



Pig Information Group – Summer 2018 Report

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

Most editions of this newsletter have followed an event that has created a degree of uncertainty- usually elections both here and abroad or referendums. It is therefore a novelty to be writing this during a period of relative stability, both in terms of politics and the pig price. This has even extended to the weather with the country currently enjoying a prolonged, warm sunny spell. There are some potential clouds on the horizon in the shape of BREXIT and the inevitable new trade deals that will arise, the weather itself has caused concerns over the size of the cereal harvest. In the meantime however the sector is enjoying a period of sustained profitability.

This edition looks at new ways and new thinking. Rick D'Eath and Emma Baxter write about their project which has been looking at early warning signs for tail biting. SRUC vet Jill Thomson discusses autogenous vaccines and their role in disease control. Food and Drink consultants Calum Johnston and Alistair Trail have also contributed to this edition- with Calum providing an update on direct marketing opportunities for pig producers and Alistair giving an insight into the recently launched RISS initiative- where funding and support is available for developing innovative projects. Jos Houdijk also reports on SRUC's presence at the Pig and Poultry Fair with Iain Boyd discussing the potential influences on policy post Brexit.

Fresh thinking also extends to how to encourage the next generation into the sector with SRUC committed to playing its part in this. The National Certificate in Agriculture class have just been out for practical pig experience on 5 different units. Twenty first year students were split into groups of 3 or 4 and dropped off to spend three half days on their allocated units. The students thoroughly enjoyed getting to work with pigs and were very impressed at the management and technology on the units. Thank you to all the farmers and staff who agreed to students being allowed onto their pig units.

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 with those in the pig supply chain.

Universities Innovation Fund, from Scottish Funding Council

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Need an expert?

Contact us using the links on page 10.



Prices turn the corner as wheat prices start to climb over harvest fears

Month end date	EU Spec GB SPP (p/kg)	Change on month (£)	Average Pig Weight (Kg)	UK weekly clean kill-000head	LIFFE wheat futures-nearby contract (£/tonne)	Soyameal 46% Braz. (£/tonne) ex store L'pool
February	145.66	-1.17	84.25	210.4	135.74	355
March	145.85	+0.19	83.58	203.0	142.38	348
April	145.82	-0.03	83.49	198.4	142.82	361
May	148.17	+2.35	82.54	207.7	153.39	363
June	150.31	+2.14	82.65	193.3	148.37	337

Facts and figures calculated from industry sources (AHDB and Scottish Pig Producers)

- Prices have levelled off since the decline seen in the autumn and even started to firm slightly in recent weeks to 150.31p/kg at the end of June. This is still about 12p/kg below the levels seen 12 months previously.
- The EU reference price has crept upwards with prices in Spain increasing by €7.70 over the past month (AHDB). Tightening supplies combined with the start of the main tourism season in the Mediterranean countries and the fine barbeque weather have all had an impact.
- While US markets may have eased due to concerns over the effects of Chinese import tariffs, UK and EU wheat futures prices have risen in recent months on the back of concerns of smaller crops with recent currency movements also lifting LIFFE with Nov 18 futures hitting £171.50/ton as we go to print.
- Fears over the size of the drought affected soya bean crop in Argentina have also impacted on protein markets however a predicted record crop in Brazil will partly mitigate the shortfall (USDA).
- A delayed spring and dry summer has seen crops thinner and shorter than normal. With straw supplies pretty well clawed up from last winter, straw could remain or even surpass recent high prices.
- AHDB's latest survey has shown producer margins reducing over the past six months as pig prices have fallen. Data for the first quarter of 2018 shows margins now at 5p/kg or £4/pig. This is the lowest level since the Brexit referendum.
- Weaner prices are back around £5 year on year at £38.08 and £54.86/head for 7kg and 30kg weaners respectively according to AHDB. Higher feed prices may be starting to have an impact on prices.
- Fresh pork sales have increased in financial terms by 0.5% year on year covering the quarter up to 17/6/18. This is despite a 3.2% decrease in volume over the same period reports the latest Kantor Worldpanel survey. Sales of bacon and sausages are however up on the year both in monetary terms and in volume- no doubt supported by barbeque weather.
- The pig population in the USA is at its highest ever in Q2 reports the USDA. Both breeding and slaughter herds had increased by 3% year on year. Prices at home may have improved however there is uncertainty on the horizon with tariffs now being applied on US pork into Mexico and China (AHDB).



