



Pig Information Group – Spring 2019 Report

Welcome to the spring edition of the PIG e:newsletter.

This edition takes a slightly different format from previous ones and indeed this is driven from the outbreak of Swine dysentery in Scotland. The problem has escalated in recent weeks with numerous queries from concerned producers being received by our vets. As a result it is felt appropriate to devote a large part of this edition to Swine dysentery. Calling on both the latest information and thinking as well as her experience Jill Thomson has prepared a guide to Swine dysentery looking at:

- the disease itself and its effects
- how it infects the pig and how it can spread quickly
- what to do if you suspect it
- some of the measures that can be undertaken on farm.

She also dispels some of the myths circulating regarding the disease.

In a similar vein Carla Gomes also reports on a project where industry collaboration saw the sharing of disease and health data. This enabled better monitoring which has facilitated health improvements and through tools developed from the project future disease and health initiatives can be better co-ordinated.

A common thread between the two articles is the benefits of openness in sharing knowledge and information. Hopefully this spirit will see the sector pull together and get on top of the outbreak before the next edition is published.

This e-newsletter gives an insight into the work of the Pig Information Group, which comprises representative experts from SRUC's Research and Education groups and SAC Consultancy who work on various topics relating to pigs. Our primary aim is to enhance communication within the pig supply chain.

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How sharing data has led to better health monitoring and laid the foundations for future improvements

The “Innovative Use of Emerging Technologies to Improve Pig Production Efficiency” project¹ (abbreviated to Scottish Pig Health Network – SPHN) ran from 1st April 2016 to 30th March 2019 and was a collaboration between:

- **Wholesome Pigs Scotland (WPS),**
- **Scottish Pig Producers (SPP)**
- **Quality Meat Scotland (QMS)**
- **British Veterinary Association – Scotland**
- **Scotland’s Rural College’s Epidemiology Research Unit.**

The project aimed to pull together data from existing sources, creating an evolving knowledge base to provide a sustained impetus for an improved Scottish product. Some of the data sources included

- **QMS Pig Health Scheme data (also known as Wholesome Pigs Scotland (WPS))**
- **Salmonella scheme data**
- **Farm Quarterly Veterinary Reports (QVRs)²- a requirement of QMS’s assurance scheme.**

What has the project achieved? The continued monitoring of pig health scheme data over the project period has quantified the health improvements achieved by the Scottish pig industry. One example of this is how the proportion of pigs with no lesions at the time of slaughter (with lesions monitored by the scheme proxies for disease) has increased since 2013/2014 (**Figure 1**).

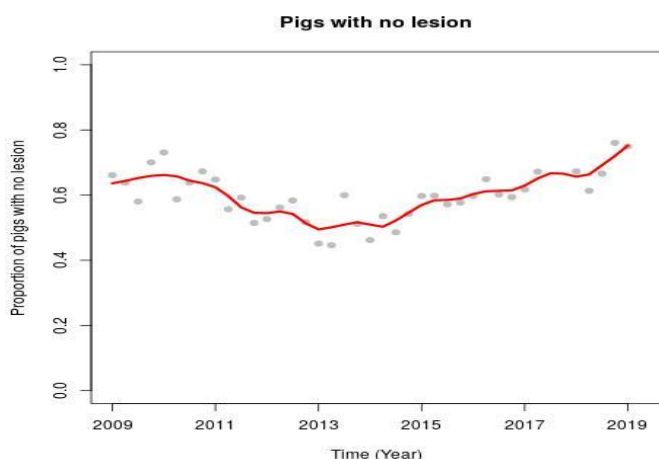


Figure 1. Proportion of pigs with no lesions (dots), by calendar quarter, with fitted trend line (red line).

By Quarter 1 of 2019 the proportion of pigs with no lesions at slaughter had risen to just over 0.7 or 70% of the pigs assessed by the scheme.

Two new tools developed from the project were the Salmonella reports and an interactive mapping tool. The Salmonella report is currently being used by producers and their vets to improve unit health status for Salmonella, whilst the mapping tool is used to provide situation awareness for the industry regarding current health status of several diseases, for example for PRRS (**Figure 2**).

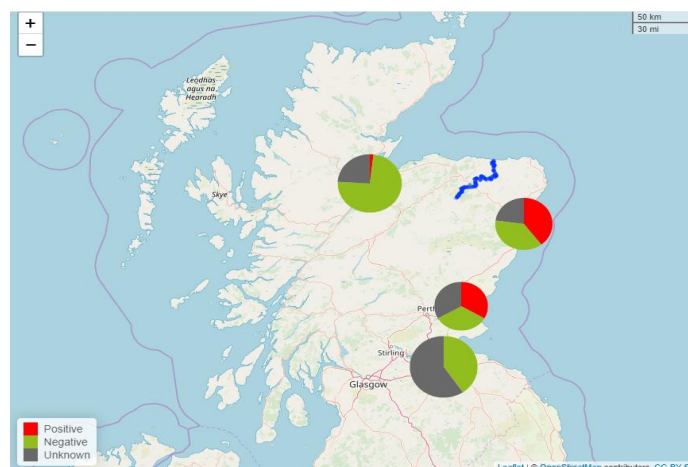


Figure 2. PRRS survey – national figures (January 2019)

Despite several challenges encountered during the project (for example, the fire at Brechin abattoir), the constant monitoring undertaken has shown that the Scottish pig industry has a high overall health status.

