

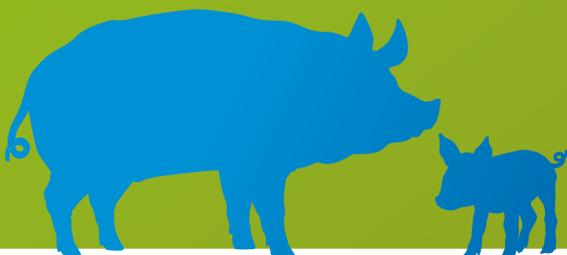
Pork Yearbook 2017/18

Key industry statistics and details
of marketing, knowledge exchange,
research and development activity

“ Inspiring our farmers, growers
and industry to succeed in a
rapidly changing world ”

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Preface

Taking all things into consideration, it's been a pretty good year for the British pig industry. After the pain of the back end of 2015 and much of 2016, the pig market recovered and average net margins (based on a full economic cost) returned to the black in 2017. Although the market price weakened from the peak of 165p/kg (SPP) in June, average margins remained in the black into 2018. And, judging by press reports, many of the major processors also had a profitable year.

The cause of this welcome position was the combined effect of a number of positive factors. Supplies, both in the UK and in the rest of Europe, were tight as producers reduced production following the poor profits of 2015 and 2016. Demand within the UK picked up after several months of decline. It is still a little early to reach a definitive conclusion but it looks as if the high profile AHDB pork TV campaign promoting fillet and loin medallions as a healthy and convenient midweek meals has had a positive influence.

The relative weakness of sterling against the euro and dollar in the wake of the Brexit vote continued to exert a positive influence on pig prices, making imports more expensive and exports more competitive. In fact, while the rest of the EU struggled exporting to markets such as China, UK exporters managed to expand business. By the end of 2017, we had reached a position where the value of pork exports to China was almost twice the value of Scotch whisky exports. If Hong Kong is included, then exports to Greater China exceeded £100 million last year.

The British industry relies heavily on its reputation for producing quality assured, high welfare pork independently audited to high standards to trade at a



premium over imported pork, which makes up a half of all the pork and pork products sold in the UK. The industry took an important step to enhance its reputation as a responsible producer by agreeing to ambitious antibiotic use reduction targets as part of the RUMA Targets Task Force. It has also been able to demonstrate this commitment by recording use on the eMB (electronic Medicines Book) which covered nearly 70 per cent of production in 2016 and nearly 90 per cent in 2017, encouraged by the new standard under Red Tractor.

There are always challenges that the industry will have to face. There is a lot of publicity about alternative diets that consumers are adopting such as flexitarianism. What these reflect is the growing choice of food and alternative recipes that consumers are presented with every day. In order to survive in this increasingly crowded market, pork has to stand out as an exciting, healthy and convenient meal choice, especially for midweek meals. It's a tough challenge but a good start has been made.

The threat from exotic pig disease is ever-present. However, the threat from African Swine Fever is particularly concerning, not only because of the direct impact on pig health and welfare but also because of the impact it would have on the export market. We have already seen export bans imposed on Poland and the Baltic states by many countries, including China.

And then, of course, there is Brexit. It is unclear at the moment if this will be an opportunity or a threat. It will come down to the nature of the trade deals that are done, not least with the EU. At one end of the spectrum, there could be a reversion to World Trade Organisation (WTO) tariffs, which would have a detrimental impact on exports

of sow meat to the EU but, at the same time, significantly increase the price of imported pork and pork products. At the other end of the spectrum, we could see the UK unilaterally abandoning all import tariffs while still being subject to tariffs on exports.

Whatever is decided, the one certain thing is that the industry needs good-quality information on which to base future business decisions. The Pork Yearbook contains a wealth of information that can help the industry compete in these uncertain times.



Mick Sloyan
Strategic Director,
AHDB Pork

Strategy and budget

The Inspiring Success strategy addresses the two most important factors influencing the English pig production and processing industry. Maintaining the price premium and closing the productivity gap against our competitors in the EU.

The Activity Plan for 2018/19, the second year of the Inspiring Success strategy, will deliver the following.

- We will help the industry improve its productivity and competitiveness through a targeted campaign of knowledge exchange. We will exploit farmer-to-farmer learning through Strategic Farms and study tours. We will seek out, communicate and stimulate innovative ideas through our organisation of the EUPIG network. We will enable the industry to operate in an environmentally responsible way and we will encourage industry skills through Pig Pro and other initiatives
- We will help to protect the industry by investing in disease surveillance, and understanding and enhancing pig welfare. We will help the industry achieve the national reduction target for antibiotic use, while monitoring the health of the national herd. We will help processors and producers realise the potential of the management data that is available in the supply chain
- A restructured Domestic Marketing team will continue to rejuvenate the image of pork. A third TV-led burst of activity will take place in autumn 2018. We will address the issues of health, nutrition and the environment in conjunction with other livestock sectors
- A restructured Export Marketing team will continue to help the industry add value through exports. We will continue to focus on building business in China through trade shows, inward missions and putting resources into the Beijing Embassy. We will also look to exploit opportunities in other markets in order to manage our risks
- We will ramp up the Brexit work, with a particular focus on trade issues such as carcass balance. In addition, we will continue to provide excellent consumer research and insight, both domestically and internationally. Our core work of price reporting, market analysis and provision of statistics will continue at a high standard

The AHDB Pork Business Plan¹ addresses the specific needs of the English pork sector and forms a constituent part of the wider AHDB Strategic Plan². Our sector advisory boards³ determine which strategies are most appropriate for levy funding to address the specific priorities in each sector.

The AHDB Strategic Plan and budgets and the six business plans can all be downloaded from the AHDB website.⁴

AHDB Pork Board

The AHDB Pork Board³ meets six times each year to agree the strategy for the English pig industry and to ensure that English pig levy is efficiently deployed in line with the AHDB Pork strategy.

During 2017–2018, the AHDB Pork Board comprised the following directors appointed by AHDB.



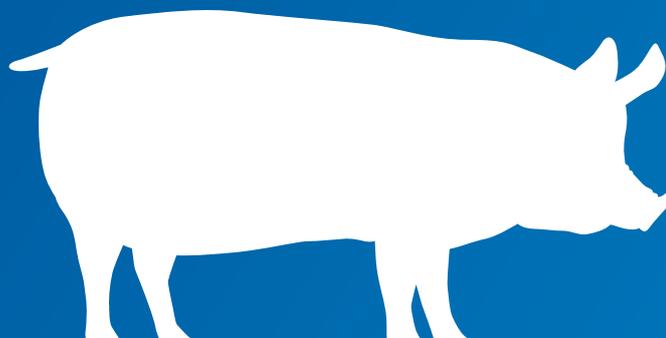
Robert Beckett
Producer



Rick Buckle
Producer



Adam Cheale
Processor





William De Klein
Processor



Mike Sheldon
Chairman



Barry Lock
Processor



Robert Shepherd
Producer



Robert Mutimer
Producer



Simon Watchorn
Producer



Andrew Saunders
Tulip UK



Iain Wylie
Independent

Check out the links

- 1 [AHDB Pork Business Plan](#)
- 2 [AHDB Strategic Plan](#)
- 3 [AHDB Pork Board](#)
- 4 [AHDB website](#)



Pork promotion

Midweek Meals campaign

The last yearbook detailed the successful first execution of the three-year marketing programme aimed to rejuvenate the image of pork and appeal to a younger consumer. The 'Pulled Pork... Achieve Lazy' campaign¹ not only achieved great sales results but also started to frame pork in a more modern light. The next execution, the Midweek Meals Campaign² in 2017–18, aimed to get pork more regularly onto shopping lists by targeting the midweek meal occasion.

Research into peoples' food habits and behaviours identified that consumers look for speed, ease and convenience from their midweek meals, and rely on a regular repertoire of meals that they know and are confident in cooking. Chicken is often the go-to meat of choice due to perceptions that it is quick and easy to cook, healthy, versatile and liked by the whole family. Looking at the range of pork available, pork medallions³ were chosen to front this latest campaign due to their speed and ease of cooking and health credentials.

Working with independent agencies and in partnership with Trading Standards, detailed work was carried out to agree key health statements⁴ with reference to fat and nutrient levels. Establishing that pork fillet and loin medallions trimmed of visible fat contain less than 3 per cent fat, less than 1.5 per cent saturated fat and are just as healthy as skinless chicken breasts*, is a great step in confronting negative perceptions that pork is fatty.

At the same time, work was carried out with development chefs to create a range of tasty inspiring recipes for a busy weekday night. And in order to tackle another myth – that pork is tough, various cooking methods were tested and a method established that provides consistently juicy and tender results. Subsequently, a range of quick, easy and healthy recipes⁵ were developed, to offer a tasty alternative to chicken,

with five ultra-healthy recipes rated all green across the nutritional traffic light system.

With TV key for driving awareness, two adverts were created: one featuring a family⁶ and the other a coup le⁷ whose evening meals are rudely interrupted by a berated chicken. Partnering humour with compelling messages about the benefits of pork medallions, the 'Pick Pork Medallions' campaign has not only made people question their mealtime routines and consider something new but successfully relayed key messages of quick, easy and healthy.

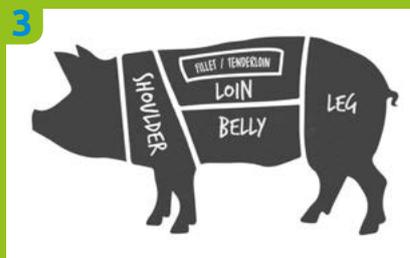
The press, digital and social media campaign has also been promoted with the support of Rebecca Adlington,⁸ in addition to direct communication with consumers at the point of purchase. Working collaboratively with processors and retailers, there has been an increase in listings across the core lines, along with on-pack stickers, online banners and print adverts in retailer magazines.

Figures from Kantar Worldpanel indicate the campaign is having a positive effect on sales, with volume sales of pork loin medallions, fillet medallions, whole fillet and loin steaks up 8 per cent during the first burst of activity in Sep/Oct 2017, compared to the same period last year, while volume sales of total fresh pork rose by 3 per cent. In addition, the number of British households buying pork cuts has risen by 4 per cent versus the same time last year, with the hero line; pork loin medallions, increasing by 27 per cent and evidence to show that shoppers have switched from chicken to pork for a positive net effect for the first time in three years.

The second burst of activity took place in Jan/Feb 2018, and will be followed by a third burst in autumn 2018, which will build on the core campaign messages around midweek ease, ahead of plans for further extension to the midweek meals campaign in 2019.

*Both pork and chicken are naturally rich in protein. Protein helps muscle growth.

