



A Nuffield Farming Scholarships Trust

Report

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**An examination of High Welfare systems
within the pork industry**

Kate Morgan

July 2013

NUFFIELD UK

A Nuffield (UK) Farming Scholarships Trust Report



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*"Leading positive change in agriculture.
Inspiring passion and potential in people".*

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| Title | An examination of High Welfare systems within the pork industry |
| Scholar | Kate Morgan |
| Sponsor | BPEX |
| Objectives of Study Tour | <ul style="list-style-type: none">• To establish if pig welfare legislations should be the same in all countries.• What is High Welfare in pig production and which country is doing it the best. |
| Countries Visited | <ul style="list-style-type: none">• Sweden• Denmark• China• Brazil• U.S.A. |
| Findings | <ul style="list-style-type: none">• The buildings are not the be-all and end-all in pig welfare.• Certain procedures could be carried out identically throughout the world, to optimise pig welfare without adding a lot of costs.• The people within the industry are the key drivers for welfare and we must attract and retain intelligent forward thinking people.• People are more important than animals, and countries with a lot of poverty should not be forced down a 'higher welfare' system for pigs than for people. |

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Disclaimer

The views expressed in this report are my own and not necessarily those of the Nuffield Farming Scholarships Trust or of my Sponsor, The Worshipful Company of Butchers, or any other sponsoring body.



1. Introducing Kate Morgan

After receiving a 2:1 BSC Hons in Agri Business Management from Newcastle University and working during the summer for Grampian Country Foods I took up a position with them. I worked in the marketing department and looked after the Somerfield account.

It didn't take long for me to realise that an office based job dealing with retailers was not the career for me and so I decided to leave. Being young, adventurous and having no idea what I actually wanted to do with my life I decided the best option was to do a ski season. After this I was still none the wiser and so then set out for a year travelling the world. This was fantastic but when I returned I still had no idea what I wanted to do and so one day, when they were short staffed at home on the pig unit, I went to help. It was at this point I realised that this was the career for me and I have never looked back since!

I'm now 30 years old and live in the small town of Driffield in East Yorkshire. I am a Director of our family pig farm which has 1,700 breeding sows and takes the progeny to slaughter, selling to Sainsbury's via Cranswick. The whole family is involved in the business: my mother and father and also my two older sisters, Vicky and Rachel.

My Mum and Dad bought Pockthorpe - our farm - in 1996 and decided it lent itself best to pig farming. At this point I was still at school and had no interest in pigs really; although I remember staying up all night with dad, watching the first gilt farrow – it's not quite as special any more!

We invested a lot of money into the buildings and put up group housing and an Electronic



Me, Kate Morgan

Sow Feeder (ESF) system which was quite forward thinking at the time. The UK banned stalls in 1999, 14 years before the EU. We ourselves had opted to keep sows in large straw yards, and also finish them on straw, which adds cost to producing pigs. However the meat was still going into the standard tier in the retailers' so we were competing against producers who had high efficiency slatted accommodation and therefore much lower costs. We knew we had to either compete with these guys or try and move up a tier.

We had all the major retailers round to try and secure a contract for a 'Higher welfare pig' but we had no luck. However a year later Sainsbury's approached us and asked if they could come up to the farm again for a meeting. We were unsure what to expect but they said we were just the farmers they



wanted, forward thinking with youth behind them, and they asked us to be their 'Concept Farm' – looking at different trials to see if they are commercially viable.

Our first project was to become Freedom Foods-accredited on an indoor system. Our whole process met the standard, except for the farrowing crate, and so with help from others we designed a free farrowing system enabling us to sell our pigs into a higher tier and receive a premium for our product.

This new standard brought new problems. The 'welfare' of the sow has improved in a crate-less system as she is now able to move around freely and display her natural behaviour.

However the piglet mortality has increased, thus *piglet* welfare has dropped. It is for this reason I wanted to see what welfare really meant.



My family farm in East Yorkshire



2. What is higher welfare?

High Welfare – what does this mean?!

Welfare: a word that no two countries or even two people would agree on the meaning of, whether it be the welfare of humans or animals. Every person I asked perceived welfare differently. So who is correct - no-one or everyone?

Everyone seems to define welfare differently but, in the main, from the people I have met, the following seems to be a broad spectrum of views on welfare:

Farmer – ‘To ensure that the animal is provided with everything it requires to thrive. That is: to develop and grow, reproduce and nurture, fulfilling all its needs’

Vet – ‘Meeting the needs of a group of animals, and also the wants of individuals, so that pig comfort, well-being, health and, as a result, production are maximised’

Retailer – ‘Welfare goes hand in hand with animal health and it’s about understanding, considering and ensuring the physical (e.g. comfort, environmental enrichment, access to water and feed etc.) and the mental wellbeing (e.g. able to fulfil natural behaviours, company of other animals) of the animal.

Consumer – ‘Animals that can go outside with all their requirements met.’

It is an offence in the UK to treat animals cruelly, or cause them unnecessary pain or suffering: see the ‘Prevention of cruelty to animals ordinance cap.169’. This does not

mean that all animals have to be treated in an identical way but they do have to be treated to a minimum standard. There are still, however, some countries with no set standards.

Below are 3 different definitions of animal welfare:

Saunders Comprehensive Veterinary Dictionary

‘Animal welfare means the avoidance of abuse and exploitation of animals by humans by maintaining appropriate standards of accommodation, feeding and general care, the prevention and treatment of disease, and the assurance of freedom from harassment, and unnecessary discomfort and pain.