Can RISS help you get that great idea off the ground?

Do you have an innovative challenge or business idea on your farm that would benefit from collaborating with other farmers and industry experts from academia or the private sector?

If **YES** then the **Rural Innovation Support Service (RISS)** may be able to help.

The Rural Innovation Support Service (RISS) is a Scottish Government funded project encouraging a “bottom-up” approach to rural innovation and provide support to farmers, crofters or foresters who require expertise and assistance to help them adopt innovative ideas or practices.

SRUC are among the project partners in the delivery of RISS, providing a facilitator and the “**brokerage service**” linking farmers with researchers, commercial companies and the best expertise available to take your innovative or business idea off the ground. Innovative ideas can vary from developing and implementing a new technology to establishing a new quality standard.

What are the opportunities for producers?

Facilitators or “brokers” form a working group around you and your farm, bringing in members from any useful sector depending on what kind of knowledge or experience you need, be it from the technology, supply chain, business or research sectors. Facilitators can also

- Complete survey work and carry out small feasibility, field labs or demonstration projects
- Identify suitable funding to help support the project
- Identify technologies and areas of best practice from out with Scotland which can be duplicated

How does RISS work?

Step 1: You become part of a group

- Tell us briefly about your idea: get in touch
- We can link you up with the right facilitator and talk it over in more detail with them
- They bring in the other group members you will need (from any sector)

Step 2: You work as a group

- The facilitator enables a period of group working: defining, developing and testing ideas and solutions. The way the group works and the time it will take depends on what you are trying to do
- The group produces a project plan, with next steps in mind

Step 3: You have everything you need to get going

- You have a final project plan that can be used to access funding if necessary, or just to get started

Examples

The first RISS Group was set up earlier this year and was investigating the **Speeding up of dairy breeding** and involved

- Three dairy farmers interested in harnessing genetics to improve the quality of their herds.
- Identify the genetic make-up of their cross-bred cattle, starting with being sure of the parentage.
- Find an economical system of embryo transfer, so they can get 10 calves from one cow, keep the calves and get them back into the herd more quickly therefore speeding up breeding.

To this end, the group's facilitator, a project manager from the SAOS, is recruiting a geneticist, a data specialist and an agricultural scientist to complete the group.

Other examples of ongoing projects include

- **Fighting liver fluke disease** sustainably in sheep
- **Investigating oat quality** – from a producer and processor perspective (collaborative innovation across the supply chain)
- Exploring different avenues to **improve profitability of hill farms**

It is clear that RISS presents a great opportunity for pig producers to develop a bright idea and access the specialist know-how to make it a reality.

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From field to fork: Adding value to pigs by getting closer to the consumer.

Small to medium pig producers may lack the economies of scale of their larger peers however there are numerous opportunities for them to add value to their livestock.

Farm Shops

First appearing in the 1970s farm shops have multiplied as farmers have diversified in order to add value to their produce and boost the profitability of their businesses. According to FARMA (the National Farmers' Retail & Markets Association), there are now over 4000 farm shops in the UK. Demand has been promoted by food-savvy consumers looking to reconnect with the countryside, purchase fresh, high-quality food with strong provenance. Farm shops showcase local food and drink and provide the opportunity to buy products which may not be available elsewhere. Location is a key factor for setting up a farm shop so is not for everyone however another option may be to supply existing ones. What needs to be considered when thinking about supplying farm shops?