Check out the links

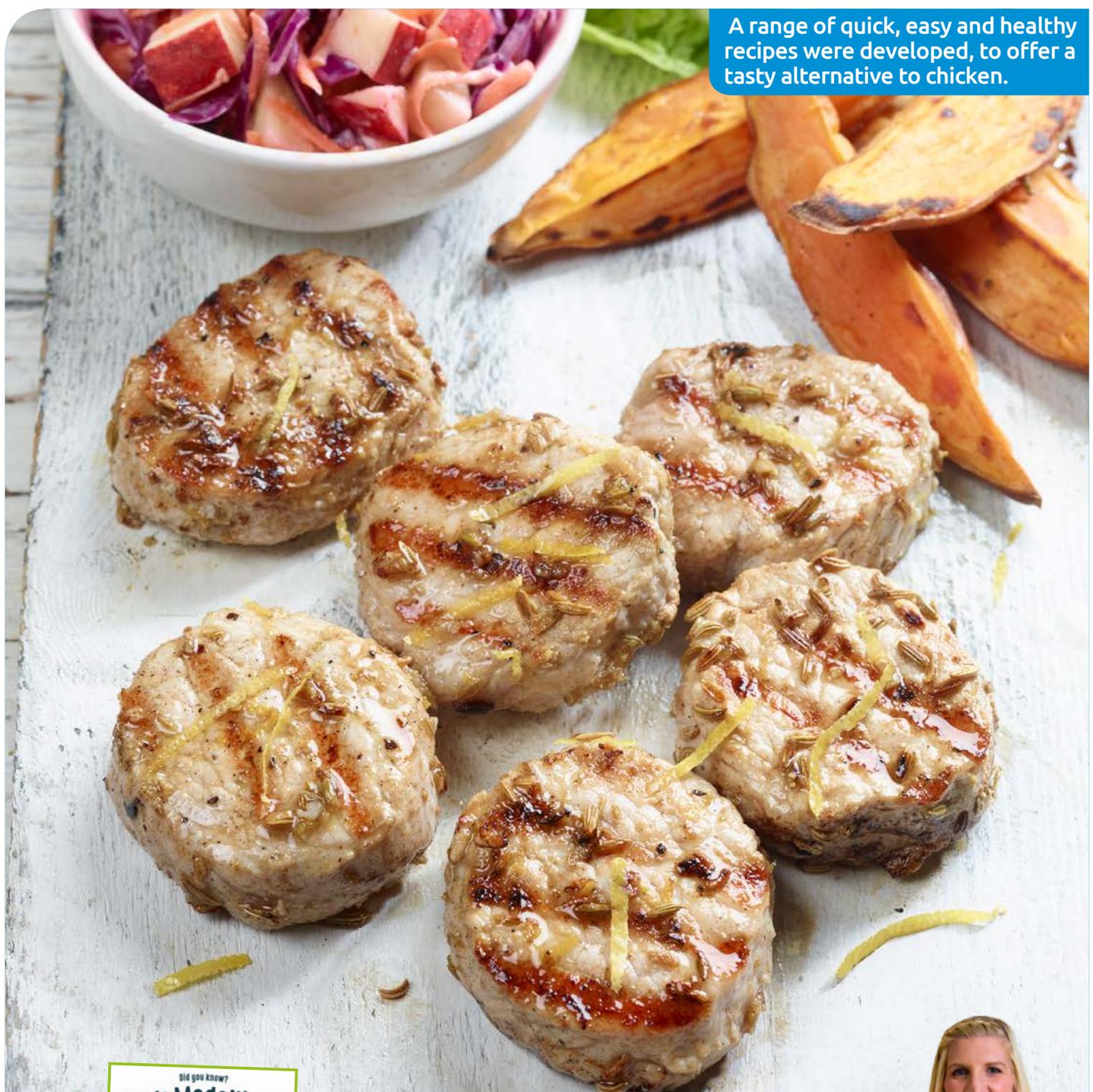


Achievements include:

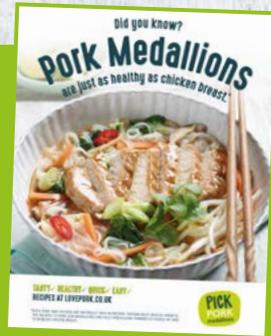
- 263,000 new users to the Lovepork site
- 36 million adults viewed the midweek meals TV ad
- 91,000 Lovepork Facebook followers
- 8,000 Lovepork Twitter followers

- 6 new medallion lines listed in retailers
- 81,000 product samples given out at shows attended by Ladies in Pigs
- 20,871 views on the Lovepork YouTube channel
- 20 new pork recipes developed

A range of quick, easy and healthy recipes were developed, to offer a tasty alternative to chicken.



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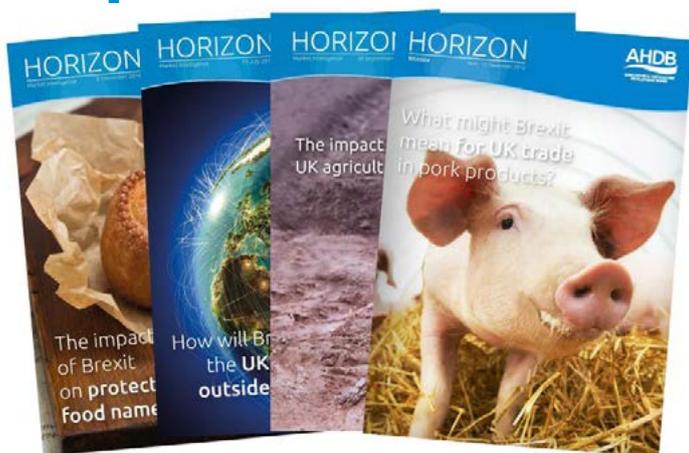


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Export



The year started with the 13th annual AHDB Meat Exports Conference 'Preparing for Brexit',¹ which was attended by George Eustice – MP, Minister of State for Agriculture, Fisheries and Food and looked at the future challenges and opportunities in foreign markets. The conference recognised the international meat trade as an important economic sector which is already subject to trade barriers and tariffs. However, pork meat export² is one area where there have been some real success stories.

Building on the success of the previous years, 2017 was another impressive year for the British pork sector growth.³ Total fresh and frozen pork export volumes increased by nearly 5 per cent on the year to 216,000 tonnes but the increase in value was even more marked, up by 16 per cent to bring the value of British pork exports to £293m.

China remained the leading destination for UK pig meat exports, despite the market being more challenging⁴ than the previous year. This was down to some increase in domestic production and higher stock levels that saw demand return to a more normal level following record import levels in 2016.⁵ The UK's reputation for safe, quality pork helped to maintain, and actually marginally increase, exports to China in 2017, compared with a number of competitors who saw levels fall below year-earlier volumes. British pig meat shipments to Greater China now account for virtually a quarter of total UK exports.

Good demand for British pork was also seen in a number of other Asian markets. In particular, the Philippine⁶ and South Korean⁷ markets growing volumes by 40 per cent and 20 per cent year-on-year, respectively.

Trade shows remain an important tool in continuing to develop the presence for British pork on international markets. AHDB has provided a platform for UK pork exporters to showcase their high-quality pork to key markets around the world during 2017. AHDB once again attended leading meat shows in China, Hong Kong and Japan, not only meeting new potential buyers, but crucially maintaining relationships with existing buyers. This face-to-face contact is essential, particularly in Asia, given the highly competitive nature of the market place.

Closer to home, the team joined forces with our Beef & Lamb colleagues at the largest and most important show of the year, Anuga,⁸ which is held in Cologne biennially.

British pork products at Hofex



Check out the links

- 1 AHDB Meat Exports Conference
- 2 Pork meat export
- 3 British pork sector growth
- 4 A challenging market in China
- 5 Record exports to China



- 6 Exports to the Philippines
- 7 Exports to South Korea
- 8 Anuga 2017
- 9 Export of pigs trotters



The 2017 meeting attracted a record number of visitors which kept our exporters extremely busy with global enquiries for the duration of the show.

Demand for high welfare premium pork in the USA continues to provide a good opportunity for British pork, particularly into the high-value foodservice sector. For the first time, AHDB exhibited at the National Restaurant Association Show in Chicago, where leading exporters promoted their high-end offer to key suppliers and chefs.

In late 2017, we were successful in gaining pork approval for two further processing sites in Northern Ireland and five cold stores across the UK. Further, these two NI plants plus a further plant in England were granted the long awaited approval to export trotters.⁹

Mexico¹⁰ has become one of the largest importers of pig meat and the team will be taking an in-depth look at the market¹¹ and meeting key players in the supply chain to assess the opportunity for the British sector.

Export marketing remains a key area of work for AHDB, continuing to add value throughout the supply chain for the UK pork sector. While continuing to develop existing markets for British pork, working in collaboration with government on securing access is a key priority for the team, particularly as the industry prepares for Brexit. To this end, AHDB's Chief Executive Officer Jane King accompanied Theresa May¹² the Prime Minister on a trade delegation to Beijing, China. The three-day visit with the PM, business leaders and industry representatives facilitated discussion on greater trade with the country. Brexit horizon

- 10 Mexico – export opportunities
- 11 The Mexican market



- 12 Delegation to Beijing





Check out the links

- 1 Prices
- 2 GB slaughterings
- 3 EU slaughterings
- 4 Consumption trends
- 5 Pick Pork promotions



- 6 Costings & herd performance
- 7 International costings
- 8 Pig Market Weekly
- 9 Sign-up for Pig Market Weekly
- 10 UK market update
- 11 Market news
- 12 Pork Talk



- 13 Pig and Poultry Pocketbook
- 14 Up-to-date feed price trends

Industry statistics

The objective of AHDB's Market Intelligence (MI) team is to provide relevant, useful, accurate and timely market information to the English pig and allied industries. This should support the industry in understanding the market and making decisions to maximise competitiveness, sustainability and also improve supply chain transparency.

Activities undertaken by MI focus on both the supply and demand sides of the industry. Key activities are outlined below, click through to find out more:

Prices and production statistics – Collecting and calculating GB weekly finished pig and weaner prices.¹ Here, you can also find pig prices from across the EU and the latest UK and global prices for the main components of pig feed.

Producing accurate forecasts for slaughterings and pig meat supplies in the UK – This section also contains AHDB estimates for GB weekly pig slaughterings² and supporting carcass weight and probe measurements. There is also information about slaughtering and production for selected EU countries.³

Retail and consumer trends – Providing information about pig meat consumption trends in the UK.⁴ This includes pig meat consumption levels in the UK and information on the GB retail market for pig meat.

Providing research – Research enables AHDB Pork marketing activity to be based on a sound knowledge and understanding of the market and consumers. Find out more about the latest Pick Pork Medallions campaign here.⁵

Physical performance and cost of production – Collecting and providing average pig production costs and performance measurements. Providing the industry with physical performance data for the GB pig herd and cost of pig production estimates.⁶

International cost and physical performance comparisons – This is addressed through the InterPIG project.⁷

Average GB compound feed prices



Figure 1 Source: Defra

Total cost of pig production compared with pig prices

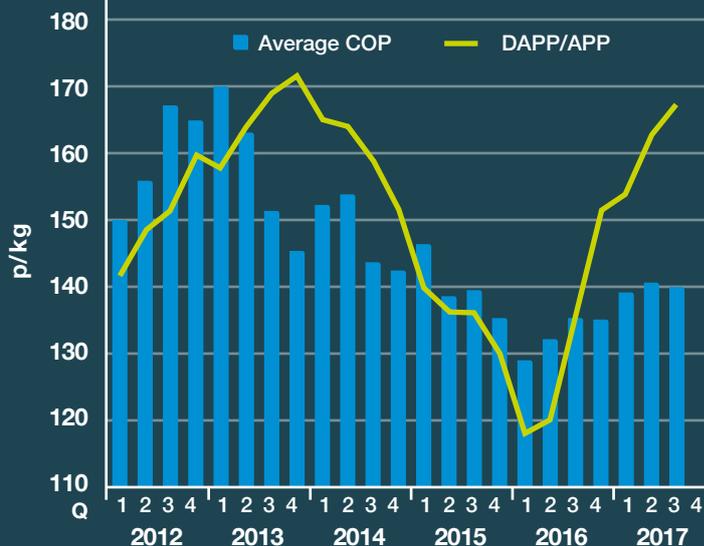


Figure 2 Source: AHDB

Analysis and publications – Relevant market information and analysis from the UK, EU and beyond is freely available in a range of formats:

- Pig Market Weekly⁸ available as an email, sign up to receive it⁹
- Monthly UK Pig Meat Market Update report¹⁰
- Market News section of the AHDB Pork website¹¹
- Pork Talk new monthly market videos¹²
- Pig and Poultry Pocketbook¹³ provides a summary of the key market and performance trends influencing the UK pig market in 2017

Cost of production

GB production costs rose in 2017, based on provisional data available for the 12-month period ending Q3. However, on a historic basis, costs remained relatively low at around 140p/kg. The increase reflects a rise in feed costs.

Average quarterly compound feed prices remained stable throughout 2017, averaging £232.00/t over the year, which was £19/t more than the year earlier. In the final quarter of 2017, the average quote for compound pig feed was £232.00/t (see Figure 1).

The stable prices recorded in compound feed reflect the flat markets for the main feed ingredients. Wheat production in the UK was up slightly (3.2 per cent) at 14.8 Mt in 2017. Overall demand grew marginally by 1 per cent at 15.9Mt, leaving the market still in deficit, thus supporting prices. UK feed wheat futures (nearby) ended 2017 at £136.25/t, £3.10/t lower than the beginning of the year. Prices peaked in the spring following concerns over the US drought, but were fundamentally driven by large global availability.