OIE (World Animal Health Organisation)

‘Animal welfare means how an animal is coping with the conditions in which it lives. An animal is in a good state of welfare (as indicated by scientific evidence) if it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress. Good animal welfare requires disease prevention and veterinary treatment; and also appropriate shelter, management, nutrition, humane handling and humane slaughtering/killing. Animal welfare refers to the state of the animal. The treatment that an animal



receives is covered by other terms such as animal care, animal husbandry, and humane treatment.

Farm Animal Welfare Council (FAWC): the Five Freedoms

Freedom from Hunger and Thirst – by ready access to fresh water and a diet to maintain full health and vigour.

Freedom from Discomfort – by providing an appropriate environment including shelter and a comfortable resting area.

Freedom from Pain, Injury or Disease – by prevention or rapid diagnosis and treatment.

Freedom to Express Normal Behaviour - by providing sufficient space, proper facilities and company of the animal's own kind.

Freedom from Fear and Distress – by ensuring conditions and treatment which avoid mental suffering.

As you can see, the main bones of the definitions are very similar. Yet as we take it to another level we hit some differences.

'Higher' Welfare standards: how can we prove that some standards are better and higher than others?

If we go back 100 years no country would have thought about farm animal welfare; animals were bred for food and that was that! The way that they were reared was not a

concern, it was all about surviving. Now that food is readily available in many countries, the welfare of animals has also evolved! The welfare of our pets is just as important as that of those bred to be eaten; docking a dog's tail is no longer allowed unless carried out by a vet.

So is it all led by the wealth of a country or the surplus of food?

The reason I applied for a Nuffield Farming Scholarship was because I wanted to find out first hand what the welfare situation was in other countries.

With retailers pushing us down this 'High Welfare' route what is really the highest welfare and is it going to be the future?

I decided to visit :

Sweden, which has experienced a decrease in the herd, potentially due to higher welfare demands in Sweden as quoted by Swedish Pig Producers' Organisation.

Denmark because the Danes are the top performers in pig production in the EU and are very forward thinking.

China, because it is the largest producer of pork yet their average pigs-per-sow-per-year is a mere 13 compared to our average of 22.

Brazil due to the size and the way they farm.

and finally the **USA**, because of the vast size of so many of the individual businesses that operate there.



3. Key facts and figures of the six countries visited

| Country | UK | Sweden | Denmark | China | Brazil | USA |
|---|------------------------|------------------------|----------------------------|-----------------------------|----------------------------|------------------------|
| Population | 63,181,000 | 9,103,788 | 5,543,453 | 1,343,239,923 | 199,321,413 | 313,847,465 |
| Size of Country (km ²) | | | | | | |
| Total Land | 243,610 | 450,295 | 43,094 | 9,596,961 | 8,514,877 | 9,826,675 |
| Water | 241,930 | 410,335 | 42,434 | 9,569,901 | 8,459,417 | 9,161,966 |
| | 1,960 | 39,960 | 660 | 27,060 | 55,460 | 664,709 |
| GDP – Per capita (PPP) | \$36,700 (2012 est) | \$41,700 (2012 est) | \$37,700 (2012 est) | \$9,100 (2012 est) | \$12,00 (2012 est) | \$49,800 (2012 est) |
| Population below poverty | 14% (2006 est) | n/a | 13.4% (2011) | 13.4% (2011 est) | 21.4% (2009 est) | 15.1% (2010 est) |
| Pig population | 4.5 million | 1.5 million | 12.47 million (AHDB) | 437.4 million (Pig Site) | 39.6 million | 64.9 million |
| Pigmeat Production | 803,000 tonnes | 262,000 tonnes | 1,640,000 tonnes (AHDB) | 49,700,000 tonnes | 3,260,000 tonnes | 10,289,000 tonnes |
| Self sufficient in pork (BPEX) | 52% | 67% | 500% + | 99% | 122% | 125% |
| Pork consumption per capita | 21.7kg | 36.2kg | 53.4kg | 40kg (Wikipedia) | 14.4Kg (ABIEPCS, Conab) | 29kg (Wikipedia) |
| % of Income spent on food (USDA) | 8.9% | 11.6% | 11.4% | 33.9% | 24.6% | 6.8% |
| Concern for Pig Welfare (my opinion) as a nation 1 high 5 low | 1 | 1 | 2 | 5 | 5 | 3 |

(Index Mundi unless stated)



1. United Kingdom

4a. Culture and Economy

The UK has the 6th largest economy in the world which is quite impressive when it's physically such a small country. It has been in recession since late 2008 which has hit the country hard due to its reliance on the financial sector.

We have a good health care system in the form of the NHS. The benefits system supports the unemployed and homeless.

4b. Pork production and the pig industry

The UK pig industry has been in decline since 1997 when there were 802,000 breeding pigs compared to the 400,000 breeding pigs in 2012 (DEFRA), so it's fair to say it's having a tough time. The government has forced legislation onto us which, along with issues such as high feed costs and diseases such as foot and mouth and wasting disease, has resulted in many farmers losing up to £20 per finished pig. Our costs are higher than those in the rest of the EU due to the stall ban and other legalisations we have had to adhere to, making it impossible to compete. In 2011 the GB total cost was £1.53/Kg deadweight, whilst the average in the EU was £1.48/Kg deadweight and this is better than in some years (at times we were 20pence/kilo more expensive (*InterPIG*)). As in many countries the 'big' are getting bigger and the smaller producers have sold up. In 1997 we had 14,200 pig holdings and in 2011 we were down to 10,900 (DEFRA).

Despite all these issues our output is improving and our performance levels are as high as they have ever been. I think it's fair to say it has taken us time to get to where we are and this improvement has come from the

genetics, building and equipment and, of course, management.