- **Speak to the owners; are they looking to sell pork products?**
- **Do you have a Unique Selling Point or point of difference from other suppliers? E.g. speciality meats or rare breeds.**
- **Can you contribute to their story of showcasing local, high quality, traceable food?**
- **Continuity of supply – can you meet demand?**

Farmers' Markets

There are over 500 certified farmers' markets throughout the UK, with over 70 in Scotland. Farmers' markets offer the opportunity to showcase food and drink directly to high street consumers. Many consumers like to connect with producers and in the process gain a greater understanding of where their food comes from. Key considerations for selling at a farmers' market-

- **Visit your local farmers' market**
- **Identify the products already being sold**
- **Is there a gap in the market for your produce?**

For more information visit the Farm Retail Association website <http://www.farma.org.uk/>

Restaurants & Hotels

Restaurants and hotels can provide a direct route to market for pig farmers. Given current demand for traceable food, restaurant chefs promote local food within their menu. This acts as a key method of differentiation for restaurants, enabling them to communicate the story of locally sourced food from field to fork. Similarly, hotels incorporate local food and drink products within their offering. Customers, particularly tourists, are interested in sampling the range of high quality, regional produce on offer.

Vending Machines

Vending machines are a novel and relatively inexpensive way to market produce. Consumers can purchase fresh local produce 24 hours a day 365 days a year. Non-chilled 28 locker machines cost around £8,000 and chilled machines cost £10,500 with an estimated pay back period of 12 months.

Private Catering & Events

Hog Roasts and themed BBQ's have grown in popularity in recent years. The Hog Roast is a good way of serving high quality pork with other local produce to a large number of people. Hog Roasts add value to your finished pigs and give customers that added wow-factor for their wedding or social event.

Connect Local

Connect Local is an advisory service for local food and drink marketing aimed at entrepreneurs, micro-businesses and small to medium sized enterprises (SME's). Funded by the Scottish Government and European Maritime and Fisheries Fund, Connect Local provides one-to-one and one-to-many advice on; routes to market, business development, marketing and branding, legislation, and provides structured networking opportunities for food and drink businesses. Further information available via the website <https://connectlocal.scot/>

The food and drink sector is a vibrant and important sector of the economy. It is clear from the opportunities listed, there is plenty of scope for pig farmers to grab a share of this marketplace and add value to their produce.

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Tail biting – using technology to help spot the early warning signs

Tail biting in growing and finishing pigs is a costly problem which can be frustratingly hard to control, for a number of reasons:

- **There are many different risk factors involved,**
- **Outbreaks can occur without warning or apparent cause and**
- **Once started, the problem can quickly spread to affect many victim pigs in a pen.**

Tail docking is known to be partly (but not totally) effective in reducing tail biting but is only allowed to be used as a last resort in the EU since January 2003 (Directive 2001/93/EC). The latest guidance on tail biting from the EU* encourages pig producers to carry out a risk assessment of factors affecting tail biting. AHDB Pigs provide an online risk assessment tool "Webhat" at <https://webhat.ahdb.org.uk/> which is worth a look.

Access to suitable enrichment materials is known to be one of the key factors in tail biting and EU guidance is to provide enrichment materials which pigs can investigate, manipulate, chew and consume, in sufficient quantities and replenished often enough to sustain interest.

Early signs of tail biting

The webhat suggests looking for 'early warning' behavioural changes which could mean that tail biting is about to begin. These include restlessness, skin injuries from ear and flank biting, and pigs holding their tails low or tucked against the body. Since the webhat tool was produced, more studies have emerged suggesting that of these, low or tucked tails are the clearest and most reliable predictors of tail biting.

Once high risk pens are identified, pig producers can act by increasing vigilance, removing biters or bitten pigs, and adding extra enrichment materials, to stop an outbreak in its tracks before pigs become badly injured.

*Commission recommendation (EU) 206/336 of 8 March 2016 on the application of Council Directive 2008/120/EC laying down minimum standards for the protection of pigs as regards measures to reduce the need for tail docking.



Image 1. Tail biting- once started in a group it is hard to control

A high-tech approach to early warning signs

Based on the idea that low tail posture could be an early warning sign of tail biting, we (the pig behaviour team at SRUC) worked on a project with Innovent Technology Ltd, a small Scottish Agri-tech company, who sell a camera-based 'over pen' pig weighing system called QScan (<http://www.qscan.co.uk>). They installed 3D cameras over our pig pens and updated their algorithms which find and weigh pigs to also measure tail posture.

We kept pigs with undocked tails at commercial stocking density in groups of 30 on fully-slatted floors. In 15 of our 23 study groups there were tail biting outbreaks. Bitten pigs were immediately removed, and additional enrichment such as shredded paper was added to distract the remaining pigs.