The strong Chinese demand and concerns over the South American weather drove soya meal prices to peak in early 2017. Following this, prices steadily declined until July. Abundant global availability helped drive this, coupled with a reduced demand for US soya in favour of South American origin crops on weak dollar prospects. This decline translated to UK soya meal prices (spot, Brazilian 48 per cent, ex-store Liverpool) which closed 2017 at £315.00/t, £15.00/t lower than at the beginning of the year.¹⁴

Greater production costs were more than compensated for by higher pig prices. The GB All Pig Price (APP) averaged 160.13p/kg for the year, almost 30p/kg more than in the previous year, and peaked at 168.46p/kg in July. While pig prices did decline in the latter half of 2017, finishing at 153.30p/kg, with feed prices relatively stable, it seems profitability remained healthy throughout 2017 (see Figure 2).

For the most up-to-date feed price trends, check out the link on the left.⁶

Performance trends in the British pig herd

Provisional GB physical performance data available for the 12-month period ending Q3 2017 suggests breeding herd productivity increased overall in 2017. In contrast, feed conversion ratios for both the rearing and finishing herd seem to have worsened slightly compared with the previous 12-month period.

For the most up-to-date GB physical performance statistics, check out the link on the left.⁶

Production trends

UK clean pig slaughterings declined in 2017, to 10.4 million head. This was 3 per cent lower than Defra's 2016 figure, although the decline may be somewhat overstated due to a change in reporting methods from February 2016. Slaughterings in Scotland fell in particular, due to the temporary closure of a major plant. Throughputs in England and Wales fell in line with the overall decline, and slaughterings in Northern Ireland remained stable on the year.

The long-term upwards trend in clean pig carcass weights continued in 2017, with the average weight reaching over 83kg. This has been supported by relatively low feed costs and improvements in genetics.

Sow cullings for 2017 fell sharply compared with Defra's 2016 figure, declining 11 per cent to 228 thousand head. This reflects high cullings in the previous year in response to low prices early in 2016. With prices significantly improved in 2017, producers were no longer scaling back their breeding herds.

Altogether, the higher carcass weights partially countered the decline in throughputs in 2017. Pig meat production therefore recorded a smaller year-on-year decline than slaughterings, totalling 901 thousand tonnes, 2 per cent less than Defra's 2016 figure. The decline meant UK pig meat production was behind beef production for the first time since 2014.¹⁵

Trends in UK pig meat trade

According to official HMRC statistics, the UK imported more pork, sausages, processed pig meat and offal than in 2016 last year. Pork imports were recorded as 5 per cent higher than year-earlier levels, reaching 460,000 tonnes. However, the figures for imports from Denmark continue to be significantly elevated above historic levels, and doubts over their validity remain. In contrast, bacon imports fell 9 per cent on the year, reflecting a switch towards processing more product domestically.

UK exports of fresh/frozen pork were 5 per cent higher in 2017 compared to the previous year, at 216,000 tonnes. This is the largest annual volume the UK has exported since 1998. The annual increase was primarily driven by a 6 per cent increase in shipments within the EU, but there was also a modest 1 per cent rise in exports to China. Offal exports also increased 6 per cent, and there was an 18 per cent increase in exports of bacon. Conversely, exports of processed pig meats fell 10 per cent.¹⁶

Retail pig meat purchases

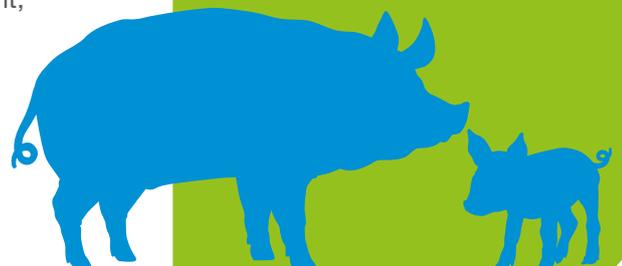
Retail data from Kantar Worldpanel shows that, in the 52-week period ended 28 January 2018, expenditure on fresh and frozen pork was up by 4.1 per cent compared with the same period a year ago, driven by higher retail prices as the amount bought fell slightly by 1 per cent. Volume declines were led by shoulder roasting and loin roasting joints, with price increases of 8.3 per cent and 14.1 per cent, respectively, leading to a drop in the number of households purchasing. By contrast, leg roasting joints performed well, as did mince and steaks.

Processed and cured pig meat products fared a little better than their fresh counterparts. Purchases of bacon (including gammon) were up 1.8 per cent and pork sausages by 0.5 per cent. Ham sales were up by 2.5 per cent, outperforming the total sliced cooked meats market.

Over 2017, only lamb fared worse than pork in terms of retail sales, with volume sales down almost 10 per cent. Beef sales were static, while the amount of poultry bought was up 3.1 per cent. By contrast to the red meat categories, retail prices of poultry fell year-on-year.¹⁷

Check out the links

- [15 UK production figures](#)
- [16 UK trade figures](#)
- [17 Retail trends](#)





Skills and training

Pig Industry Scholarship Scheme

The Pig Industry Scholarship Scheme works in conjunction with Harper Adams and is entering its fifth year, during which time it has secured over 20 scholars. Two of the inaugural scholars have returned to start their careers post-graduation with their sponsoring company.¹

Following a scholar's placement year with their sponsoring company, there is an option for the scholar to receive further funding for their final year. This year, three scholars received this funding for 2018, which was positive for the sponsoring companies, the scholars and the scheme.

Pig Pro²

Pig Pro launched in September 2017. Pig Pro is a free web-based tool for recording staff training and skills for pig producers.³

Created for businesses, individuals and training providers, the aim of Pig Pro was to provide a quick and easy-to-use tool for managing training events and skills, not only for individuals but also on a business level. Building a well-populated training events calendar into the system was vital to increase awareness of training options available to our industry. Registered training providers are able to advertise upcoming events by uploading to the calendar.

Six months following its launch, the tool received its first upgrade. Following user feedback, its second phase

of development includes compliance functionality and allows greater customisation for business users.

A great response from industry has been seen so far, with a good number of both producers and individuals signing up as users. New training providers are also approaching AHDB to become registered on Pig Pro, with the advantage of providing producers with visibility and greater access to more events around the country.

Pig Pro's next developments include the addition of electronic sign-in registers and, further into the future, the possibility of virtual learning.

To start using Pig Pro, businesses can sign in using their existing pig hub username and passwords. For individuals and training providers, register at the Pig Pro website.²

Check out the links

- 1 Pig Industry Scholarship Scheme
- 2 Pig Pro website and sign-in
- 3 Pig Pro user guide video





Study tours

Sweden

Activity: Site visits to view and understand the 'freedom farrowing' concept.

Attended by: Seven producers and representatives from Garth Vets, AHDB Pork and Zoetis.

Participants visited two farms as well as an agricultural university, and met Swedish producers for a pig club-style meeting. The focus of the trip was to look at welfare in Swedish production systems, specifically free farrowing systems, which have been law since 1994, plus building design, equipment and environmental systems.

Read more in Katia Stoddard's blog¹ and view the tour photostory².

Australia

Activity: Intelligence gathering in New South Wales, Australia.

Attended by: Andrew Palmer.

Fully sponsored by Fram Farmers pig feed buying group, their nutritionist and mill manager invited a representative from AHDB's KE team to join them on their fact finding tour.

Visits included fully integrated 25,000 indoor breeding, finishing and slaughter complex and an outdoor operation producing pigs for specialised markets including suckling pigs. Other learnings came from the largest mushroom producer in Australia who's investing in air cleaning technology to combat odour. A key reason for attending was to hear first-hand, how Australian producers manage their environmental regulations.

SPACE study tour

Activity: Visit to SPACE Conference, France. The International Exhibition for Animal Production.

Attended by: Samantha Bradley and members of the Stockperson Pro East group.

The Stockperson Pro scheme includes training sessions, guest speakers, webinars, discussions and sharing of the group's own experiences. After covering topics such as exports, marketing, animal rights activity, environment, buildings and leadership, the group travelled to France to attend SPACE Conference.

See some of the technology and equipment showcased at the fair in our photostory.³

The Netherlands and Germany

Activity: Visits to the Swine Innovation Centre and a producer using balcony systems in their buildings.

Attended by: AHDB Pork and David Goodier (AHDB's Strategic Farmer).

The purpose of this trip was to visit a commercial farm using a 'balcony system', and to look at the research behind it. The balcony system, as the name suggests, consists of a second level within a pen, accessed via a ramp, which provides additional space allowance for the pigs. The tour also included a visit to the Swine Innovation Centre (VIC) Sterksel, NL, which is the centre is dedicated to swine innovative research.

A couple of UK building suppliers have this type of system available already but producers considering installing a balcony system need to double-check first that they meet assurance scheme requirements.

View our photostory⁴ or read Emma Slater's blog.⁵ For greater detail on the specification, see the full report.⁶



Futterkamp, Germany

Activity: Visit to observe different building and precision livestock technologies in practice.

Attended by: Academics, lecturers and AHDB's Environment and Buildings team.

Futterkamp is a teaching research centre for animal production and agricultural construction. The purpose of the visit was to observe the operation of different building technologies and precision livestock techniques, particularly focusing on those novel to the UK.

The centre has facilities that house pigs from breeding to finishing and allow a direct side-by-side comparison of key features and pig interaction. Participants also visited the building, equipment and energy exhibition, which has representation from over 250 companies specialising in construction, building materials, lighting, flooring and feeding technologies.

See our photostory⁷ to see what kind of technologies they were trialling in their weaner buildings and read Sue Rabbich's blog⁸ where she shares some thoughts on what the team learns.

Canada

Activity: Attendance at the London Swine Conference and meetings with industry specialists in pig handling at the Prairie Swine Centre.⁹

Attended by: Richard Bows and Angela Cliff.

Knowledge Exchange Managers, Richard and Angela travelled to Canada to meet researchers, geneticists and pig handling experts working in the Canadian pig industry, as well as attending the London Swine Conference.¹⁰ Their initial findings and key information from the visit is available via their blog¹¹ and photostory,¹² further detail will be shared at their pig clubs and a full report will follow.

Check out the links

- 1 Katia Stoddard's blog
- 2 Swedish tour photostory



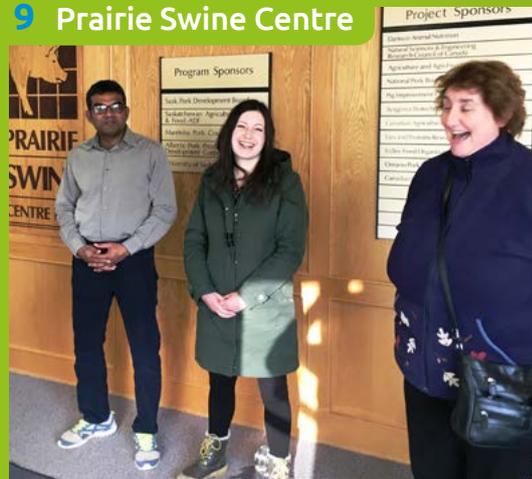
- 3 SPACE study tour photostory
- 4 Balcony system photostory



- 5 Emma Slater's blog
- 6 Balconies – full report
- 7 Fluttercamp photostory



- 8 Sue Rabbich's blog
- 9 Prairie Swine Centre



- 10 London Swine Conference
- 11 AHDB Pork blogs
- 12 AHDB Pork photostories



Check out the links

1 David Goodier, Strategic farmer



2 Water sampling video



3 Water quality and quantity

4 RAFT report

5 New Strategic farms



6 Knowledge Exchange Managers

Farm Excellence

Strategic Farms

Strategic Farms form one of AHDB's Farm Excellence activities and use farmer-to-farmer learning to accelerate the uptake of knowledge, providing a platform for farmers to explore the potential for best practice to impact their businesses. For the next three years, Knowledge Exchange Managers will focus on supporting producers and industry through AHDB Farm Excellence activities.

David Goodier¹ became AHDB Pork's Strategic farmer in 2016, and throughout 2017 has seen some great improvement on his unit.

Among the improvements has been an increase of two pigs weaned per sow per year from 24.57 to 26.79. This is down to a combination of changes implemented following four open meetings in which producers and the allied industry joined David to discuss pig management and performance results on David's 230-sow indoor unit.