4c. Attitude to Welfare

The UK are animal lovers, as demonstrated by the number of animal charities that operate (RSPCA, Blue Cross, PDSA dog trust etc etc.). Indeed, some people leave all their money to these charities.

Since the 1950s the attention to animal welfare has increased. Pig farmers want to differentiate themselves from cheap imports and so this is the way we went. Famous chefs helped in our fight to get consumers to understand why our meat was more expensive than the likes of Danish meat, by showing the public the difference in the production methods. However, our systems are complicated, and the consumer really does not understand.

68% of the UK consumers stated that they considered welfare when buying meat (*Which?*) which seems quite a high percentage; however it came below taste, quality, price, food safety, ingredients, health and convenience. It seems that although consumers are concerned about welfare I don't think they know enough in general to let it lead them to buying specific products. In my opinion they trust the retailer to provide them with a welfare friendly product as they know little about the logos on the packs.

The UK farmers are all concerned about welfare and I think this is shown by the interest in the straw yards and loose farrowing that we are seeing now. If there is a market for it many farmers will look into it - if it adds up. All farmers believe they are rearing pigs to a high welfare standard otherwise they would not be doing it!



5. Sweden

5a. Culture and Economy

Sweden is among the top 15 richest countries, with a relatively small margin between rich and poor. They are very much focused on equality which means the country features highly in the Human Development Index, which ranks countries on life expectancy, education and standard of living. Sweden has very high taxes which help to pay for an excellent health care system for anyone living or working in the country. The country's growth and strength has been driven by a number of factors; one main reason is that they were not involved in any wars in the 20th Century (*Wikipedia*).

5b. Pork production and the pig industry

The Swedish pig industry is perhaps the most government-driven industry of its kind in the world (no, it's not just the UK that suffers that way!!) Swedish pig producers were driven down the 'high welfare' route back in the 1980s, which meant cost of production rocketed and, in response, a lot of retailers imported cheaper 'lower welfare' pork from abroad. Victoria Ohlsson from SLS said they were *"driven down the 'high welfare' route because (as a generalisation) the Swedes like to be the best at everything, but are not business people and so don't follow it up and market their product"*. Sweden's pig production has declined over the years and they are now only 65% self sufficient, importing the rest from Germany, Denmark and Holland.

It's great when you first hear that Sweden is dedicated to welfare but when you think a bit more, is there really room for 1.5 million high welfare pigs? The world has really only just

begun to start thinking about high welfare, and remember Sweden went down the welfare route back in the 1980s when the implications had not really been fully considered.

Performance is still good considering all the legislations. Figures quoted below are from Sven-Olof and Ulrika Carlson's farm - and I would suggest that they are among the top 25% of the Swedish producers:

- Farrowing = 92.6%
- No. born alive = 14.1
- No. weaned/litter = 11.7
- Pre weaning mortality = 13.4%
- Lactating days = 32.8
- Litters/sow/year = 2.31
- Weaned pigs/sow/year = 26.96

5c. Attitude to Welfare

Although the Swedes have been driven down this route in general I think it's fair to say they like the way they farm. They, however, still challenge the ways in which they are made to do certain things; for example, not being allowed to lock a sow up for the first 48 hours post farrowing, although they know this practice increases mortality. It must be hard knowing pig production could perform better if a few things would be changed. In the UK you can decide which assurance scheme you want to sign up for; it's the governments way or no way in Sweden.

The consumer is becoming more and more aware of where their food comes from according to ICA (retailer in Sweden). Consumers actually boycotted one retailer because it sold milk that was not local! The farmers and the retailers have good



relationships and so the farmers ask the retailers to tell the consumer five things – they use straw, they have space allowances, they leave tails on, no antibiotics are used in the feed and the feed is GM free (very simple to do with only one assurance scheme).

Consumers can understand these simple points and are now starting to look for local and Swedish meat when buying. This is a recent change in the consumer; it may seem slow, but it is happening.

When ICA put the Swedish flag on displayed meat sales are said to have increased by 30%, and if people cannot afford to buy expensive cuts they will still buy Swedish meat, but a cheaper cut.

This is all very positive and, by offering a wide range of cuts which vary in price, a very good way of making sure every social group can afford high welfare meat



Typical pig building in Sweden



6. Denmark

6a. Culture and Economy

Denmark is an advanced country when it comes to agriculture and is a large net exporter of food and energy, thus highly dependent on obtaining foreign trade. The economy of the country has been in line with the rest of the EU and although they saw a pickup in 2010 the country continues to be in decline. Denmark still has its own currency (Krone) yet despite the economic decline, it remains one of the strongest countries within the EU.

The Danes receive a tax-funded health care system and unemployment insurance, and are considered to have a 'broad reaching welfare system' (*Wikipedia*). Unemployment is relatively low at 8% in August 2012 (*Wikipedia*).

6b. Pork production and the pig industry

With over two pigs for every one person who lives in Denmark it is no surprise how important the pig industry is to the economy. Because of this the Danes are very forward thinking with regards to research and development. Denmark operates through the Danish Slaughter Association and Danbred so all results in the country are fed into a large database, thus allowing a lot of analysis on a very large volume of pigs. They have perhaps the best research centre in the world and so the Danbred breed is really out-performing most other genetics in indoor systems, with reports of some farms hitting 35 pigs/sow/year (*stated at EPP 2013*).

Denmark exports 2,070,668 tonnes of pig meat each year (*Danish Agriculture and Food Council*); 31% of that goes to third world countries and 69% to the EU-27. (This report

is about pig meat production). The UK is Denmark's second largest customer within the EU, after Germany, which takes mainly live pigs and sows. So the UK is Denmark's main export market for actual pigmeat and so Denmark's farms change in line with UK thinking.