Stakeholder feedback found overall satisfaction with the project was reported to be high and all consulted highlighted that the information provided helped form the basis for coordinated health improvements- demonstrated by the recently launched PRRS control and elimination programme.

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1 Project funded by the Scottish Government’s Knowledge Transfer and Innovation Fund and led by Wholesome Pigs (Scotland) Ltd, 2 QVRs are veterinary on-farm observations related to disease syndromes and known pathogens, such as PRRS (porcine reproductive and respiratory syndrome).



Swine Dysentery – a timely reminder

After 3 years of apparent freedom from swine dysentery in Scotland, the disease has been diagnosed on several units over the past 2 – 3 months, sparking intensive investigation into potential sources of infection, plus efforts to contain it and eventually eradicate it from affected herds.

The outbreaks appear to be part of a wider problem affecting a number of areas in the UK – Yorkshire, East Anglia and south-west England. Worrying increases in the diagnostic rate in the first two of those regions were noted in summer of last year and since then the number of outbreaks has escalated.

We have received many phone calls asking for information and advice, so here are the key answers to the questions.

“What is it?”

Caused by a bacterial infection called *Brachyspira hyodysenteriae*, the organism has a snake-like shape and moves through intestinal content seeking out its perfect habitat – the large intestine of pigs, specifically liking the glands or crypts of the colon. The bacteria swim into the glands and cause inflammation of the lining of the colon. As part of the response to infection, the colon increases the amount of mucus material produced by cells, so once the infection is well-established in the pig, mucus can be seen in the faeces passed by pigs. Severe infections cause the colon lining to bleed (Image 1) leading to blood being present in the faeces.



Image 1. Haemorrhagic Colon from pig with Swine dysentery

“How does it spread?”

Pigs get infected by ingesting infected faecal material. Infection can be introduced;

- by buying in infected carrier pigs
- by transporting pigs in dirty wagons that have transported infected pigs previously
- by contaminated boots or equipment coming onto the unit
- by a number of other potential routes of infection (vermin, birds etc. can spread infection between farms).

Pigs can get infected from a small amount of material and it takes a week or two for the infection to become established in the pig or pigs that have ingested that material. Once the infection is established the bacteria multiply quickly and the pig sheds large numbers of bacteria in their faeces. Other pigs soon become infected through rooting and over the following month many pigs in the group are likely to contract the infection.

Scrape-through dung passages can spread the infection from pen to pen, so major outbreaks can occur more rapidly with that type of system. Likewise, people going into infected pens can spread infection into passages and other pens unless they are very careful to wash and disinfect boots as they exit infected pens.

“I am worried about getting dysentery in my pigs – what should I look out for?”

Clinical signs of dysentery can affect pigs anytime from about 6 weeks old onwards. Before that, the infection does not establish well in the piglet colon as the digestive conditions are not really suitable for the bacteria. Most outbreaks are seen initially in grower or finisher stages.

The first sign is diarrhoea that is grey/brown in colour and of loose consistency to start with but as the infection progresses, the faeces contains more mucous so might appear ‘shiny’ or have evident

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clumps on mucus on the surface. There might be reasonably fresh-looking blood in the faeces and in the worst cases, severe bloody diarrhoea. Such pigs look obviously ill – tend to lie to the sides of the pen, be unwilling to rise, might have slightly 'flushed-looking' skin colour and be slab-sided and 'empty' looking through the combination of poor appetite and diarrhoea. **(Image 2)** Badly affected pigs can die from swine dysentery. Adult pigs can get dysentery and show similar clinical signs but it is rarely fatal.



Image 2. Grower pigs suffering effects of Swine dysentery

"How long does infection last in the pig?"

Pigs show diarrhoea anywhere from 2 – 4 weeks after infection. Those that recover can return to normal through developing immunity to the infection in the gut lining. This is quite a lengthy process during which the infection tries to persist, so pigs that have recovered can continue to shed infection for another 3 – 4 weeks.

Unless the producer and their vet is aware that the pigs have had dysentery and taken steps to treat pigs to eliminate infection, this is a major risk factor for moving pigs between farms, especially if those pigs are sent to a dysentery-free site.

The immunity that develops in the gut is time-limited, so pigs that have had dysentery as weaners can get infected again as finishers, especially if they encounter a different strain of *B.hyodysenteriae*.

"My growers have developed diarrhoea, what should I do?"

Contact your vet practice and discuss the situation, giving as much detail as possible regarding approximate numbers affected (% of group), number

of pens affected, appearance of the pigs, and the faeces, and information on any possible risk factors. The vet will consider the information and depending on availability and biosecurity constraints, will either visit the farm to inspect pigs and take samples or instruct you to take samples for sending to the lab.

If pigs have died, fresh carcasses should be submitted to your local SRUC Vet Lab for post-mortem examination. Depending on the clinical diagnosis and severity of outbreak, your vet might advise to start treatment immediately.