Boosting breeding herd performance

One of the first priorities was to reduce pre-weaning mortality, which has gone from around 15 per cent to 10 per cent. Changes to farrowing house management meant this was achieved within six months. The improvement has been maintained for more than a year.

AHDB calculated that this reduction in pre-weaning mortality reduced the cost of production by 2.1p per deadweight kilo, working on a 2015 cost base and assuming all other things were equal. This, combined with David's increase in litters per sow per year and the boost in live piglets born per litter, reduce the cost of production by a total of 3.8p per deadweight kilo.

Pig Strategic farm trait change 2015–2017	Impact p/dw kg (2015 cost base)
Pre-weaning mortality 15% down to 10.2	-2.1
Litters per sow per year 2.22 up to 2.26	-0.7
Live piglets per litter 12.87 to 13.2	-1.0
Total	-3.8



The next priority is to work on gilt performance and retention to further improve the numbers born per litter and over the whole lifetime of each sow. One focus area is to tailor nutrition more accurately so gilt condition is optimised at each stage of production.

More gilts are being retained to their second parity this year from last year, following a number of improvements. This should start to improve the overall herd make-up and parity profile, with fewer sows in the later parities and more sows in the most productive parities.

Weighing pigs

David made major investment in a new finisher building to help cater for the increased pig numbers being produced by the breeding herd and to enable them to take pigs to higher finished weights.

Pigs are now going to be individually tagged and weighed at birth, weaning and a week before slaughter, which will provide detailed information on individual pig performance in the new accommodation and will ensure the business makes the most of the investment.

Weighing litters individually at weaning will be key to understanding patterns of variation in the finisher herd so variation can start to be reduced.

Learning from others

David says: “If you want to be the best, you’ve got to learn from others. Being part of this project has made me question what we’re doing on our unit much more – I’m always happy to listen to advice and try to implement changes people have suggested.”

Water on the Strategic farm

The Environment and Buildings team worked closely with David to address issues around water quality and supply in the weaner-grower buildings.

David was experiencing marking-up at about 45 days. As part of a buildings review, a general maintenance check was carried out. To see what kind of areas were investigated, and the importance of good maintenance, check out the video on the website.²

Like a large proportion of producers, David was using acid in his water but, after a short period, was experiencing a build-up of slime (algae) in his pipes, which was blocking his drinkers and restricting the water supply to his pigs. Water sampling was carried out as per the microbiology and mineral SOP.³

Samples were taken at the bore hole, from the header tank and from a broken line (before the nipple) at the beginning, during and the end of a batch to find out what was happening to the quality of water over the period. David implemented a deep clean of his water system to remove the biofilm (which was feeding the algae) and to keep his water clean throughout the batch. For more details on the results, see the Strategic Farm section of the website.¹

For more information on the importance of providing clean water to pigs, see our water report prepared by RAFT Solutions.⁴ The new strategic farms will be focusing on water quality and delivery.⁵

New Strategic Farms

New AHDB Pork Strategic Farms will start working with fellow producers and the industry in 2018, to help improve performance and profitability.

Specialist knowledge, additional resources and support are on offer to producers taking part, who will be focusing on topics important to both their unit and the wider pig industry. They include water quality and quantity and reducing risk of tail-biting.

See the website for more information about Strategic Farms⁵ or contact your knowledge exchange manager.⁶

Global acquisition

Ways to review farm biosecurity to reduce antibiotic use were shared at the 'Up to date with Pig Research' CHP Pig seminar 2018.⁷ More ways to improve pig health and productivity, such as water quantity and quality, will be explored via the new Strategic Farms.⁸

Discussion groups – Gilt Watch

Discussion groups are part of AHDB's Farm Excellence initiative and are used as a way to focus closely on more defined industry issues. Gilt Watch is an example of a discussion group brought together to explore ways to improve gilt performance. Learning will be shared with all levy payers.

More than 30 independent producers from both indoor and outdoor units came together in January 2018 for Gilt Watch.⁹ The aim is to improve both physical and financial breeding herd performance.



With the typical cost of rearing each gilt estimated at £250, it's vital to ensure gilts get past their first or second parity and reach their full lifetime potential to get a good return on that investment.

Over the course of two years, Gilt Watch members will be:

- Monitoring individual performance from cohorts of gilts:
 - Reasons for culling
 - Empty days
 - Litter size at first and second parities
- Implementing changes to improve performance
- Meeting twice a year to review progress, over two-year period
- Benefiting from other producers' ideas
- Sharing experience with the wider industry

It is not currently known what the industry's losses are to parity three but it is anticipated it could be at least 30 per cent of the original gilt intake. AHDB would like to halve this initially, working towards an 80 per cent retention of productive sows by parity five.

The targets Gilt Watch has set out for the industry are to:

- Retain 85 per cent or more gilts from the original gilt intake, to the point of a successful pregnancy diagnosis at their third gestation
- Maintain good fertility and minimise empty days
- Farrow with no evidence/minimal evidence of a 'second litter drop'

Stephen Hall of Stephen Hall Management Ltd. is working with AHDB and the Gilt Watch group, and has highlighted the opportunity for producers to make major gains. Gilt Watch will focus together on improving the sow's output over her full lifetime.

Global acquisition

Improving piglet survival is the purpose of the PattergriseLIV scheme⁹ by SEGES Knowledge Centre for Pig Production.¹⁰ Follow GiltWatch¹¹ to find out how UK producers are taking a similar approach to increase total lifetime output.

Check out the links

- [7](#) CHP Pig Seminar 2018
- [8](#) New Strategic Farms
- [9](#) PattergriseLIV Scheme
- [10](#) SEGES Knowledge Centre
- [11](#) Gilt Watch





EU PiG Innovation Group

The EU PiG Innovation Group (EU PiG) connects producers and shares tried-and-tested best practice and innovations to raise the competitiveness of the European pig industry.

When pig producers visit another farm or go on a study tour, they almost always learn something valuable from fellow producers, and EU PiG provides another easy and practical way to do this, sharing new knowledge in one place, online.

It is a network of 19 partner organisations¹ from 13 member states, coordinated by AHDB, and is funded by the European Commission's Horizon 2020 programme.

The EU PiG Grand Prix² is the main way that on-farm best practice is identified by the network. Its annual EU-wide contest has attracted up to 300 producers per year competing to become an EU PiG Ambassador.

EU PiG looks for entries that tackle one of eight Grand Prix challenges from within the project's four key themes, shown below, which have been identified as current priorities by the industry:

- Health management
- Meat quality
- Animal welfare
- Precision production

The 2017 Grand Prix Ambassadors³ won with on-farm best practice in the following areas:

- | | |
|--|-------------|
| • Biosecurity tool | Ireland |
| • Reducing antibiotic use | Netherlands |
| • Clean and accessible water | Denmark |
| • Routine weighing for accurate feeding | Denmark |
| • 'Heart Pig': marketing via welfare brand | Denmark |
| • Male finishing without boar taint | Germany |
| • Entire male production | Spain |
| • Rearing pigs with intact tails | Finland |

There is more about UK entrants to the EU PiG Grand Prix on the EU PiG website.²

Ambassador case study

Kees Van der Meijden, an EU PiG Ambassador from the Netherlands, has achieved the enviable goal of reducing antibiotic use to almost zero, while, at the same time, improving pig performance.⁴

Kees said: "Our goals are high health, a high production level and to have the best training facilities. In 2014, after a fire, we designed new pig accommodation, focusing on good internal and external biosecurity.

"There are strict protocols for hygiene throughout the farm and we have colour-coded flooring and equipment to differentiate between different parts of the unit to minimise any cross-contamination."

Beneath the flooring in the farrowing house is a novel cooling system that cools down the manure to under 15°C. "The system reduces ammonia at the source and the amount of manure stored within the farm. We also reuse the heat released from the manure as energy for the piglet flooring and other farm facilities, which saves energy costs.

"All of this together provides us with cleaner air, higher animal health, a better working environment for the employees and fire protection!" In fact, ammonia production has been reduced by 85 per cent.

Improvements in the breeding herd amount to production of one piglet more per sow per year than a few years ago, meaning 33 piglets per sow per year. In the finishing herd, the pigs can reach the right slaughter weight three weeks earlier.

Check out the links

- 1 EU PiG Innovation Group partners
- 2 EU PiG Grand Prix
- 3 Grand Prix Ambassadors
- 4 Reduction of antimicrobial medication

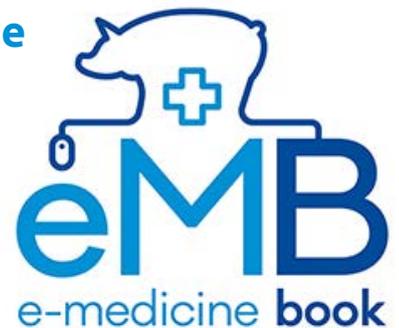


Health and welfare

AHDB works closely with the pig industry to enhance pig health and welfare in the UK. Most activity is concentrated in four main areas: antibiotic usage, traceability, disease and welfare.

Antibiotic usage

In 2017, it was made a Red Tractor (RT) requirement to record total antibiotic usage per quarter (including feed) on eMB. The change was seen as a key commitment to



NPA's Antibiotic Stewardship Scheme. Usage figures represented 62 per cent of UK pig production, and are likely to increase as over 90 per cent of English pigs are RT assured. This makes the data more robust to set evidence-based realistic benchmarks for the pig industry. The industry has made significant progress so far, with the VARRS report 2016¹ indicating sales (across all livestock sectors) of 45mg/kg in 2016, beating Defra's target to reduce total sales of antibiotics to 50mg/kg by 2018.

Antibiotics remain an important tool for vets to treat and control infectious disease, thereby ensuring welfare of animals is maintained. The whole industry needs to ensure antibiotics are used responsibly. Failure to do so may lead to restrictions in their use. This is particularly true for antibiotics which are critically important to humans. AHDB will continue to raise awareness on this topic.

eMB has quickly become the method of choice for recording antibiotic use. Refinements in both the way data are recorded and the reports produced for benchmarking have been made and we are keen to help users understand how these tools can be useful.

Check out the link

- 1 VARRS report 2016



Don't feed catering waste and scraps to farm animals!

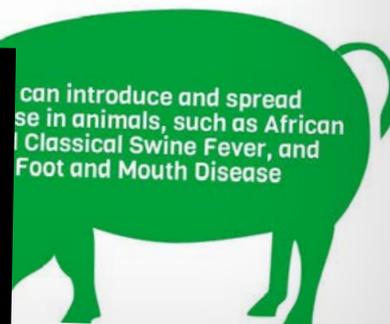
Most likely source of Foot and Mouth disease outbreak in 2001 was pigs being fed catering waste



Don't feed kitchen scraps to farm animals!



Don't feed kitchen scraps to farm animals! They can introduce and spread disease in animals, such as African Swine Fever, Classical Swine Fever, and Foot and Mouth Disease



Traceability

Hepatitis E

Recent work has been carried out at the RVC looking at the risk of Hepatitis E (HEV) in pigs on farm and within the food chain. The main objective was to identify factors resulting in HEV contamination and their relative contribution. The study consisted of three modules; farm management, slaughter and processing methods to incorporate a farm-to-fork approach. Probabilistic risk assessment modelling was then used to determine the presence of HEV in slaughter age pigs and how managerial and processing practices may help prevent the virus from affecting retail pork products.

End 2 End, 'Unlocking the power of data'

For the first time, producers can follow every step that each pig takes from birth to slaughter – with health, growth and carcass data being captured. DNA details can now also be analysed to help in making sound production decisions.

This cutting-edge project, spearheaded by AHDB, is presenting unique opportunities and for the first time will enable:

- The ability to automate detailed information capture throughout the value chain
- The facility to individually track animals and their weight/growth throughout their lifetime
- Feedback on individual animal slaughter data – including individual animal health through the Pig Health Scheme and CCIR
- An excellent platform from which the UK can create a world leading system from farm-to-fork traceability, both through the use of UHF ear tags and DNA sampling/recording

This unique and exciting opportunity will present producers with the drive to move their businesses forward, enhance efficiency, improve margins and provide unrivalled traceability in the supply chain, helping to make their businesses fit for the future.