The Pig Research Centre is always looking ahead and was the first to be looking at piglet survival after 5 days, rather than just numbers born alive. They now look at the numbers alive after 5 days and have set themselves a target that by 2020 piglet mortality will be reduced by 20% which is a big call when they are producing more and more piglets each year, suggesting weaker and smaller piglets at birth. Performance is very good in Denmark with an average of 28.7 pigs finished/sow/year compared to the UK average of just 23.5 (*BPEX*). This is down to their fantastic genetics; other genetic companies around the world just can't compete against them; they are years ahead of anyone else and other genetic companies really need to start getting competitive. I do however have to state that the cost of semen from Danbred is nearly double that of most UK semen - do we in the UK not pay enough to allow the genetic companies to research? (Sorry, not what a pig farmer who buys in semen should say, but perhaps it's true!)

6c. Attitude to Welfare

Welfare is a key driver for Denmark and they recognise that it is the 'balance between greater ethical consideration for animals and the realities of the market, related to consumers' willingness to pay for foods from higher welfare systems' (*Pig Research Centre*). They continue to improve their standards and



state that, on the majority of their farms, they operate to a higher standard than the EU directives. They state that 5% of all pig farms receive an unannounced visit from the District Veterinary Service each year as part of an official government control programme. Welfare is a growing trend throughout Denmark and is driven by the retailers and the markets they sell to.

The general farmer's opinion on animal welfare seems to be very similar to that in many other countries. They believe that they are meeting high welfare now and the attitude towards the likes of loose farrowing seems to be that there is a market for it on a small scale. I don't feel that they are all convinced that it *is* high welfare – many farmers worry about the mortality levels and, of course, the cost. They estimate the cost of

producing a pig from a loose farrowing system is £8 per finished pig which is equivalent to about 10 pence per kilo. Many Danish farmers would state that if the pig has clean water and feed, and is performing well, it has high welfare. They are also influenced by the temperature of the building; if this can be controlled it constitutes high welfare.

The consumers' view on welfare is minimal in Denmark and in general they will just be guided by price. There does not seem to be much work being done to educate the consumer, but I think this is because all the high welfare products produced, which thus incur a higher cost of production, get exported to other countries. Therefore there is no reason to promote high welfare as Danes can choose not to breed it.



Typical pig building in Denmark



7. China

7a. Culture and Economy

China has the largest human population of any country on the planet. It is the largest exporter and importer of goods in general and home to the largest army. It really is a power house! The Chinese government is both communist and socialist and the people of China have been heavily restricted in many areas. According to the CIA World Factbook: *'The Chinese government faces numerous economic challenges, including: (a) reducing its high domestic savings rate and correspondingly low domestic demand; (b) sustaining adequate job growth for tens of millions of migrants and new entrants to the work force; (c) reducing corruption and other economic crimes and (d) containing environmental damage and social strife related to the economy's rapid transformation.'*

China depends on many other countries both for its imports and its exports and is consequently trying to increase consumption to become less dependent and more self sufficient. This could have a big impact on the world economy.

7b. Pork production and the pig industry

Pork is one of the most valued commodities in China and in fact is the only agricultural industry that the government are supporting. They are offering nearly 75% of the costs for new pig herds – this is because the supply of pork can have a big knock-on effect on overall consumer price inflation, and so government tries to manage the market to ensure no supply shortages. The Chinese people eat pork for breakfast, dinner and tea - meaning they are by far the largest producer and consumer

of pig meat in the world. They are one of the few nations that eats the whole of the pig, and whilst travelling in China I quickly learnt not to ask what I was eating and to just try it without thinking what it could be!

China depends on many other countries both for its imports and its exports and is consequently trying to increase consumption to become less dependent and more self sufficient.

The national herd varies a little due to the natural disasters (earthquakes and flooding) and disease problems (mainly high fever blue-ear disease which is estimated to have affected 50 million pigs!) However these outbreaks seem to have dropped a little in the past year or so. This could be due to many of the small producers getting out of pigs back in 2009-2010 when pig prices were low (BPEX).

The Chinese people eat pork for breakfast, dinner and tea

Pig farming in China is carried out in backyard, small and large commercial operations. In fact it is estimated that 40% (S. McOrist, K Khampee & A Guo) of the pigs are kept in small backyard-type systems; however it's hard to pin point an exact number. The number of farms with over 30 sows now constitutes 60% of the pig population in China and so the number of backyard sites is slowly declining, which will hopefully push up the



health status and production figures of the country.

Apart from backyard there are two different types of pig farms in China. The first consists of government-operated breeding farms that then supply gilts to small local farms. The second type of pig farm in China is the large, privately owned companies. Typically these consist of a two-site operation with a breeding site and a finishing site. There are in the region of 100 farm group companies in China with over 10,000 sows apiece.

Performance is relatively low in China, but we must remember that any figures include the smaller farms which are still using native genetics. The country's average is reported as 14.15 pigs/sow/year (*Index mundi*). However, Da Kang reported the following results:

- Average born alive for 1st parity 16-19
- Pre wean mortality 6%
- weaning at 23 days at 6.25kg
- Post wean mortality of 1%

I have to say that it was hard to get performance figures and I have since had an inside source telling me he hadn't seen any figures showing above 11 piglets reared.

7c. Attitude to Welfare

Welfare is not a consideration for the consumer at all; as a generalisation Chinese do not care where their food comes from (no one would ask which country it is produced in). I would consider them as eating anything and everything! As I walked around the streets of towns you would see cages of animals outside shops where you pick what you would like and they kill it there and then, prepare it and cook it. I have often seen this in fish restaurants around the world, but never animals such as rats and pheasants! Chinese like their meat fresh; the abattoirs start killing around 10pm at night so that meat can be

delivered to the shops and restaurants the next day – now that is fresh!

