that are practical for a large scale commercial poultry premise need to be created. The gap in perception between industry and APHA about what constitutes “clean” needs to be raised with wider industry.	APHA
19	Licenses: APHA, SG and SEPA are recommended to draft licenses that would be required for movement of manure from an IP, or PZ/SZ to another site.	SG

ANNEX B: EXERCISE SCENARIOS

Scenario 1

The scenario will begin with a report to the GB Dead Wild Bird Helpline of dead geese found near [Redacted text] (results subsequently will be confirmed as HPAI H5N1). Policy response will be to introduce a Wild Bird Control Area (WBCA) of at least 3 km and a Wild Bird Monitoring Area (WBMA) of at least 10 km. Controls will be applied in those areas.

Scenario 2

The scenario then moved on to disease being suspected, so samples were taken and sent to Weybridge. Subsequently, disease was confirmed in domestic free range poultry. Rapidly rising mortality would be detected [Redacted text] Samples would be taken, then movement restrictions would be placed on the premises awaiting the results of the tests. On day 15 disease is confirmed and an amber telecom takes place. Zones are put in place to restrict movements on and off the premises. APHA have to consider culling and how this can be taken forward due to the large numbers of poultry on the commercial premises. Movement licences will be required in order to move anything off and on the premises. How would this work be carried out? Does APHA have enough field catchers and surveillance staff to carry out this work?

Scenario 3

Day 19 sees a further increase in mortality and plunging egg production at the enriched cage unit [Redacted text] Samples are taken and disease is confirmed. [Redacted text] [Redacted text] [Redacted text] CGUs are the only option. One house is a barn system so whole house foaming/gas may be an option.

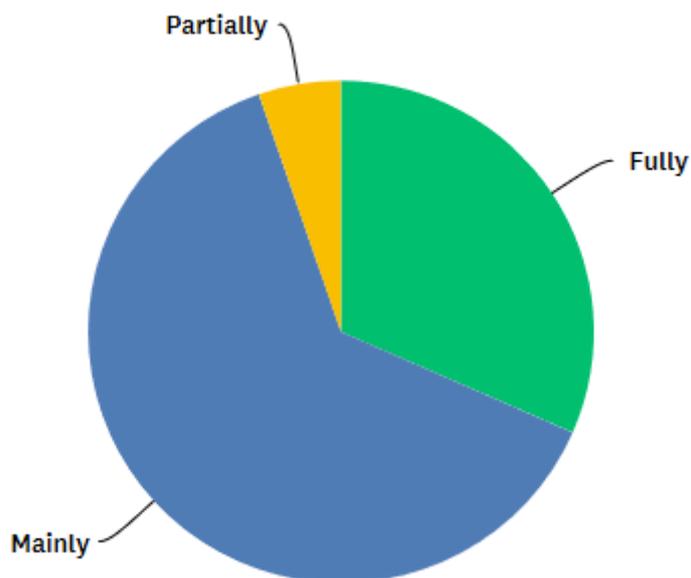
ANNEX C: ORGANISATIONS PARTICIPATING IN THE EXERCISE

Department of Agriculture, Environment and Rural Affairs (DAERA)
Animal Plant and Health Agency (APHA)
Epidemiology, Population Health and Infectious Disease Control (EPIC)
Food Standards Scotland (FSS)
Health Protection Scotland (HPS)
Scottish Borders Council
Scottish Government (SG)
Scottish Environment Protection Agency (SEPA)

ANNEX D: STATISTICAL RETURNS FROM ELECTRONIC FEEDBACK

All participants were asked to complete an electronic feedback form. From this form exercise evaluators were able to collate statistical returns to assess how effective the exercise was in meeting its objectives. In total 19 responses were received. Some of the key statistical findings are summarised below:

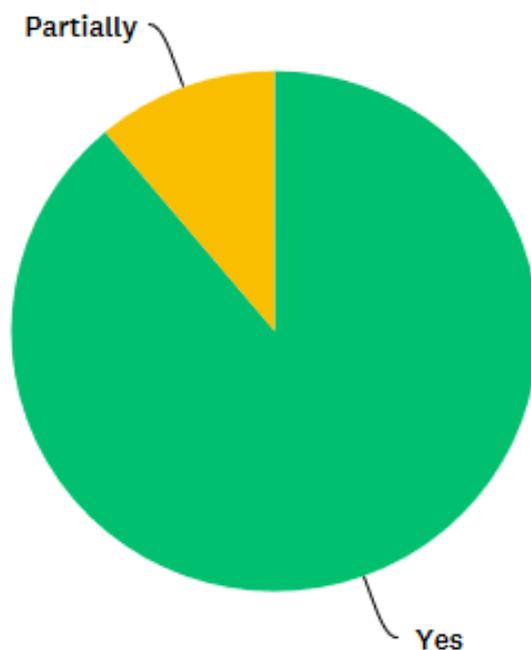
Question: Do you think the objectives of the exercise have been met?