Disease

Porcine Epidemic Diarrhoea (PEDv)

In 2017, AHDB Pork continued to work with the Pig Health and Welfare Council Disease Surveillance Subgroup to help develop the disease surveillance needs of the pig industry. A major part of this work has been concerned with the threat of PEDv. In 2017, the processes designed to deal with this threat were tested in an exercise with APHA. The lessons learnt from the exercise have been invaluable in developing contingency plans, should PEDv be detected in the UK. Producers and their vets will be alerted quickly through the Significant Disease Charter. The Charter has existed since 2015 and has replaced the Swine Dysentery Charter. Producers may sign up to the Charter through their Pig Hub Account; however, anyone who was signed up to Swine Dysentery Charter has not been automatically signed up to the new Charter and needs to re-register.

AHDB has continued to fund testing of samples by APHA for PEDv from suspect PED incidents and cases of non-suspect diarrhoea in pigs. This reduces the risk of disease going unnoticed and may identify disease earlier.

AHDB holds regular webinars with international colleagues to share information on the spread and treatment of PED and other diseases of concern. This helps with understanding and sharing information on the spread of disease and identifying successful strategies for dealing with disease.

African Swine Fever (ASF)

AHDB has been researching the potential effects of ASF if it were identified in the UK, focusing on the physical and financial implications for a herd. This will help to understand the impact for the industry and could encourage collaboration in the development of an ASF contingency plan.

Tuberculosis (TB)

AHDB has been contributing to discussions on a review of the current legislation and testing methods surrounding TB outbreaks in pigs to help develop a clear exit strategy for those affected. For the latest information on TB in pigs, see the TB Hub website.²

Pig Health Scheme

The BPEX Pig Health Scheme had been providing producers and their vets with information on the health of their herd since 2005. In October 2017, AHDB took the decision to put the scheme on hold while the baseline that is currently used by the team of veterinarians scoring the pigs was reset. The team has worked with veterinarians to review the conditions scored under the scheme to improve consistency. Work was undertaken to understand the status of the national herd for each condition and finally the reporting system was reviewed.

The Pig Health Scheme will be relaunched in 2018 with redesigned reports for producers and their vets. The scheme can help producers to identify trends in their herd health status. This is important both for new disease outbreaks as well as monitoring the level of 'known' (endemic) disease(s) on the farm. The scheme can be used to assist with lowering antibiotic use on farm. Identifying new or recurring conditions facilitates investigations leading to better control such as targeted vaccination.

Healthier pigs save processors money through fewer condemnations and quicker processing.

Sign up to the free scheme via the Pig Health Scheme page on the AHDB website.³

The Pig Health and Welfare Council

The Pig Health and Welfare Council (PHWC) is a cross-industry alliance representing every stage of pig production along the chain, which aims to promote a coordinated and integrated approach to improving pig health and welfare.

The PHWC subgroups now cover the following areas:

- Welfare
- Pig Meat Food Safety
- Disease Surveillance Subgroup
- Antimicrobials Subgroup

The third biennial report⁴ of the PHWC covering the activities of the Council in 2015 and 2016 can be accessed on the AHDB website.

Enhancing pig welfare

AHDB is committed to assisting the industry in all areas of maintaining and improving welfare and will continue to provide evidence-based technical information, research and trials, where and when necessary.

AHDB continues to provide technical support on the practical implementation of regulations, engage with

Government, EU, industry and NGOs on technical evaluation and impact assessment of emerging welfare regulations. Recently, the Welfare Officer has contributed to consultations on the development of new Codes of Practice for the Welfare of Pigs, and action plans for reducing tail biting and docking in the UK. AHDB aims to help pig producers comply with existing and emerging legislation and achieve recognition for progress made.

Real Welfare scheme

AHDB Pork continues to manage the Real Welfare monitoring scheme, regularly measuring outcome-based welfare measures on all Red Tractor assured holdings finishing pigs. In 2017, the first Real Welfare Report⁵ 2013-2016 was published, and very well received. Since the scheme was started, over 5 million pigs have been assessed to provide a credible benchmarked level of welfare at an industry and individual farm level. This report was accompanied by the publication of two scientific and peer-reviewed papers on the development of the scheme, outcomes, and risk factors from the first three years of the project.

In 2018, AHDB Pork will continue the Real Welfare Scheme and collaborate with the industry to review and refine Real Welfare measures, promote the benefits of Real Welfare to our customers and build a base of firm support among producers and vets. View a summary of the Real Welfare Baseline Report⁶ on YouTube.

Global acquisition

Image-Meaters are being used in 17 slaughter houses in France to collect data on the lean meat percentage of entire males vs castrated.⁷ Further work is looking at how the halothane gene also plays its part in carcass composition. See more from the 'Innovative Approaches for Pork Production with Entire Males' (IPEMA) conference, Lisbon 2018.⁸

Tail Biting WebHAT

The Tail Biting WebHAT⁹ (Web based Husbandry Advisory Tool) is a website designed by AHDB Pork in 2017 to be an interactive resource providing information about the key risks for tail biting in pigs and practical suggestions to help reduce these risks on-farm.



Taking information from evidence-based sources and scientific literature, this WebHAT can be used to generate and download a tailored report of prioritised, key tail-biting risks found on a farm and obtain suggestions to minimise the specific risks identified.

Global acquisition

Encouraging innovative ways to manage tail biting is the focus of the German PigWatch Scheme,¹⁰ similar to AHDB's WebHAT tool.⁹ Contact us¹¹ if you have an idea you would like shared with other UK producers to reduce tail biting.

Environmental Enrichment Guide

It is a legal requirement (EU directive 2008/120/EC) for pig producers to provide pigs at all production stages, including sows, with permanent access to environmental enrichment materials. In 2017, AHDB Pork also published a guide to give practical advice to pig farmers surrounding the complex issue of providing suitable environmental enrichment to pigs.¹² It provides useful information from the knowledge of farmers, researchers and scientific literature on the different ways environmental enrichment can be provided for differing types of housing and systems.

AHDB's Health and Welfare team

In 2018, AHDB's Health and Welfare team will be:

- Exploring ways of using information held by AHDB to help producers increase their knowledge of health and welfare issues

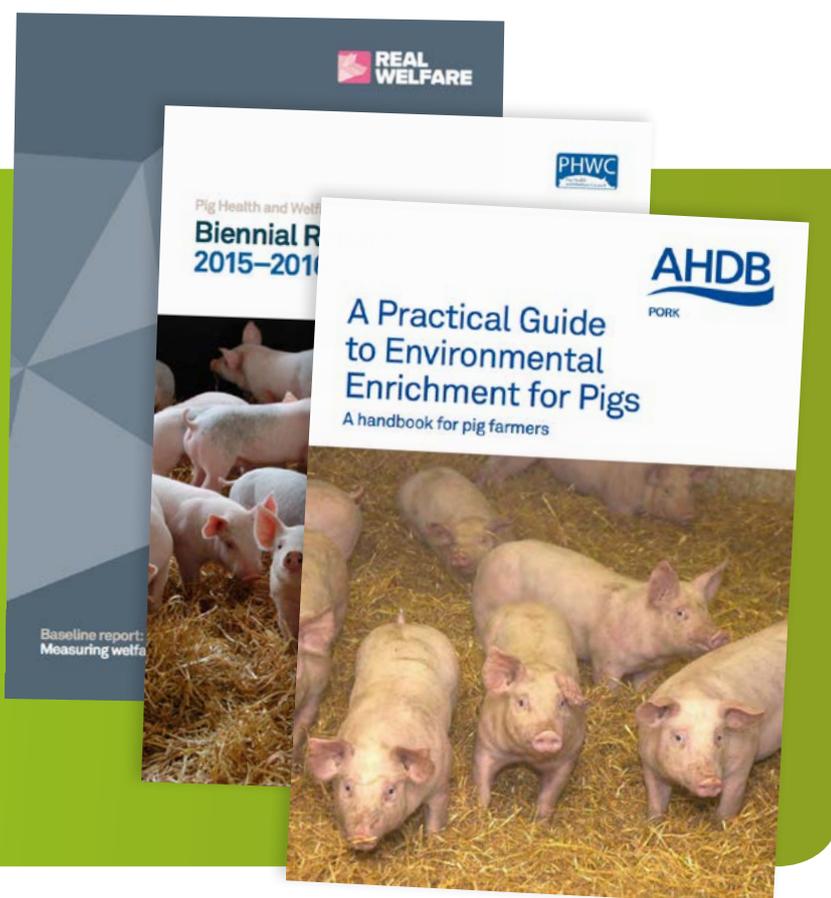
- Funding testing of diarrhoea samples for PEDv
- Reviewing contingency plans for handling an outbreak of PEDv
- Funding work on a disease app for vet practices to record and search for disease incidents on farm
- Relaunching the Pig Health Scheme
- Liaising on the review of the current legislation and testing methods surrounding TB outbreaks in pigs to develop a clear exit strategy for those affected
- Continuing to provide technical evaluation and impact assessment on the implementation of emerging welfare regulations
- Reviewing and developing the Real Welfare Scheme and its outputs
- Investigating the latest developments in welfare science and new technologies, which may promote better welfare, particularly in the areas of reducing aggression, raising heavier pigs, tail biting, tail docking and environmental enrichment provision, which have been identified as key welfare concerns

Global acquisition

PEDv continues to be a global concern. Help review your hygiene protocol by viewing the joint AHDB/APHA webinar.¹³ You can also access regular reports about new and emerging diseases in pigs from APHA.¹⁴

Check out the links

- 2 TB Hub
- 3 Pig Health Scheme registration
- 4 PHWC Report
- 5 Real Welfare Report
- 6 Real Welfare Baseline Report video
- 7 Image Meaters report
- 8 IPEMA Conference 2018
- 9 WebHat website
- 10 Pig Watch Scheme
- 11 AHDB Pork contacts
- 12 Environmental Enrichment Guide
- 13 AHDB/APHA webinar
- 14 Government reports





Environment and buildings

Outdoor pigs

The Environment Agency and water companies in various parts of the country are highlighting issues of poor water quality, both in surface waters (streams, lakes, etc) and ground water aquifers (borehole or well abstracted water) as a result of agricultural operations, among other things.

Soil erosion, where silt, nitrogen and phosphorus pollute surface water, and leaching, where mainly nitrogen and phosphorous but also, in some cases, bacteria reach ground water are the key mechanisms for this pollution. Therefore, good soil, manure and outdoor production site management are important, especially soil structure and health. Rainfall patterns have changed significantly over the last 15 years; producers with outdoor pigs are taking steps to re-evaluate and adapt the way they lay out and locate a unit to help deal with high rainfall events. For some top tips on soil management, go to our Soil Management web page¹ or download the Practical Pig App² for useful videos.

Many producers are taking advantage of support from AHDB, water companies and environmental organisations. AHDB Pork has two knowledge exchange (KE) managers who are BASIS qualified in soil and water management, and FACTS for nutrient management.

In the East, a quarter of groundwater sources are thought to have nitrate levels higher than EU Directive limits, and water companies are working with farmers on ways to improve management of land, livestock and fertilisers. Nitrogen is a valuable resource and we want to reduce the risk of it leaching into groundwater, instead retaining it for following crops. There are regional differences too, so it's important that outdoor producers are aware of this and

start to work with AHDB and organisations that can offer practical advice and, in some cases, access grant aid.

AHDB Pork has facilitated a group of East Anglian producers who have met with Anglian Water, Natural England, Norfolk Rivers Trust and the Environment Agency to look at practical options for better soil management and to consider key questions to ask when taking up tenancy of new land for outdoor pigs or when moving pigs onto a new site. Similar relationships are being built in Nottinghamshire.

In addition to this, AHDB has funded an extensive programme of research and knowledge exchange on soil management known as 'GREATsoils'.³ The programme offers a variety of resources and also runs industry workshops.

GREATSOILS

Water quality and quantity

Good quality, hygienic water is a key component of pig health, welfare and productivity. Sampling non-mains water at point of entry to determine bacterial contamination may also be a farm assurance scheme requirement (eg Red Tractor Assurance).