Welfare is not a consideration for the consumer at all; as a generalisation the Chinese do not care where their food comes from

Because of health risk and issues, food safety is more important than welfare to the Chinese consumer. Yolanda, who works for JSR, told me at one point producers were using a 'lean meat powder' to get leaner meat. However this made people ill and so is now banned; but, along with the recent milk scares etc., it made people worry about food safety.

Because of health risk and issues, food safety is more important than welfare to the Chinese consumer

I got the strong impression that farmers themselves care strongly about the welfare of their pigs. They say that the pigs give them welfare in the form of a living and so they must give the pig welfare back. That's what welfare means to them!

I got the strong impression that farmers themselves care strongly about the welfare of their pigs.

The main point that I took from everyone I spoke to in China who was involved in the pig industry was the need for high bio-security, and that the location of the farms was vital – not too many pigs in one area. I can understand this when I hear about the huge



problems China has had with diseases and yes, this is also a welfare issue which they are trying to deal with. The new units (see previous page, 7b) are set up very well, with viewing areas and training areas. They are collecting information and ideas from around the world and the units currently going up are very impressive.

In my opinion they think about the animal itself a lot more than any other country does, to the extent that they will not have males collecting semen as they feel it's not fair for the boars, so only women are allowed to do this job – this was certainly the case on the farms I visited, although it is not something that is legislated for.

Da Kang had a manual for all their farms stating that the pigs must have music and the

In my opinion they think about the animal itself a lot more than any other country does.

staff must treat the pigs like friends – they shower them and make them happy by communicating through body language!

With regards to assurance schemes they have never had such a thing. However they have introduced animal legislation which is a bit of a joke seeing they have no such thing for people!



Typical entrance to a large group pig site (note high bio security and houses in background)



8. Brazil

8a. Culture and Economy

Brazil is the 5th largest country in the world both by area and population. Its vast supply of natural resources means its economy is the 7th largest in the world making it a very influential country. It is described as an 'emerging power'. Corruption is a major problem throughout all parts of Brazil and is said to cost the country \$41 billion a year. This has major repercussions and 69% of businesses state that this has affected their entry into the global market.

With such a massive amount of potential you would think the infrastructure would be an area that was important to the country. However, it was clear that nearly everything travelled by roads. Trains are very uncommon and not all roads are paved or wide enough for two cars let alone two wagons! The boats are a major part of the economy but bulk loads have to wait on average 18 days to leave the port, and other cargo 36 hours, nothing seems to happen quickly in Brazil!

There is no getting away from the poverty that is present in Brazil. This is mainly caused by income inequality and social exclusion. The poverty level is high with the majority of poor people living in rural areas. However it is more obvious in cities where you see favelas. And due to the corruption that has been highlighted in the news recently the poverty levels will not change rapidly.

There is a National Health care system which offers free medical care to everyone in the country although many people take out private health plans. Many deaths in Brazil are actually caused by road accidents, violence and suicide (14%) (*Wikipedia*).

8b. Pork production and the pig industry

Brazil has had many challenges in the past from health issues - such as Foot and Mouth - which has held back its exporting market. However they have been working hard over the past years and actually now vaccinate neighbouring countries (for a certain distance into the country to help stop it coming over the border; they border 10 different countries) against F&M in order to open up the market to Russia, China and other lower value countries, thus making them quite competitive with USA and the EU.

Brazil is actually the 3rd largest pork producer in the world. However, as a country, very little pork is eaten compared to beef and chicken. There are 2.4 million sows in Brazil; of them 1.6 million sows are housed in 'technician farms' (*PIC Brazil*). 60% of the pig farms in Brazil operate in a Co-Op or are vertically integrated (a large company *owns* the pigs and small farms *look after* them). The remaining 40% are independent farms and this figure is expected to get smaller. The national herd size has increased by 18% over the last 10 years (*Luciano Roppa*).

In 2012 Brazil exported 550,000 tonnes of pork to various countries such as Russia, Hong Kong and Ukraine. Brazil is becoming more and more aware of the potential awaiting in Europe, and particularly the UK, and so they are starting to look at loose housing and complying with the EU regulations. They feel this will be a massive market for them and something that would be worthy of the investment.

Performance figures are very good, the table below shows the average figures for 2012



(Agriness 2012). I met farmers whose operations were performing better than this!

| | |
|----------------------|-------|
| | 2012 |
| Piglets born alive | 12.05 |
| Piglet Mortality % | 8.41 |
| Weaned pigs/sow/year | 26.17 |

The potential of Brazil really shocked me and I would consider them a major threat, as stated by Marcelo Almeida from PIC: *‘Brazil has an inconceivable deficit in infrastructure, an irrational taxation system, a clogged bureaucracy, and all of this fed by senseless regulations together with an overvalued exchange rate. In spite of all this we manage to be competitive internationally, especially due to our production efficiency, our natural resources and the high international prices of agricultural commodities.’* In my opinion they are the country to watch.

8c. Attitude to Welfare

Unsurprisingly the average consumer is more concerned about price rather than where the meat has come from! There are no tiers in the supermarkets; everything is sold at the same price. The wealthy are more likely to buy meat

that is from Texas as Brazilian meat is viewed as being cheap! One thing that shocked me is that Brazilian people think that pork is dangerous (I’m unsure of the reason but a few people mentioned this to me) and so the consumer needs to be educated to get pork consumption up.

The potential of Brazil really shocked me and I would consider them a major threat.