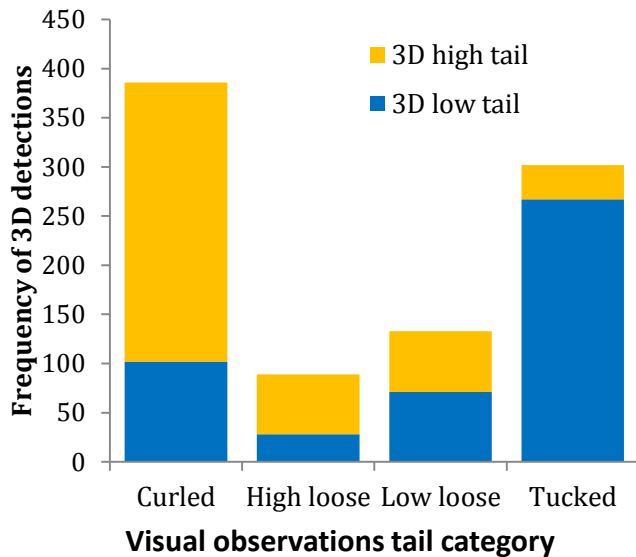
We scored tail injuries three times a week, and video recorded all the pens. Once tail biting outbreaks occurred, we looked for differences between outbreak and unaffected pens in the same cohort ('control').

What did we find?

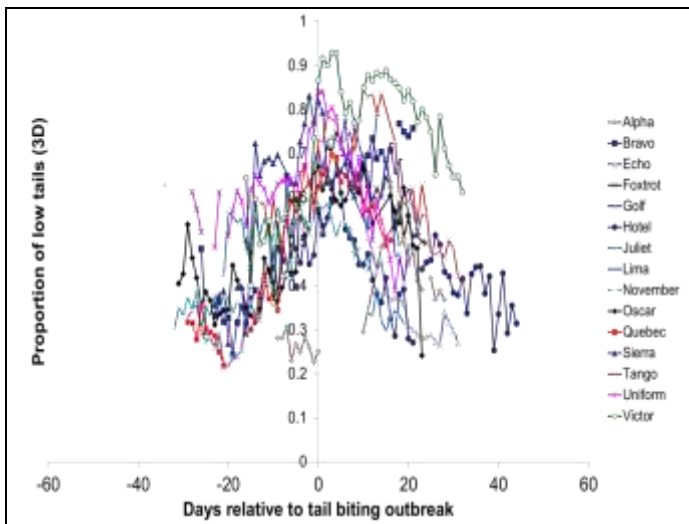
Checking the performance of their algorithm by eye showed it was 74% accurate at identifying tucked tails (see graph).

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How new technology can help beat an age old problem



When plotted over time, it was clear that the 3D data also showed a clear increase in low tails as a tail biting outbreak approaches, and a decline after an outbreak (see graph which shows daily proportions of low tails for the 15 outbreak groups).



Tail injury scoring showed us that if you get into the pen and look closely at all tails, you can see early signs of tail biting far sooner than we would detect it from outside the pen. These changes to tails include loss of hair, and small injuries including bite marks and scabs become visible. Our scoring also revealed that reduced tail length (part of the tail has been bitten off) and tail swelling were usually 'trailing indicators' that were seen after an outbreak.

Behaviour observed from video recordings confirmed the 3D results. When comparing outbreaks with control groups, in the week before an outbreak, there was a reduction in curly tails, and an increase in tails tucked down against the body, but no change in activity.

What does this mean?

Our findings confirm that tails which are tucked low and also minor tail injuries (which can be seen on close inspection of tails) are both potential early warning signs of tail biting outbreaks.

Farmers who are concerned about tail biting can keep an eye out for increases in these signs and can then pre-empt damaging outbreaks by taking action.

What are the remaining challenges?

Our findings prove that we can measure tail posture automatically using 3D cameras, and that low tails do increase before tail biting outbreaks. However a number of challenges remain:

- The 'normal' number of low tails varies between groups and increases when pigs are moved to a new pen, irrespective of tail biting. This means it is hard to set an absolute 'alarm level' of low tails which indicates a problem. Instead, an increase compared to the usual level should be used.
- This study used undocked pigs on a single farm- we don't know if the findings would be the same with docked pigs or different systems.