A report written by RAFT Solutions Ltd.⁴ and entitled 'Optimising the Use of Antimicrobials – Preparing the industry for in-water delivery in the short term and improving hygiene and more effectively targeting medication in the longer term', collates information on how to test, maintain and clean waterlines, as well as highlighting considerations when using water as a delivery vehicle for medication.



It includes:

- Guidelines for drinking water quality for pigs
- Advice on the most effective ways of cleaning water (both indoors and outdoors), depending on relative contamination and setup
- Advice on what to consider when setting up water systems in new and existing buildings
- Considerations when medicating through waterlines, to target antibiotics and vaccines

As part of the work, an SOP has been developed, describing the steps that should be taken for basic microbiology testing⁵ (Red Tractor requirement), with the more advanced version providing additional steps for checking mineral content plus water flow rate and temperature at various points around the unit. See our photostory⁶ and video⁷ showing how to take a good and accurate sample.

The next phase will be to run meetings around the country to help producers assess the design and layout of their farm water systems and to consider whether their current infrastructure is fit for purpose. Attendees will be encouraged to consider the important issues when renovating and installing new water supply systems on farm, including the design of distribution and drinking systems (with standard values and calculations), to ensure water is distributed safely around the farm at flow rates and pressures that deliver volumes that satisfy the demand from livestock.

AHDB is working with building suppliers and vets to develop a minimum standard for water provision in new buildings. It's worth noting that water is associated with 4 to 11 per cent of net running costs for a unit; providing good water quality will repay investment, but the water system will need maintenance.

See our Water quality and quantity web page for more useful resources and information.⁵

Check out the links

- 1 Soil Management
- 2 Practical Pig app
- 3 GREATsoils
- 4 RAFT report
- 5 Water quality and quantity
- 6 Water sampling photostory



- 7 Water sampling video

Water testing added to Red Tractor standards

The new Red Tractor (RT) Standards came into effect from 1 October 2017. One of the additions to the Standards is the requirement for producers to test any non-mains water annually, as close to source as possible, for harmful substances. See our water sampling SOP for more details on how to take an accurate sample.⁸ This test must be evidenced with a non-mains water test certificate for coliforms and total viable counts (TVCs).

Coliform bacteria

The presence of these bacteria indicates that your water may be contaminated with faeces/sewage; the higher their number, the greater the likelihood that disease-causing bacteria may be present.

TVCs: a test that estimates total numbers of viable individual microorganisms present in a sample, such as bacteria, yeasts and moulds; these may or may not be harmful.

So, in the first instance, if you use any non-mains water, get it tested. Your regional KE manager or vet will be able to point you in the right direction on how to go about this. Once you get your results, check they fall within the RT parameters; if they don't, speak to your plumber and/or vet and they can help you look for any potential problem areas.⁸

Drinking water standards for pigs

Coliform levels: <100cfu*/100ml

TVC levels: <1000cfu*/ml

*cfu: colony forming units

From the water sampling AHDB Pork has recently carried out as part of a larger piece of work, it has become apparent that some water sourced from boreholes may be contaminated at certain times of the year and that waters systems are not always well planned, with no formal plans available. We have also found evidence that some contamination is taking place within the farm water system, after clean water has been delivered to the farm.

Building Suppliers Forum

AHDB's Environment and Buildings team chairs and coordinates the Building Suppliers Forum which discusses issues of relevance to the pig industry at a pre-competitive level. This is open to all companies that supply pig buildings and associated equipment in England. Topics include new and emerging technologies, evolving regulations, AHDB Pork KE activity and matters of importance to their customers.

The forum provides the opportunity for a two-way exchange, aiming at keeping participants up to date with issues, relevant legislation and guidance. One meeting in 2017 involved a site visit to Newcastle's Cockle Park research and demonstration facility, demonstrating the new trial facilities and some of the projects currently being carried out. A recent meeting updated attendees on a recent study tour to the Netherlands and Germany to look at balcony systems, see the AHDB Pork website for the full report⁹ and photostory¹⁰ from the visit. The balcony system is used to increase space allowances for pigs within existing buildings and there is growing interest from producers in the UK.

Water has been another important topic for discussion at the Building Suppliers Forum. Following the publication of the RAFT report,¹¹ which collated information on how best to test, maintain and clean waterlines, as well as highlighting considerations when using water as a delivery vehicle for medication, key priorities have been identified. AHDB Pork is working with building suppliers and vets to develop a minimum standard for water provision in new buildings to ensure the industry is best equipped.

The forum meets twice a year, with other meetings as required. In the interim, there is regular contact between members and AHDB.

Global acquisition

A novel cooling system, by the 2017 EU PIG Ambassador, cools manure to under 15°C – reducing source ammonia and manure stored on-site. For more ideas from EU PIG,¹² see the AHDB Pork website.

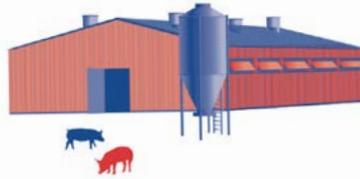
A recent trip to Germany¹³ provided insight on a range of novel building materials, equipment and techniques, which could help improve production efficiency. View the photostory¹⁴ on the website.

An AHDB study tour's¹⁵ visit to Denmark's Agromek¹⁶ provided insight into a range of novel building designs and management techniques used on the continent. Some UK producers have used these ideas to reduce disease risk by increasing slurry pipe diameters and reducing ammonia in pig buildings by arranging floor supporting beams above the slurry pit at 90° to the direction of ventilation air flow.



Check out the links

- [8](#) Water quality and quantity
- [9](#) Balcony systems – full report
- [10](#) Balcony systems photostory
- [11](#) RAFT report
- [12](#) More ideas from EU PiG
- [13](#) Study tour to Germany
- [14](#) Futterkamp photostory
- [15](#) Study tour to Denmark
- [16](#) Agromek website



Improving building performance

Improving the performance of buildings can help production efficiency, improve animal welfare and also reduce the incidence of disease and, in turn, the need for antibiotics and other medications.

Controlled environment for livestock

Many intensive livestock production systems require the provision of a controlled environment for their housed stock. In commercial agriculture, pigs and poultry are the animals most often associated with controlled environments, but there are other animals that can also thrive in controlled conditions at some time during their lives.

Most farmers would think of temperature and humidity as comprising the ‘environment’ for the animal. But, in fact, it goes much further than that. Environment embraces other factors like airspeed, air quality, light level and colour, as well as surrounding surface materials.

Well-designed systems will maximise outputs through higher growth and reduced mortality, while minimising inputs, mostly feed and energy, and will also improve the health and welfare of the stock.

The Controlled Environment for Livestock (4th edition) handbook¹ covers the fundamental principles involved in creating the right environment for housed livestock and explains the systems and technologies employed.

See the Environment and Building section of our website² for more information on how the team can help and for other useful documents such as the Ventilation Manual³ and Finisher Pig Buildings Guide.⁴

Environmental Permitting (EPR/IPPC)

The Environmental Permitting Regulations (EPR),⁵ formerly the Integrated Pollution Prevention and Control (IPPC) Regulations, aims to reduce pollution from industrial activity by controlling emissions. Important

changes to the environmental permitting rules have been introduced as a result of the publication of the new BREF (Best Available Techniques Reference Document)⁶ back in February 2017.

The Environment Agency has to review all existing permits and issue a new permit consistent with the new European Commission BREF document by February 2021. Producers who are already operating with a permit will receive a letter from the EA explaining the important changes that are being introduced and a questionnaire, which must be completed. AHDB Pork in conjunction with the EA ran a series of workshops outlining key points for permit holders and continue to work together on technical aspects of implementation.

In the main, not much has changed in terms of principles to be applied and those systems considered as Best Available Techniques (BAT). Key differences are:

- The 34 BAT’s listed more clearly than before, with a description of techniques that can be applied to implement these
- There is a limit on the levels of ammonia, phosphorous and nitrogen that permitted farms can emit for each building or production stage, these are BAT AEL’s (Associated Emission Limits)
- These are summarised a Best Available Techniques conclusions document (BAT)⁷
- These BAT AEL’s are different, depending on the stage of production, building type and whether it’s a new or existing building. Permit holders will be required to demonstrate they are operating under the set limit on an annual basis

Ammonia emissions will need to be calculated on a per building basis using standard, or modified emission factors in the same way currently used to complete the annual pollution inventory. Alternatively, emissions from monitoring can be reported, but this is complex and costly. Nitrogen and phosphorous excretion can be calculated from feed supplies and production data, a

JRC SCIENCE FOR POLICY REPORT

Best Available Techniques (BAT) Reference Document for the Intensive Rearing of Poultry or Pigs

Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control)

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2017

Nutrient Management Guide (RB209)

Updated May 2017



 BBRO


 FACTS


 GRO

Section 2 Organic materials


 BBRO


 FACTS


 GRO

Section 1 Principles of nutrient management and fertiliser

simple calculation tool is being developed together with the feed sector. Alternatively, they may be determined from manure test results and calculation.

Nutrient Management Guide (RB209)

RB209⁸ offers information on the use of mineral fertilisers, manures and slurries in cropping and grassland systems across England, Wales and Northern Ireland. The evidence-based publication also influences the production of Technical Notes in Scotland.

The last edition of RB209 was published by Defra back in 2010 and, as a result, has not taken account of advances in nutrient management research since then.

With no planned update to RB209 in sight, AHDB agreed with Defra to take over responsibility for the guide to ensure UK farmers and growers continued to benefit from the very latest nutrient guidance.

This ninth edition is split into seven colour-coded sections, so users can cherry-pick relevant information and individual sections can be updated more easily to reflect the latest research.

The sections are:

1. Principles of nutrient management and fertiliser use
2. Organic materials
3. Grass and forage crops
4. Arable crops
5. Potatoes
6. Vegetables and bulbs
7. Fruits, vines and hops

The latest version of RB209 can be accessed and downloaded on the AHDB website⁸ or you can now go to the Apple Store to download the new app.

AHDB staff regularly participate in meetings and events covering all aspects of nutrient management and implementation of the Guide. The RB209 web pages also feature videos offering helpful advice on slurry sampling and testing.

Designing a water supply system for livestock


Coming soon

Check out the links

- 1 Controlled Environment for Livestock handbook
- 2 Environment and Building
- 3 Ventilation Manual
- 4 Finisher Pig Buildings Guide
- 5 Environmental Permitting Regulations
- 6 Best Available Techniques (BAT) report
- 7 Summary of the BAT report
- 8 Nutrient Management Guide (RB209)



Research and innovation

Partnered field trial updates

Finding an alternative to antibiotics for the treatment of the enteric pig pathogen salmonella¹

Research partners: University of Leicester, Cargill

Sponsors: AHDB Pork

Project duration: 2015 – ongoing

Aims and objectives:

To further investigate whether bacteriophages can be given to pigs to reduce levels of salmonella contamination, as an alternative to the traditional antibiotic treatment, based on last year's study results.¹

To confirm the stability of bacteriophage during the isolation process, storage, and addition to pig feed to form a stable product for use to treat pigs.

Findings to date and next steps:

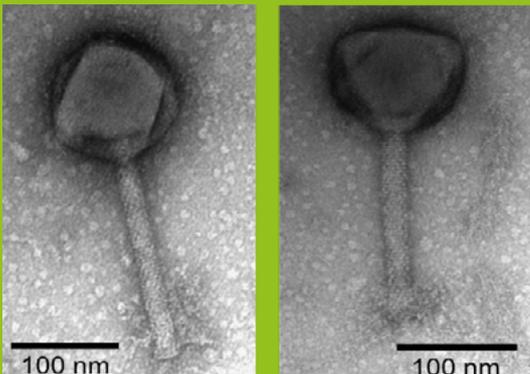
- Preliminary laboratory-based studies demonstrated that using combinations of bacteriophages could significantly reduce salmonella levels in two hours
- In partnership with University of Leicester and Cargill, as an industrial partner, proof of concept is now being tested by adding bacteriophages to pelleted pig feed to confirm if this is feasible and if bacteriophages remain active following the feed manufacturing process
- Results will be shared once published academically. If successful, the process will be patented for opportunity for industry partners to begin product development with the University of Leicester
- A live animal study to determine if bacteriophages in pelleted pig feed can reduce salmonella in challenged animals is planned for mid to late 2018

Electronic Particle Ionisation²

Electrostatic Particle Ionisation (EPI) creates a static charge (through a high voltage, low amperage current connected to a corona bar) to particles in the atmosphere, causing them to fall where they are no longer available for inhalation by stock or staff.