Farmers are concerned that pig welfare will come before human welfare; they believe that they are rearing pigs to good welfare standards; they accept that the EU and the UK rear them to higher welfare standards but understand they have a different market. The larger companies do have their own independent standards. Brazil was the first country to state that they thought the ban on gestation stalls would be a long way off – the reason for this is because they think they have bigger problems to worry about: such as the transportation of pigs and, more importantly, the welfare of people!



Typical pig building in Brazil



9. U.S.A.

9a. Culture and Economy

America has the world's largest single economy. The country has massive amounts of natural resources, paired with a very well developed infrastructure, making them the 2nd largest trading country behind China. Like many countries America is still experiencing a downturn with outputs still below their potential (CBO).

There is no national health service and medical charges are around 50% higher than in the UK. Government employees and most salaried workers are insured by their employer. This insurance is not as comprehensive as our own NHS but benefits often extend to other family members. The elderly are largely covered by Medicare. The rest of the population has the choice of paying prohibitive insurance charges, or having no cover. In 2010 the Patient Protection and Affordable Care Act (PPACA) became law which has meant a big change in health insurance yet it is reported that 16.3% of the population is still uninsured for health care (Wikipedia).

9b. Pork production and the pig industry

The USA is the world's second largest pork producer. It's no secret that the Americans eat a lot of pork yet they are still a major player in the export market. Not much of this meat comes into the EU, mostly due to the feed supplements that are used in the US but not allowed in the EU. The herd size is fairly static; in 2012 there were 60,200 pig operations (USDA Farms), with a lot of the smaller independent farmers going out of business and the larger ones getting larger,

53% of pork farmers now produce 5,000 pigs per year or more (nppc.org).

The majority of the pigs are housed in enclosed buildings which are very intensive. This is because Americans think they are

Not much of this meat comes into the EU mostly due to the feed supplements that are used in the US but not allowed in the EU.

protecting the animals from weather variations and it also reduces the amount of labour required!

9c. Attitude to Welfare

As with everything the Americans have their own way of looking at welfare! They are like no other country I have ever been to. Jo Hunter (a farmer for Murphy Brown) stated that she does not check where meat comes from or how it is reared when she buys it - this was a farmer telling me this! (Not like me lecturing random people in supermarkets!)

US retailers are not overly powerful and it is actually the fast food outlets such as McDonalds and Wendy's who have been the ones driving the push for higher welfare in the US! (McDonalds does a lot for welfare across the world!).



There are no price tiers for meat in supermarkets; people would not spend more than they had to on a piece of meat even if it was labelled 'high welfare' - it is just not the American way! Consequently there is no market for a higher welfare pig.

US retailers are not overly powerful and it is actually the fast food outlets such as

McDonalds and Wendy's who have been the ones driving the push for higher welfare in the US! (McDonalds are doing a lot for welfare across the world). Animal rights movements are also driving welfare in America e.g. the Humane Society of the United States (HSUS), who are pushing for a ban on castrating and stalls – very similar to the UK.

Note : Case Studies from the various countries visited can be seen in Appendix 1, page 39.



Typical pig building in America



10. Systems around the World

There are many different housing systems around the world for pig breeding and rearing. The UK probably has the largest selection, making use of all sorts of buildings! This on the whole is because investment into the British pig industry has been minimal over the past decade or more. Also, with the ban on stalls in 1996 came a need for loose housing which:

1. Our industry could not afford as we did not receive any extra funding for this change, or any additional payment for our pork, which cost more to produce, and
2. It actually opened up the opportunity for cheap imports from the rest of the EU which drove our price down even more.

Operating the same system throughout a country means less margin for error as protocols can be made up which result in consistent results: China, Sweden, America and Brazil all operate quite similar systems. On the other hand the use of many systems means greater margin for error and the need for different genetics and stockmanship, as seen in the UK and, to a degree, Denmark.

10a. Outdoor v Indoor

The general perception is that outdoor systems are high welfare systems; next come the straw based systems (indoor) and finally, at the bottom, the slatted systems (indoor).

Different systems have different costs and different production levels (see table in next column). The outdoor systems generally have a higher cost of production (COP) and lower production levels, and the indoor systems generally have a low COP and high production levels (when quoting indoor figures they refer to a mixture of straw and slatted accommodation). I am excluding organic production as

it is too small to have an impact and I do not feel it will grow further due to the higher feed prices and the uncertain market.

| | Outdoor | Indoor |
|------------------|------------|------------|
| Top third COP | 155.88p/kg | 152.27p/kg |
| Average COP | 161.22p/kg | 157.79p/kg |
| Bottom third COP | 167.60p/kg | 165.45p/kg |

Source BPEX yearbook 2012-2013 (Agrosoft Ltd)

From the table below you can see the average performance figures for an indoor and outdoor breeding herd in the UK. The indoor outperform the outdoor, and if we look closer at the top 3rd you can see the difference even more clearly.

| | Outdoor average | Outdoor top 3rd | Indoor average | Indoor top 3rd |
|-------------------------|-----------------|-----------------|----------------|----------------|
| Live born/litter | 11.03 | 11.52 | 12.08 | 12.84 |
| Pigs born/sow/y ear | 26.18 | | 29.85 | |
| Mortality% of live born | 12.95 | 11.62 | 12.42 | 11.53 |
| Feed cost £/pig reared | 13.14 | 10.77 | 10.24 | 9.85 |

Source BPEX yearbook 2012-2013 (Agrosoft Ltd)

The UK is really the only country where a considerable proportion of pigs is kept outdoors: 40% of the total. By placing the outdoor reared pig meat in the highest, most expensive tiers, farmers and retailers have both encouraged the perception that outdoor is higher welfare. Slatted and straw based British pork is placed into the standard range, and in the main the basics standard would be that of imports. (The UK has made a lot of capital about being high welfare compared to other countries). Note that the straw based systems do not have their own standards, and are competing with the slatted systems at a higher COP and a lower performance.



