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Survey to assess disease biosecurity of small-scale pig producers¹

Carla Correia-Gomes², Madeleine Henry, Harriet Auty, George Gunn

Key message: There is a discrepancy in the biosecurity standards between commercial pig units and small-scale pig keepers. This may have implications for the effectiveness of current disease control programmes and contingency plans, which currently do not consider the health and biosecurity status of small-scale pig-keeping enterprises.

Main Findings

Results from a small-scale pig-keeping survey, conducted in 2013, showed that:

- The list of registered pig keepers (managed by APHA³) was of value in identifying pig keepers, but the details of around 10% of those contacted (small-scale pig keepers) were incorrect (i.e. wrong address or no longer kept pigs), highlighting that the database was out-of-date. In 2014 a cleansing exercise was done to improve this database.
- The main reasons cited for keeping pigs were for quality pork from a known source, to utilise land and for self sufficiency. The median number of pigs finished (in 2012) was four pigs per farm.
- Over 90% of respondents kept other species alongside pigs. Poultry, sheep and cattle were the species most commonly kept on smallholdings in Scotland in addition to pigs. This has implications for disease spread between species.
- The majority of the pigs on these small holdings never saw a vet (only 13% of the respondents reported that a vet visited their pigs at least once a year).
- Over 80% of the small-scale pig keepers do not feel they are part of the pig industry, which is concerning as this perceived separation could present a barrier to uptake of disease control measures which often filter down through industry routes.
- The most common source used for information on pig health was vets (49%) followed by the internet (23%).
- Almost all respondents implemented at least one biosecurity measure (out of a list of 15⁴). However the measures taken were not implemented comprehensively in the majority of cases, and there appeared to be a lack of understanding of the reasons why the measures were important. Biosecurity standards in these small-scale units may therefore be lower than the standards set for assured commercial pig units⁵.
- The majority of pigs were kept outdoors, and as such are considered to be pigs from non-controlled housing as specified by the new controls for *Trichinella* in meat⁶.

¹ This work was partially funded by Quality Meat Scotland, the Scottish Government Rural Affairs and the Environment Portfolio Strategic Research Programme 2011-2016, Programme 2, Theme 6 and by EPIC. For more information please see: <http://www.gov.scot/Topics/Research/About/EBAR/StrategicResearch/future-research-strategy/Themes> and EPIC.

² Epidemiology Research Unit, Future Farming Systems, Research Division, SRUC, 01463246065, carla.gomes@sruc.ac.uk.

³ Animal and Plant Health Agency is an executive agency of the Department for Environment, Food and Rural Affairs (DEFRA) responsible for identifying and controlling endemic and exotic diseases and pests in animals, plants and bees, and surveillance of new and emerging pests and diseases. <https://www.gov.uk/government/organisations/animal-and-plant-health-agency/about>

⁴ A paper will be published shortly outlining these measures in more detail.

⁵ Correia-Gomes, C. 2013, "Pigs – State of the Nation", oral communication in: EPIC AGM: Exotic Diseases; a Scottish perspective, 23-24 September 2013, Edinburgh.

⁶ *Trichinella* is a parasitic roundworm which has been classed by the European Food Safety Authority (EFSA) as a medium risk for public health. It has been recognised to be mainly in free-ranging and backyard pigs, as such the updated regulation: EU Commission Regulation No 216/2014 of 7 March 2014 requires all free-ranging pigs to be tested for *Trichinella* at slaughter. See: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0216&from=EN>

Introduction

Backyard and small-scale pig producers are less likely to engage with producer organisations (e.g. Quality Meat Scotland) and may therefore be less aware of legislation, rules and biosecurity best practices implemented in the swine sector. Their role in the transmission of endemic and exotic diseases is not well studied, but is believed to be important. Recently they have been implicated in the spread of diseases such as African Swine Fever (ASF) in Eastern Europe. In Scotland 69% of the pig producers report that they keep less than 10 pigs⁷, meaning that the biosecurity practices and pig health status on a substantial number of holdings are largely unknown. It is important to fill this knowledge gap to better understand the implications for disease spread and to mitigate exotic disease outbreaks. A questionnaire was designed and implemented in order to gather some of this missing information.

Methods

The questionnaire consisted of a total of 37 questions divided into seven sections (location of the enterprise, interest in pigs, details about the pig enterprise, marketing of pigs, transport of pigs, pig husbandry, and pig health / biosecurity). Small scale pig keepers were identified from the list of registered pig keepers maintained by APHA. The questionnaire was also promoted through web links and leaflets. Over 610 questionnaires were sent out by post and the questionnaire was also available online. The questionnaire was implemented from June to October 2013 and 135 questionnaires (24 of these online) were returned by target respondents.

Limitations

This was a self-administered questionnaire. The database used to extract the contacts of the registered small-scale pig keepers for the survey was out-of-date (i.e. in some cases the wrong address was provided or the individual no longer kept pigs), which decreased the population sample size. The mechanism for registering and deregistering in this database is purely keeper driven, which might justify what was observed. Since this survey in 2013 there has been a data cleansing exercise specifically targeted at Scottish Pig Holdings in 2014. The proportion of respondents per postcode area was not statistically different from the proportion of pig keepers registered in that area, indicating that this survey was representative of pig keepers in Scotland.

Policy Implications

- Periodic cleansing exercises are needed to keep an up-to-date list of registered pig keepers, which is important for the successful implementation of contingency plans for exotic disease outbreaks and for future epidemiological monitoring studies.
- Further research is required to identify what role small-scale pig keepers play in disease transmission and control, given that factors such as low biosecurity practices, rarely seeing a vet, and keeping other livestock species are all likely to increase their disease risks. Rarely seeing a vet may have implications for disease spread as it is possible that disease could go unobserved for long periods of time before diagnosis, particularly if clinical signs were mild (e.g. some strains of Classical Swine Fever can present with mild signs particularly in adult animals).
- Engaging small-scale pig keepers in disease control plans is important in implementing measures to reduce disease spread. Since most respondents reported going to their vets or the internet as the first port of call for information on pig health, these routes are likely to be most useful for targeting information at this sector, outwith the normal industry routes.
- Contact between domestic pigs and wild boar or feral pigs has recently been associated with outbreaks of ASF in Eastern Europe. Whilst wild boar populations in Scotland are likely to be too low⁸ to maintain disease, they may present a risk for local transmission, particularly if their numbers were to rise with rewilding initiatives.

For more information on the work of SRUC's Rural Policy Centre, please contact the team on:
T: 0131 535 4387; E: rpc@sruc.ac.uk; W: www.sruc.ac.uk/ruralpolicycentre

⁷ Porphyre, T, Boden, L. A., Correia-Gomes, C., Auty, H. K., Gunn, G. J., Woolhouse, M. E.J. (2014). How commercial and non-commercial swine producers move pigs in Scotland: a detailed descriptive analysis. BMC Veterinary Research, 10:140, <http://www.biomedcentral.com/1746-6148/10/140>

⁸ Only 1% of respondents reported having seen wild boar near their farms.