These questions and others will be addressed in the next project 'TailTech' which seeks to develop a prototype early warning system for tail biting based on this concept (<http://qtr.ukri.org/projects?ref=103945>)

For full details of our findings see: <https://doi.org/10.1371/journal.pone.0194524>

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Research



SRUC shows the sector its latest research and facilities at the Pig and Poultry Fair.

The recent Pig and Poultry Fair saw nearly 10000 attendees with the revamped SRUC stand being very busy. Visitors to the stand were able to find out about ongoing pig research including managing pig aggression, predicting tail biting and rapeseed meal feeding and were shown a looped video on the use of 3-D imaging to assist monitoring.

The Pig and Poultry Fair also saw the launch of SRUC's newest Pig Research leaflet highlighting the Pig Research capabilities of SRUC's Easter Howgate and Oatridge units for the benefit of the whole sector. This includes the recent CIEL initiative which has allowed the expansion of SRUC's free farrowing capabilities and flexible flooring for growing pigs. Pocket sized information cards- providing advice on reducing mortality (both stillbirths and pre-weaning), reducing aggression, the risks of mycotoxins and alternative protein sources also proved very popular.

A well attended seminar for the pig sector was organised at the Fair, entitled Profit without Antibiotics showed that the UK pig sector has made good progress with a 34% reduction in total antibiotic use since the introduction of the Electronic Medicine Book (<https://emb-pigs.ahdb.org.uk/>). Joshua Onyango, livestock health consultant at Innovation for Agriculture indicated there is still room for further improvements based on evidence from Swedish case studies. Paul

Thompson, a vet at Garth Pig Practice, explored a long list of areas on which farmers should focus to target antibiotic reduction including **environmental control, nutrition, stockmanship, biosecurity, the farrowing house, the post-weaning phase, and respiratory diseases in growers and finishers.** There is no silver bullet but "It is just about doing everything we do better."

Our PhD student Rachel Peden presented a poster on managing pig aggression. We know from years of research what can be done to reduce aggression in pigs however it is a bit frustrating to see that little has been taken up in the industry. This suggests we do not have a good enough handle on the barriers for uptake and this is exactly what Rachel is trying to figure out during her PhD, funded through SRUC. She has developed a small questionnaire and at the fair she had a number of discussions with pig producers about managing pig aggression. Should you wish to receive a copy of the questionnaire please get in touch.

We now have a general email address: pigs@sruc.ac.uk. This can be used to get in touch with us if you would like to find out more about our research, if you would like a set of our information cards or even if you have any queries you think we can help you with!

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Left: SRUC's latest brochure on its Pig Research capabilities Right: SRUC's stand at Pig and Poultry Fair



Autogenous Vaccines for pigs – what are they all about?

Over the past 2 – 3 years we have had an increasing number of requests by vet practices to freeze harmful bacterial isolates from their pig submissions in case they are needed for autogenous vaccine production.

When managing an outbreak of bacterial disease, the initial approach involves antibiotic treatment appropriate for that infection coupled with management strategies to minimise disease impact and safeguard pig welfare. If the infection is endemic on the farm (or the pyramid of farms) and causing repeated problems, the next step to consider is vaccination. An effective vaccine not only protects the pigs and prevents disease outbreaks, but minimises the need for antibiotic treatment- crucial for reducing antimicrobial use.

When considering vaccines, the vet needs the following information -

- **Are there any licenced vaccines available?**
- **Do they cover the strains or serotypes of the bacteria involved on that particular holding?**
- **When using the available licenced vaccines have they been effective?**

If the answer to any of these questions is No, the use of an autogenous vaccine is considered.

So, how does an autogenous vaccine differ from a licenced vaccine?

A **licenced vaccine** has been made with a strain or strains of the organism that are prevalent in the country, in accordance with strict production procedures. It has proven safety and efficacy data and meets the requirements of the Veterinary Medicines Directorate to get a product licence for use in the target species of animals. It can be made of killed bacteria, live modified bacteria, parts of the organism or products that come from the organism.