Outdoor has different systems within it:

1. You can have **outdoor bred** (which they also have in Denmark and America on a very small scale) where the sows are kept outdoors in groups, and then farrow in individual huts. These huts are very basic and because of this the mortality can be higher than in other systems. The sow is left on her own which is more like her natural environment. She can build a nest as she would have done in the wild and find an area which suits her. This is the most 'natural' way to have pigs.

Yet, as with all systems there are challenges and in the wild a sow would only have one litter a year. However today they must have at least two in order to make money for a commercial business. This means that pigs are giving birth all year round, the temperature changes a lot and this is when, in my eyes, the welfare gets lost in the outdoor system. When its -20°C and sows are farrowing and they are knee deep in mud the nice, natural picture is lost. Not only is it hard work for the pigs but also for the stock people who spend more time thawing water pipes and getting from one field to another than looking after the actual pigs. In this system the piglet will be weaned at 4 to 8 weeks of age and then will be taken indoors, mainly to straw yards where they will be fattened up to slaughter weight.

2. The **outdoor reared** system generally involves the above, but the piglets are not moved indoors and are actually fattened outside as well, in large fields. This is a very small market but gets a good premium. This method is only really followed in England, which seems strange when we perhaps have the worst weather. You would think a country like

Brazil would be able to do this very easily and not have the disadvantage of the cold winters. However there has to be a market for the end product. Outdoor systems are not a sector that I feel will grow in any country due to lack of demand and also lack of available land in the UK, so I shall not discuss this system further.

Indoor systems are the most common ways of breeding and rearing pigs in the world. Some countries such as America and Brazil have a standard building for pigs and little variation is seen throughout the country. However, some countries have many different types of indoor housing systems meaning that the results vary massively!

10b. Straw v Slats

If we take a very broad view of indoor production the two main differences are the **indoor with straw** and the **indoor on slats**.

Slatted accommodation is the most common method of breeding and rearing pigs and the only system that China (excluding back yard production), Brazil and America really use (a very, very small percentage may use straw but it would total less than 1% of the industry). Slatted accommodation in the UK, Denmark, China and America is all in controlled buildings where the temperature will be kept consistent at all times and lighting levels will remain the same; a very controlled environment which means the pigs are never exposed to great changes. However, in Brazil the slatted buildings are all open sided so exposed to the natural environment giving it a much more open, natural feel.

Pigs can be kept in a number of ways on slats. Many countries will keep pigs in stalls during their gestation periods; this was banned in the UK in 1996 and now also in the EU (since Jan 2013 they can only house pigs in stalls 4



weeks post-service - nevertheless, not many countries are compliant as yet). However, it is still allowed round the rest of the world. The reason for stalls is to keep the sow safe from other pigs. Pigs are quite clumsy animals and stand on each other, they ride each other and generally get knocked about quite a bit; this is not ideal for a sow which is in pig, and so the stalls would stop them taking any knocks that could injure the unborn piglets. It also makes looking after the sows very easy because they can't move; you can treat them and know where they are very easily.

In my opinion it's not the right way to handle a pig and although the UK experienced a performance plummet when stalls were removed it was due to the lack of knowledge of how to look after a pig in a loose system. The genetics had to be changed and the buildings had to be designed along with new technology; performance is now on a par with that of pigs in stalls and so I don't see why pigs should be kept in this way. Some countries are now opting for open access stalls, where the sows can come and go into a stall so that she can 'have her own space' but also move around freely as and when she likes. This allows her to be a little more social as pigs are quite social animals – this system is found a lot in Denmark (how much the sows are actually allowed out is questionable!).

Other slatted systems include when sows are housed in groups and have a designated laying, dunging and eating area; this is very similar to the fattening accommodation where the pigs will be housed in small groups on slats. All the above will be in controlled environments.

See photos in next column



Open access stalls in Denmark



Stalls in Brazil which are now banned in the EU

Straw-based systems are something that is fairly rare around the world except in the UK. More countries are looking at including a bit of straw into their systems but not quite to the UK's standard. In fact the only other countries where I saw a deep bedded system was in Sweden, plus an organic farmer in America who had fattening pigs on a deep bedded system. In these systems the sows are typically in large, naturally ventilated buildings with straw to keep them both warm and cool! This system became popular in the UK when stalls were banned and redundant buildings



were then converted to house pigs. They are generally kept in groups, and the sows and the fattening pigs can be housed very similarly. The idea behind this system is that the sows are able to perform some of their natural behaviours such as rooting in the straw and being social. The cost of these buildings is generally low, however the running costs are higher due to the straw usage. Straw is getting more and more expensive, but the beauty of these buildings is if the pig industry goes bang you do still have a building that can be used for something other than pigs!

Sweden is the only country that has, by law, to use straw for finishing pigs (although it's not like the UK where we deep-bed them, in Sweden they just have a little straw, solid floor and slats). I have to say for a country that is driven so much by welfare I felt the finishing accommodation that I saw let the standards down. It seemed that little investment had happened in this area, farmers have struggled for a while and so investment into the finishing side has been very low. This is perhaps an area which will get more attention if the industry picks up.

A system that was quite common in China and Brazil was solid floors in a controlled environment without straw, just concrete. This was used for fattening pigs, and people were cleaning them out all the time. Due to cheap labour they could afford to have people mucking out 24/7 and they felt that this was nicer for the pig than slats; however from what I saw the pigs were still very dirty and to me the system was a lot worse than slats, pigs lying on their own urine was not a pleasant sight.