"Can other infections look like dysentery?"

Yes, there are a number of enteric pathogens of pigs that cause diarrhoea and they can be very difficult to tell apart on clinical inspection, especially in the early stages of the outbreak. The lab can run tests for all these infections as part of the investigation and this should identify whether or not dysentery is involved, and if not, what infections are present and potentially causing the problem. This helps your vet to decide on the best treatment and other actions to prevent ongoing infection.

"Will antibiotics work against dysentery?"

Yes, we test isolates for their sensitivity to antibiotics routinely and so far, the results for us in the UK are good. There are only a few antibiotics that can be used to treat dysentery but resistance to the main treatments is rare thanks to the fact that antibiotics have not been misused. In some other countries there is up to 80% resistance to all antibiotics available due to repeated or continuous use of antibiotics for managing swine dysentery in herds.

The approach taken by vets and farmers in the UK (eradication of disease from herds through total depopulation or partial depopulation and medication) has meant that resistance is not an issue for us, and it is important that we keep it that way.

"Do I need to report a diagnosis of dysentery to anyone?"

Yes, in Scotland, all assured producers have signed up to the QMS Scottish Pig Health Charter which lists the diseases that should be reported to the Scottish Pig Disease Control Centre (SPDCC). Swine dysentery is on that list. The aim of the charter is to work collectively to prevent accidental spread of

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diseases to other units through getting assistance with suitable transport arrangements, disease control measures, etc.

There is no stigma involved in reporting outbreaks – everyone understands that accidents happen and more often than not, the producer is not to blame. The key thing is to prevent further outbreaks as far as possible.

If your vet suspects swine dysentery, 'suspicion' should be reported. If that is confirmed through isolation of *B.hydysenteriae* by the lab, the suspicion can be reported as a positive. If it is not confirmed, the 'suspicion' can be deleted.

“Is there a vaccine against dysentery?”

No, considerable research effort has gone into developing a vaccine but none has had any lasting success in commercial pig farming. The disease is complex but research is ongoing. Should a commercial vaccine be developed, it is unlikely to have much more than a 70 – 80% success rate, so maintaining units, and ideally countries, free from swine dysentery is definitely the best approach.

“What disinfectants are effective?”

All the disinfectants listed under 'General Orders' are effective when used at the correct concentration and kept fresh with minimal contamination by organic matter.

This re-emphasises the importance of good biosecurity and notably:

- *the importance of washing and cleaning pens, equipment, boots etc well, using a detergent, before applying disinfectant.*
- *plumbed-in boot washers at key sites in units, coupled with disinfectant foot baths are good long-term investments and they help to maintain good health in the unit against infections in general, when used regularly by staff.*

“Can dysentery arrive in semen?”

No, the organism is a gut pathogen that does not get into the blood stream or invade other tissues such as the testicles. In any event, boar studs should maintain freedom from swine dysentery so the chances of accidental contamination of semen during or after collection should not occur.

“Is there anything else I can do?”

Yes, pay particular attention to your source of pigs if buying-in stock. QMS advises use of a Health Declaration form from your supplier that provides quarterly information on the health status of the supplying herd, as assessed by their veterinary surgeon. Pigs should always be sourced from a swine dysentery-free multiplier. However, that's not all – on arrival, pigs should be kept in quarantine away from the main unit for 4 weeks to ensure that any infections that they might have contracted accidentally *en route* are identified and dealt with appropriately without the risk of them infecting the rest of the herd. This safety measure applies to a whole range of infections that could have very costly implications for the business if they were introduced by accident.

My final thought, two errors doing the rounds that I would like to correct:

1. “If there is no fresh blood in the dung, it's not dysentery.” – NO, THAT IS NOT CORRECT.

Pigs at the top end of the dysentery severity scale have bloody diarrhoea but it takes a while for them to reach that level of severity and in the meantime infection could spread unabated among pigs, possibly also to other sites if the diarrhoea is ignored or considered to be unimportant (**Image 3**). Outbreaks of diarrhoea should be discussed with your vet and investigated without delay to establish the cause and if it is dysentery, the quicker it is diagnosed, the sooner it can be controlled and the disease impact minimised.



Image 3. Is it or isn't it? Grower pigs with diarrhoea in a straw court- always discuss outbreaks with your vet.

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2. "If there is blood in the dung, it has to be dysentery" –NO, THIS IS ALSO INCORRECT.

There are other infections that can cause blood in faeces, so although you are advised to contain infection as if it might be dysentery, discussing this with your vet and taking samples from untreated pigs for diagnostic investigation should give you the correct information as to the cause.

There is much that I could say about dysentery but hopefully this timely update provides you with practical factual information.

For us in Scotland, an industry-wide approach to regaining freedom from swine dysentery is our goal - we all have a part to play in achieving that.

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The PIG e:newsletter was produced by the Pig Strategy Group at SRUC through funding from the Universities Innovation Fund, from Scottish Funding Council. Should you wish to know more about any of the articles featured or wish to find out more about SRUC pig related activities please contact the following or click on the links below.

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