ANSWER CHOICES	RESPONSES	
FULLY	31.58%	6
MAINLY	63.16%	12
PARTIALLY	5.26%	1
TOTAL		19

EXERCISE JUNIPER

Question: Has your level of knowledge of contingency planning and policies around the control of an outbreak of avian influenza improved?

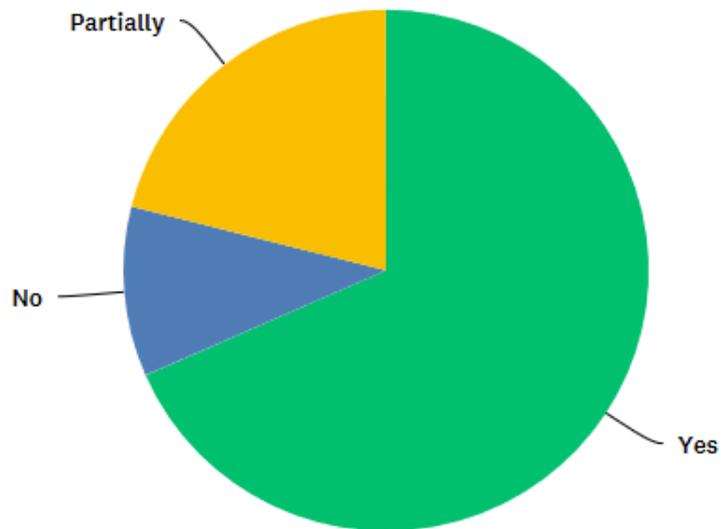


ANSWER CHOICES	RESPONSES	
YES	88.89%	16
NO	0.00%	0
PARTIALLY	11.11%	2
TOTAL		18

Question: What preparation did you do before the exercise?

Read my own organisation's contingency plan:

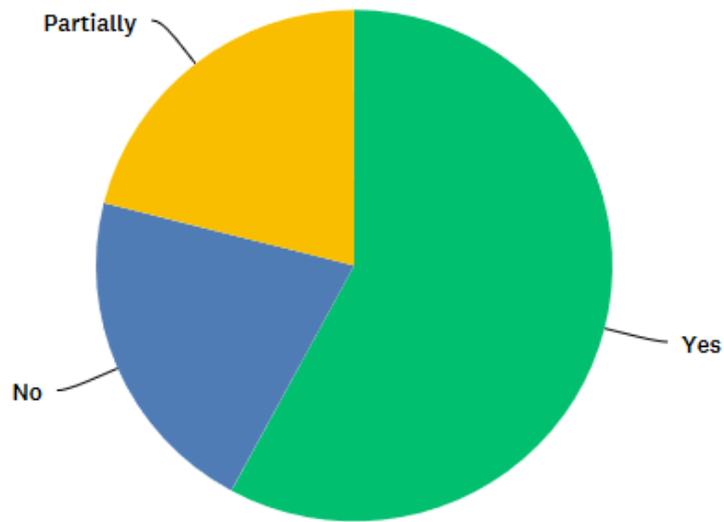
EXERCISE JUNIPER



ANSWER CHOICES	RESPONSES	
YES	68.42%	13
NO	10.53%	2
PARTIALLY	21.05%	4
TOTAL		19

Read SG Exotic Animal Disease Contingency Framework Plan:

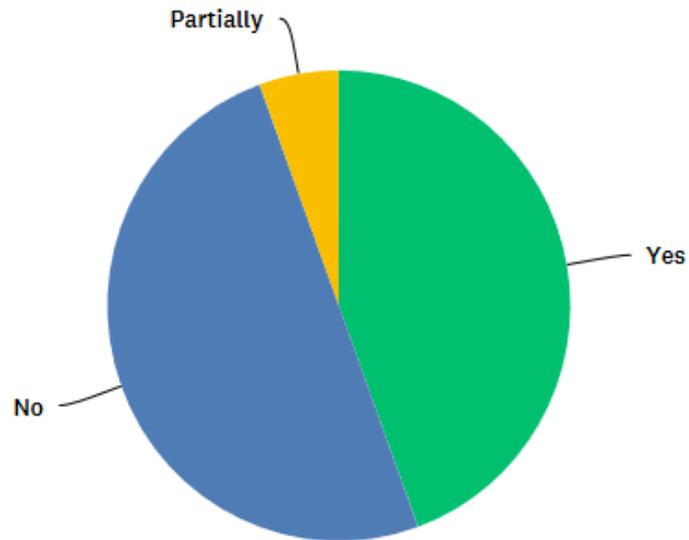
EXERCISE JUNIPER



ANSWER CHOICES	RESPONSES	
YES	57.89%	11
NO	21.05%	4
PARTIALLY	21.05%	4
TOTAL		19

Read RRP Contingency Framework Plan for Exotic Animal Diseases:

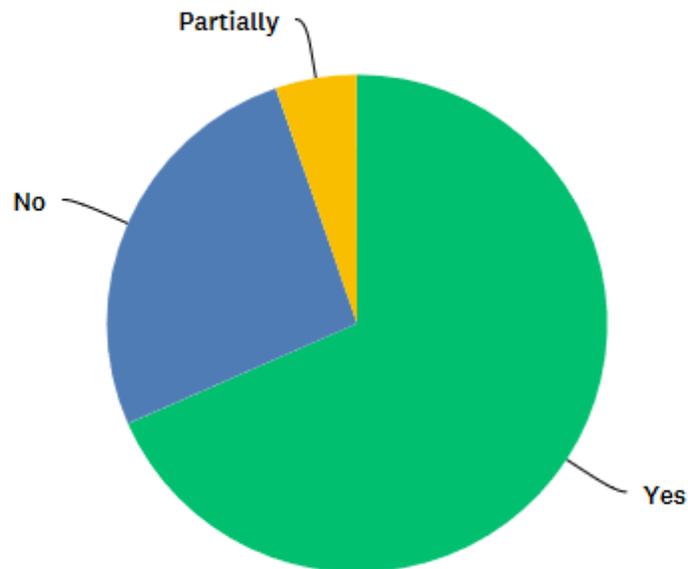
EXERCISE JUNIPER



ANSWER CHOICES	RESPONSES	
YES	44.44%	8
NO	50.00%	9
PARTIALLY	5.56%	1
TOTAL		18

Read Notifiable Avian Diseases Control Strategy for Great Britain:

EXERCISE JUNIPER



ANSWER CHOICES	RESPONSES	
YES	68.42%	13
NO	26.32%	5
PARTIALLY	5.26%	1
TOTAL		19

Question: To improve your ability to respond to an avian influenza outbreak which follow-up actions or changes would you make to your own plans/preparedness?

Key themes identified in responses (number in brackets indicates number of respondents who raised this issue):

- Increase knowledge of larger sites in the country (3)
- Maintain stakeholder engagement with major poultry companies (1)
- Review risk assessments and improve contingency plans (6)
- Review staff knowledge on an avian influenza outbreak (3)
- Look at storage and removal of manure (2)
- Liaise more with SEPA and have more of their staff included in exercises (2)
- Total responses = 17

Question: What are your 3 most important learning points from the event as an individual?

EXERCISE JUNIPER

Key themes identified in responses (number in brackets indicates number of respondents who raised this issue):

- Improved understanding of avian influenza and understanding of impact of wild bird protection/surveillance zones (3)
- Improve joint working / communications (18)
- To understand the complexity of the operations required (10)
- Need to update contingency plan / improve local arrangements (4)
- Complexity of the Scottish poultry industry, other sites could have similar issues (3)
- Need to look at culling , CGU, C&D issues on a site this size (6)
- To understand whether the packing station would still be able to operate - discussions with FSS (1)
- Decisions can vary depending on the situation at the time, case by case, quick decisions required (3)
- H & S implications for staff, vaccinations (1)
- Closer work with SEPA, Storage of manure (4)
- Look at where potential FOBS could be (1)
- FSS policies require further development (1)

Total responses = 55 (identifying up to 3 lessons each)

Question: What are your 3 most important learning points from the event as an organization?

Key themes identified in responses (number in brackets indicates number of respondents who raised this issue):

- Need to update local plan / improve local arrangements and equipment (2)
- Importance of joint working with all involved (9)
- Need to look at culling, CGU, C&D issues on a site this size, resource for this (6)
- Arrange meeting with occupational health regarding antiviral prescribing kennels (1)
- Improve communication with small non-commercial holdings (1)
- Consider exercises with other producers (1)
- Enforcement of movement licenses (1)
- Improved knowledge of AI, increase biosecurity within companies (4)
- Ensure single point of contact identified (1)
- Resolve issues of drones flying over sites (1)
- Understand there would be a lot of media pressure, make sure this does not affect response (1)
- Work more closely with SEPA, involve their various departments (3)
- Understand the recovery time and how long the producer would take to return to pre-disease (1)
- Disposal of manure (1)
- Was unaware that retailers asked producers to change things against legislation (1)

Total responses = 34 (identifying up to 3 lessons each)

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