An **autogenous vaccine** is made of killed bacteria arising from the specific farm where it is intended to be used. It is prepared in specially licenced laboratories under prescription of the farm's vet. Although it is made to strict standards, they do not have the proven safety or efficacy data of a licenced vaccine. Autogenous vaccines are also known as emergency vaccines and to

use them, your vet needs to get authority from the Veterinary Medicines Directorate. If a licenced vaccine is available and been tried on the farm but found to be ineffective, the vet has to report that to the Veterinary Medicines Directorate before an autogenous vaccine can be used.

Examples of bacterial organisms that we have isolated and supplied for autogenous vaccine production include ***Streptococcus suis* serotype 2** (a cause of meningitis), ***Actinobacillus pleuropneumoniae*** (a cause of pleuropneumonia) and ***Clostridium difficile*** (a cause of piglet diarrhoea). As with licenced vaccines, autogenous vaccines can be given to sows and gilts to provide immunity to young piglets through colostrum, if the disease affects piglets at that stage. Alternatively, they can be given to weaners (with a second dose three weeks later) in order to provide immunity through grower and finisher phases of production.



Above: Could autogenous vaccines be an option for your farm?

Effective disease control involves attention to a range of factors including housing conditions, management, hygiene and biosecurity.

Getting all these things right will help to maximise the efficacy and cost benefit of vaccination. It is important to take advice from your vet and adopt a holistic approach to solving the problem successfully.

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Decision time on future agricultural policy as Brexit looms

With the uncertainty of Brexit and the need for CAP reform, the future of agriculture policy and support in Scotland is still very unclear.

Several groups and sectors are currently discussing what they think this future vision should look like. While a mammoth task, there is the opportunity to create better support mechanisms and policies than are currently in place, with now being the ideal time to try and influence future decisions.

Scottish and UK farmers already operate to some of the highest and most stringent welfare and environmental standards found anywhere in the world. The pig sector in particular has seen the adoption of welfare and health practices that place it ahead of its competitors both on the continent and further afield with producers in Scotland at forefront of several key initiatives.

The initial fears that any post-Brexit agreements could lead to a reduction in these standards, due to trade between non EU countries, appears to have been replaced by a requisite to maintain or improve on these world leading standards. The various devolved administrations agreeing there will be **“no compromise on animal welfare, environmental and food standards.”**

In Scotland “A Future Strategy for Scottish Agriculture” produced by the Scottish Government’s Agriculture Champions provides their vision for the future of Scottish agriculture. It recommends the actions that the industry should take looking at the long term, beyond the current uncertainties with emphasis on the need to change from past agricultural policies that have not been fit for purpose. In addition to this there is a need for agricultural policy not to be considered in isolation but alongside and in balance with other policies including the wider food industry and environmental sustainability.

“There is an opportunity to evolve agricultural activity and support in Scotland to suit the pressures of our time, as part of a more holistic system across the rural and agricultural ecosystem.” - A Future Strategy for Scottish Agriculture (May 2018).

There is also the possibility of the environment having an even greater role and link to agricultural policy than present. This could have wide ranging implications for Scottish and UK producers and cover many facets of agriculture including the housing methods, farming systems and practices which may be supported and encouraged in the future.

A recent poll undertaken for Scottish Environment LINK asked the opinions of the public on how they would like future agricultural support and subsidies distributed with 77% of those surveyed wanting farming to deliver for our environment and climate. There was support for funding being spent on discouraging the use of antibiotics on farms and 78.5% supporting funding aimed at encouraging animal welfare standards and the production of high quality animal products. As has been shown in other various studies however there is often a discrepancy between the standards the consumer demands and the price they are willing to pay for this product. All of which will need to be considered in future policy decisions.



Image 1. (courtesy of Gavin Elrick)- High welfare outdoor systems may be popular with the public but will they pay for the extra costs incurred?

The only thing that currently appears to be clear is that there are plenty opportunities to help shape and guide future policy to hopefully create a stronger and more robust agricultural industry with a balance between finance, productivity, welfare and environmental factors. What that will actually look like and the implications for the sector are still to be determined.

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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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