Check out the links

1 Salmonella trials – study results



2 Electronic Particle Ionisation

3 British Pig Health Scheme (BPHS)

4 EPI study video

5 EPI Study photostory



6 EPI impact on ammonia

7 Ear tagging evaluation

8 UHF traceability trial



Research partners: Harper Adams

Sponsors: AHDB Pork

Project duration: 2016 – ongoing

Aims and objectives:

To further determine if EPI equipment can play an important role in improving pig health.

The trial:

- The initial EPI trial,² at Harper Adams University pig unit, concluded in September 2016 that pigs kept under the EPI equipment were significantly less likely to have enzootic pneumonia-like (EP) lesions
- The trial was extended to include BPHS data from more batches kept in normal/‘control’ conditions and under the EPI equipment/‘test’ conditions.³ The addition of a random effect to account for batch was the only alteration to the original model

Findings to date:

- Pigs kept under EPI grew on average 13 grams per day faster than the control pigs
- In the second trial, the incidence of pleurisy halved in slaughter of pigs reared under EPI-treated air
- Further analysis shows that the probability of EPI air treatment reducing EP likely lesions at slaughter in the animals included in the trial has weakened from the first study (from around 4.5 times less likely to have an EP-like lesion in the original two batches to around 2.5 times less likely in 6 batches studied on this occasion). This indicates a trend rather than statistical significance in research terms
- The extension of the work, while altering some of the significance levels surrounding the analysis, has eliminated the concerns around a ‘batch’ effect masking any benefit/drawback of the equipment and demonstrates a benefit in respiratory health to the pigs kept under EPI that were assessed for this trial

- Results and thoughts on the impact to the industry can be found in the report,² video⁴ and photostory⁵

Next steps:

More work is planned to investigate the impact the equipment has on ammonia emissions.⁶

Evaluation of Ultra-high Frequency (UHF) electronic ear tags to optimise marketing strategies on farm⁷

Research partners: Cranswick (Watton), Wayland Farms, Hellenic Systems LTD, Woodhead Brothers/Morrisons PLC, Frontmatec

Sponsors: AHDB Pork

Project duration: 2015 – ongoing

Aims and objectives:

To test the practicalities of using UHF technology on farm, integrating into existing management systems (on farm and at the abattoir) and to use these data to inform better management decisions. The trial also aims to trace pigs from farm to abattoir, using UHF technology, to allow slaughter data to be sent back to farm and attributed to individual pigs.⁸

The trial:

- Tagging individual piglets so that performance data can be tracked on a pig-by-pig basis throughout the production system
- Exploring the optimal SOP/tagging regimen to insure maximum tag retention
- Working with technology providers to develop ‘whole chain’ UHF solutions, such as scales
- Working with abattoirs to install UHF tag readers to capture data from the UHF tags of pigs sent to slaughter, allowing the abattoirs to provide individual kill data and potentially get health data from the CCIR system



Check out the links

- [9 Ear tagging video](#)
- [10 Omega-3 oils supplements](#)



Findings to date:

- The practicalities of using UHF technology on farm was first tested by tagging and weighing approx. 1,800 piglets at birth on the AHDB Strategic farm. These pigs were followed through to slaughter showing a 98 per cent retention of tags during the process. Further information is available on our helpful video⁹
- The system is now fully operational at the first site, Morrisons PLC (Colne)

Next steps:

The system is currently being tested on a second site at Cranswick (Watton) with support from Hellenic Systems Ltd. and Frontmatec with tagged pigs from Wayland Farms. UHF tag data will be analysed to confirm if successfully matched from farm to abattoir using DNA samples. Pig Health Scheme data will also be analysed to provide health information to producers to help inform management decisions.

Supplementation with Omega-3 PUFA and effects on reproductive performance of sows¹⁰

Research partners: Leeds and Harper Adams Universities

Sponsors: AHDB Pork

Project duration: 2016 – ongoing

Aims and objectives:

To increase piglet viability and address fertility issues

The trial:

- The project spanned two full production cycles of 400 sows across two university herds in which treatment sows were supplemented with a commercially available source of omega-3
- All sows were monitored throughout the period of supplementation (both treatment and control) and during the following gestation and lactation, to determine whether there was any carry-over effect of the supplementation

Findings to date:

- Data from both sites was compiled and standardised and then analysed by a contract statistician
- Omega 3 supplementation appears to be causing the sows to be fatter, both in terms of condition score and back fat measurements, throughout the supplemented cycle and beyond into the carry-over cycle
- Data from the first (supplemented) production cycle suggests there is a (statistically significant) increased risk of mortality when feeding omega-3s, ie piglets from a sow supplemented with omega-3s would have a higher pre-weaning mortality than one fed the control diet. This effect was not associated with the treatment sows being fatter, but rather with some other element of the omega 3 treatment

Next steps:

- The updated analysis is currently being reviewed to identify the relationship between increased mortality and sow condition. Results will be discussed with feed companies in relation to impact of supplementing Omega 3 in diets



AHDB Trial Updates

Establishing ammonia emission factors for straw-based dry sows, fully slatted farrowing and fully slatted weaner buildings

Aims and objectives:

To collect and evaluate ammonia emissions from pig sheds to the atmosphere. This information is valuable for estimating environmental impact and is often required for permitting and planning applications.

The trial:

The ammonia concentration in the inlet and exhaust air will be measured using an ammonia analyser. In addition, the number of pigs, weights, feed intake, protein content of diets, ventilation rates, external and internal temperature and relative humidity will also be recorded, as per the internationally recognised VERA protocol standards.

Expected benefits:

To be able to assist producers in obtaining consents and permissions for new buildings, and in making investment decisions, by providing access to accurate quantified ammonia emissions. In addition, to help those with existing environmental permits demonstrate compliance with their emissions limits. To help Defra compile a more accurate National Emissions Inventory, and to understand

the progress industry has made towards internationally agreed reduction targets.

Findings to date and next steps:

- All equipment is in place on the trial unit and monitoring has now started
- Plans are in place for an accelerated piece of work that will be tendered shortly. The aim is to measure emissions from a wider range of building types and production periods. This will create an up-to-date inventory to provide regulators and farmers with better data and greater confidence

Commercial growth trial

Project duration: 2016 – ongoing

Aims and objectives:

To determine the value of individually identifying pigs throughout their life and identify ways to increase weight to slaughter; improve market forecasting; more accurately determine time for ration changes and achieve early warnings for health and environmental control.

The trial:

- Develop a race system specific to pigs, optimally designed for ease of handling, speed and minimal stress on staff and pigs
- Establish the persistence of spray marks on pigs
- Examine data from weighing to determine how marketing/weighing strategies might be optimised

- Explore the use of UHF tags to track pigs through a system and determine if marketing strategies can be optimised via predictive rather than reactive analytics

Findings to date:

- The race design has been optimised for the site and is being used as part of their system
- The information provided by weighing the pigs enabled heavier pigs to be sold, this covered the cost of weighing
- An interface has been developed to take data from scales and third party UHF readers, either handheld or fixed in the scales and is being further refined
- A video is available to view showing a number of weighing systems¹¹

Next steps:

A Standard Operating Procedure has been created to show how to UHF tag and weigh pigs at birth and at set intervals until draw. The data will be used to determine management interventions and best time to draw for slaughter

Records from 750 tagged pigs at the AHDB Strategic Farm were fed into a machine learning platform to create a model that will predict the week of kill using only birth data (gender, weight at birth, parity of sows, etc), confirming scope for wider use of performance data for predictive analytics.



Establishing ammonia emission factors for straw-based and slatted finishing pig buildings

Agriculture is the major source of ammonia emissions to the atmosphere in the UK which is a concern because of its negative impact on the environment. The main sources are livestock housing, storage and spreading manures, and nitrogen fertilisers. In order to assess the impact a farm has in relation to ammonia emissions and the environment, standard ammonia emission factors (EFs) are used.

The Environment Agency use these EFs for permitted farms.¹² Natural England use them in ammonia dispersion modelling to assess predicted impacts on nitrogen sensitive habitats when assessing planning applications, and Defra uses them to estimate UK emissions of ammonia from pig production as part of the National Emissions Inventory Report (made annually to the EC).

The UK farming industry has been tasked with a 17 per cent reduction in ammonia emissions. Yet, these emission factors that are being used to calculate our emissions are from studies that are over 20 years old.

There is little or no qualifying information (eg growth and feed conversion rates) to enable these EFs to be related to current commercial performance, the techniques used are limited and measurements follow no common protocol, so direct comparison of value can't be made.

As a consequence, AHDB's Environment and Buildings team has been measuring the ammonia emissions from different pig buildings in order to help update emission factors.

One straw-based and one fully slatted finisher farm were used for the trial. The ammonia concentration in the inlet and exhaust air was measured, using the ammonia analyser developed by AHDB in conjunction with Harper Adams. In addition, the number of pigs, weights, feed intake, protein content of diets, ventilation rates, external and internal temperature and relative humidity were also recorded, as per the internationally recognised VERA protocol, which is the first to standardise how measurements are taken and results presented. This allows results from different studies to be compared and systems benchmarked.

The results:

The results, expressed in kilograms of ammonia per animal place, per year (kgNH₃/AP/year) indicate that current commercial performance is much better than the current EFs, and results (mean) are:

- Finishers on slats, 1.72 kgNH₃/AP/year, vs EA EF 3.1kgNH₃/AP/year
- Finishers on straw 1.22 kgNH₃/AP/year, vs EA EF 2.97kgNH₃/AP/year



Due to the positive outcome of these trials, AHDB is working on an accelerated programme of monitoring so the industry can work from a better base. This work will be tendered shortly.

AHDB is currently monitoring emissions from a straw-based dry sow building, fully slatted farrowing and fully slatted weaner buildings. See the AHDB Pork website for more details.¹³ It is intended that these figures will form a new and updated data set for ammonia emissions that will be used by the EA, Natural England and Defra.

Check out the links

- [11 Weighing systems video](#)
- [12 Permitted agriculture \(EPR/IPPC\)](#)
- [13 Monitoring emissions from indoor pigs](#)



What's next for trials

Lighting

AHDB is currently undertaking a range of work, looking at lights and lighting for pigs, including a series of lighting guides similar to those compiled for the horticulture sector.¹⁴

We are working with Light Emitting Diode (LED) lighting suppliers to assemble a portfolio of all the LED lights available to UK pig production, including data collected from our assessment of the systems available from suppliers.

Currently the work focuses only on 'full spectrum' or 'daylight' LED lights and not wavelength specific ones (eg blue or green).



Studentships

Sorting pigs at weaning in order to reduce variability and improve the efficiency of pig production systems¹⁵

Research Partner: Newcastle University, Anne Huting

Sponsors: AHDB Pork, Primary Diets

Duration: Feb 16- April 2018

Aims and objectives:

To develop intervention strategies that allow small piglets to catch up growth without penalising heavy piglets. To investigate the long-term consequences of these strategies in terms of performance and whole system efficiency.

Findings to date:

- Small piglets generally have a poorer gain to feed ratio, need longer time to reach market weight and have a fatter carcass than their heavier counterparts
- The increased weight variability will result in an impaired whole system efficiency and may result in penalties at slaughter
- Cost-effective management strategies have been identified to improve the performance of small piglets, benefiting producers both financially and with productivity
- Weaning age seems more important than weaning weight for piglets born small. In addition, piglets weaned small, irrespective of weaning age, had a higher post-weaning gain when having access to a higher amount of feed (higher amount of kg/pig) with respect to the first two stage diets

The contribution of oocytes and follicular fluid to pig fertility¹⁶

Research Partner: The Roslin Institute, University of Edinburgh, Selene Jarrett

Sponsor: AHDB Pork

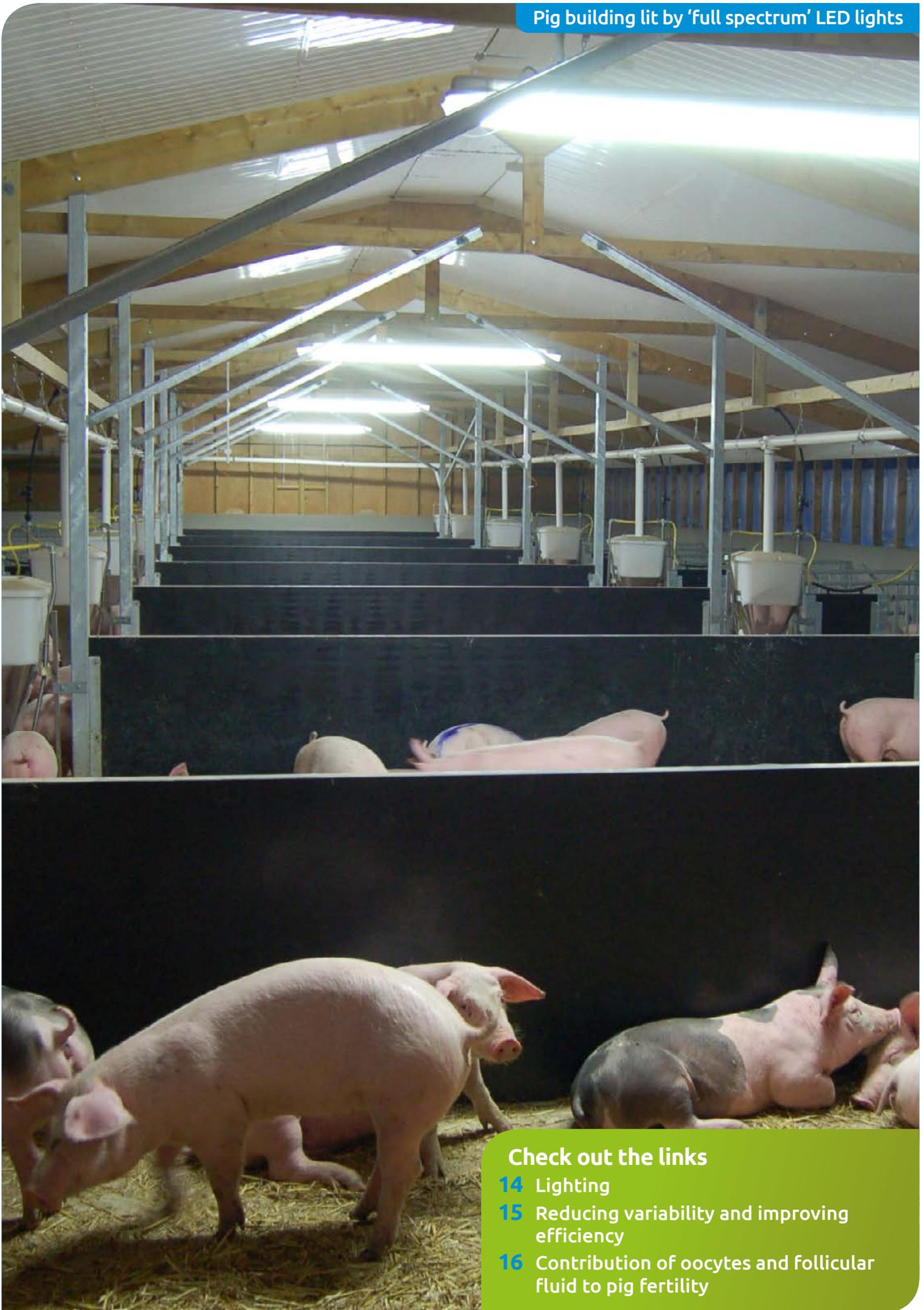
Duration: Dec 14–Jan 2018

Aims and objectives:

To identify a potential mechanism to improve the fertility of gilts. Assess the effects of feeding gilts a high fibre diet (containing unmolassed sugar beet pulp) on ovarian follicular fluid

Findings to date:

- Gilts fed a high fibre diet before ovulation have improved fertility compared with gilts fed a control diet
- High fibre diet is associated with several reproductive benefits, which begin with improved maturation of the oocyte and lead further to an increase in the number of live born pigs in a litter
- Increasing pig production can be achieved through feeding pigs with diets that enhance reproductive performance
- Finding commercially applicable means of altering the diet to improve female fertility may be the key to further closing the gap in the number of pigs weaned per sow per year between the UK and other EU countries with similar welfare standards



Check out the links

- [14 Lighting](#)
- [15 Reducing variability and improving efficiency](#)
- [16 Contribution of oocytes and follicular fluid to pig fertility](#)

Characterisation of novel technology for boar taint detection to assist with the production of taint-free pork¹⁸

Research Partner: Centre for Research in Biosciences, University of the West of England, Bristol, Kelly Westmacott

Sponsor: AHDB Pork, UWE, and JSR Genetics

Duration: Aug 2015 – 2018

Aims and objectives:

To characterise a device that can measure the level of boar taint in the fat tissue of pigs, detect boar taint compounds, and give user-friendly read-outs simultaneously. The final device could be used to prevent tainted meat reaching the consumer by rapidly sorting carcasses before they reach the end of the abattoir line.

Findings to date:

- A validation method has been developed using the technique gas chromatography (GC) and complementary sample preparation method for two main compounds responsible for boar taint
- Over 40 samples provided by JSR Genetics Ltd. have been analysed via the novel technology and validation methods. Preliminary correlation data is currently being published
- The preliminary studies demonstrate that simultaneous direct analysis for boar taint in an abattoir is achievable with the novel technology. The rapid novel technology is also portable and suitable for direct measurement, making this technology suitable for the abattoir processing line
- The novel technology is advantageous compared with traditional methods in its rapidity, portability, and cost-effectiveness
- The novel technology could improve the competitiveness of the UK pig industry by assisting ongoing strategies to reduce boar taint such as weight trials and genetic selection. Planning for the development of a commercially produced test is underway

Production animal pathology with porcine specialisation (Residency)¹⁹

Research Partner: Royal Veterinary College, Thomas Eley

Sponsor: AHDB Pork, Boehringer Ingelheim

Duration: Jan 2015 - Dec 2017

Aims and objectives:

To undertake a research project to develop research expertise in an aspect of porcine pathology (Exploring the Pathogenesis of Early Stage PCV2 Infection). To develop expertise in anatomic pathology with special focus on production animal in order to gain specialist qualifications

Findings to date:

- The study explored the hypothesis that the intestine is the primary site of viral replication, the effect of vaccination on the viral kinetics in the first two weeks post-infection
- Even with extensive study, the initial site of viral replication in PCV2 infection is not known. Ascertaining the site of viral replication could aid in future disease prevention planning
- Expertise developed during this work fed into an in-field diagnostic trial which has been published and which can support investigation of a range of farm level disease outbreaks

Development of novel technology (biosensors) for the analysis of fatty acid composition in meat from pigs and cattle²⁰

Research Partner: University of the West of England (UWE), Amy Smart

Sponsors: AHDB Pork and AHDB Beef & Lamb, UWE, JSR Genetics, Stabiliser Cattle Company

Aims and objectives:

To develop novel biosensor technology for the measurement of concentrations of individual saturated, mono-unsaturated and poly-unsaturated fatty acids. To link technology to a user-friendly display of the data once inserted into a carcass or cuts of meat

Expected benefits:

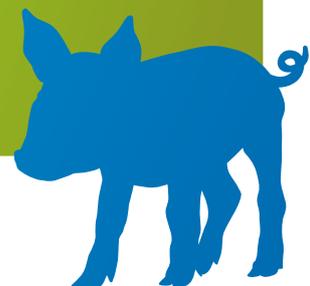
- The novel technology will be rapid, user-friendly, reliable, cost-effective and could be integrated into existing abattoir systems
- The utilisation will contribute towards reducing complaints in relation to meat texture and flavour
- Once validated, the technology could be adapted for application in other types of meat

Check out the links

18 Boar taint detection

19 Production animal pathology

20 Biosensors



Understanding the role of nutrition when manipulating pig odour and ammonia emissions

Research Partner: Agri-Food and Biosciences Institute, Lauren Reid

Sponsors: AHDB Pork

Aims and objectives:

To investigate finishing pig nutrition to change and ultimately reduce the offensiveness of odour in parallel with reducing ammonia emissions. To investigate the impact of these changes on gut microbiota, gene expression of the microbiota (metagenomics and proteomics) and the resultant pork flavour compounds. And to field test across two commercial herds tested diets showing most promise in 'changing and/or reducing' odour.

Expected benefits:

- Significantly advance understanding in the area of nutritional manipulation affecting pig microbiota profile and expression, and resultant pig odour
- Make progress in identifying a nutritional strategy to reduce pig odour

Effect of supplementary milk on creep feed intake, pre-weaning behaviour, gut development and lifetime performance of sow suckled litters

Research Partner: Harper Adams University, Sarah Icelly

Sponsors: AHDB Pork

Aims and objectives:

To understand the effects of supplementary milk on the feeding behaviour of individual piglets and how this relates to birthweight and teat order, or how supplementary milk affects the intake of creep feed. To analyse performance data of small pigs (<4 kg) post-weaning that have had access to supplementary milk. To investigate the provision of supplementary milk for the entire lactation if creep feed is also provided and whether differential management is beneficial for different-sized pigs.

Expected benefits:

- A strategy for cost-effective use of supplementary milk and creep, thereby reducing starvation and improving health, welfare, growth performance and economic efficiency



Piglets enjoying milk supplements

Innovation Conference 2017

Pigs 2022 – The opportunities

The conference took place on 6–7 June 2017 run by Pig World and AHDB and was attended by 300 owners, farm managers, vets and representatives of allied industries.

Day one

Delegates heard from experts from around the world about what the next five years holds for the industry.

Topics included:

- *The future of the British pork industry* by Adam Couch¹
- *How Danish Crown is facing the challenge of the global market* by Asger Krogsgaard²
- *The impact of BREXIT on the British pork sector* by Bruce Ross³
- *Insight on consumer demand* by Connor McVeigh, Supply Chain Director, McDonald's UK⁴
- *Snapshot of the US pig industry* by Nicholas D. Giordano⁵
- *Global pork market outlook* by Richard Brown⁶

Day two

Delegates explored how the sector can benefit from innovation within pig production.

Examples included:

- *'How to' guide to reducing Boar Taint* by Caroline Kealey⁷

- *The role of alternative farrowing systems in the future* by Dr Emma Baxter⁸
- *Tailored feed curves for the future* by Dr Nathalie Quiniou⁹
- *Associations between biosecurity, herd characteristics, production parameters and antimicrobial usage in pig production in four EU countries* by Jeroen Dewulf¹⁰
- *Novel technology for boar taint analysis* by Kelly Westmacott¹¹
- *Adapting to potential changes in export and consumer requirements* by Prof Patrick Wall¹²
- *Beeswax Dyson Farming* by Richard Williamson¹³

Breakout sessions focused on:

- *Designing an outdoor handling system* led by Kate Mellor and Andrew Palmer¹⁴
- *Investigating the Holy Grail!* by Ricardo Neto¹⁵
- *Monitoring and utilising real-time growth and FCR data*, led by Dr. Charlotte Evans and Dominic Charman
- *To weigh or not to weigh, that is the question* by John Richardson¹⁷
- *How does the nutritionist handle farm data?* by Mick Hazzledine¹⁸

The next Pig Conference takes place on 15–16 May 2019 at the Jury Hotel, Hinckley, Leicestershire.

Check out the links

- 1 The future of the British pork industry
- 2 How Danish Crown is facing the challenge of the global market
- 3 The impact of BREXIT on the British pork sector
- 4 Insight on consumer demand
- 5 Snapshot of the US pig industry
- 6 Global pork market outlook
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- 10 Associations between biosecurity, herd characteristics, production parameters and antimicrobial usage in pig production in four EU countries
- 11 Novel technology for boar taint analysis
- 12 Adapting to potential changes in export and consumer requirements
- 13 Beeswax Dyson Farming
- 14 Designing an outdoor handling system
- 15 Investigating the Holy Grail!
- 16 To weigh or not to weigh, that is the question
- 17 How does the nutritionist handle farm data?





Photo courtesy of Dingley Dell Pork

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