In the countries I visited many of them were turning to loose housing, many stated that this was because of the pressures from the EU

and UK as most countries want to export to the EU.

10c. Farrowing Systems

For decades the way in which we farrow a pig has not changed. The majority of countries would farrow pigs in a conventional crate; the size and layout of the crate may vary slightly but in the main the idea was the same in every country. The building will be

The crate was designed with the welfare of the piglet in mind; the sow is confined to keep the piglets safe.

temperature controlled to try and keep the piglets warm and also the sow comfortable. Decades ago when the sow was allowed to farrow naturally, the result often meant that quite a few of the piglets would be laid on and so the welfare of the piglet was not being met. The crate was designed with the welfare of the piglet in mind; the sow is confined to keep the piglets safe. Christian Carlson (pig farmer in Sweden) gave me a very good explanation of what he thought, which I have never forgotten. He said that when a human gives birth we go into hospital and we sacrifice months of our lives for the needs of the child, and so, Christian said, when a sow farrows she should sacrifice her freedom and space for her piglets.

“When a sow farrows she should sacrifice her freedom and space for her piglets.”

However as time has passed so has people's opinions and we are now seeing the retailers wanting a pig that has been raised in what they think is the highest of welfare systems. In the UK there is not enough of the right land to



increase the percentage of outdoor pigs and so they have to try and create a high welfare pig, indoors. In the main, this concept is driven by the UK. The Swedes, however, have been farrowing pigs loose since back in the 80s when the Swedish government decided that all pigs should be housed in high welfare systems; this meant that no sow should be confined at any time and they should be loose-housed during lactation and farrowing. Countries that currently have loose farrowing crates are Sweden, Denmark and the UK. The types of pens vary in each country and in fact in the UK we have several different designs of pens. These pens allow the sows to move around as and when they want; they have straw available to ensure they can build a nest and display their natural behaviour. The exercise that the sow gets also means that they keep their appetite up and therefore they produce better milk!

At what point does the mortality of the piglet out-weigh the welfare for the sow?

The piglets however have a slightly more risky life! They are at risk of being laid on despite there being a special place for the piglets to go and be safe. The number of laid-ons increases to about 1 per litter above the average in a conventional crate. At what point does the mortality of the piglet outweigh the welfare for the sow?

The average national mortality pre-weaning is 12.5% indoor and 13% outdoor (*source BPEX*), and currently in my farm's own **loose farrowing** pens our mortality will be approximately 13-14%. However our **conventional crate** mortality will be one piglet per litter below that. Is one pig less per litter acceptable? I really think this is something that will improve over time as we learn more

about the pens and also the genetics change to suit the system.

Both Denmark and the UK have a pen which can confine the sow for the first 48 hours, and then allow her out to move around after she has farrowed. This is because the majority of piglet deaths occur in the first 48 hours. This is also what Sweden initially did; however that was later banned as well. Freedom Foods in the UK won't accredit this system as :

1. The building of the nest is a key part to loose farrowing which she is unable to do if she is locked up, and
2. Who knows if the sow is let out after a certain amount of time?!



Loose farrowing pen in the UK

10d. Common practices around the world

The type of system that you run is not the only aspect that determines the level of



welfare; many other factors come into it. I am going to look at the different methods that are used around the world.



Typical farrowing crate in Brazil

10d.i. Stocking density

The amount of room which a pig gets can have a big impact on welfare. Overstocking a building can cause the pig a lot of stress and can result in diseases, slow growth and other vices such as tail biting.

Below are two tables that show the legislations in different countries, on space allowance.

Minimum space for sows

| | |
|-----------------------|---|
| Freedom Foods UK | 3.5m ² /sow and 2.5m ² /gilt |
| Red Tractor UK | 2.25m ² / sow and 1.64m ² /gilt |
| Sweden | Lactating sow: 6m ² – 7m ² depend on what kind of pen |
| Denmark | 0-17 sows – 2.0m ² 18-39 sows – 2.25m ² More than 39 sows – 2.025m ² Less than 20 gilts – 1.9m ² More than 20 gilts – 1.5m ² |
| China, Brazil and USA | None |

Minimum space for fatteners

| | |
|-----------------------|---|
| Freedom Foods UK | Under 35kg – 0.5m ² 35-50 – 1.3m ² 51-75 – 1.5m ² 76-95 – 1.67m ² 96-110 – 1.72m ² |
| Red Tractor UK | 10-20kg – 0.20m ² 20-30 – 0.30m ² 30-50 – 0.40m ² 50-85 – 0.55m ² 85-110 – 0.65m ² Above 110 – 1.00m ² |
| Sweden | Area for resting: 0.10 + (weight in kg)/167 Total area including resting area: 0.17+ (weight in kg)/130 |
| Denmark | 0-30Kg – 0.3m ² 30-50Kg – 0.40m ² 50-85Kg – 0.55m ² 85-100Kg – 0.65m ² Over 100Kg – 1.00m ² |
| China, Brazil and USA | None |

Although China, Brazil and America don't have legislations on stocking density I have to say that I did not see any pigs that looked badly over stocked, and in the main I would say that the majority of the countries would meet Denmark's standards. I suggest a minimum worldwide legislation on stocking density would help welfare standards and herd health.

I suggest a minimum world-wide legislation on stocking density would help welfare standards and herd health.

10d.ii. Feed and Water

The amount of feeder space and water space given to pigs is also vital to the welfare of the pig and as you can see from the tables below not every country is specifying how much



“enough” is. I find this quite hard to believe, this is a very small cost in the grand scheme of things and can have a massive effect on the health of the pig and also the growth rates. I did see pigs in Brazil that only had 1 nipple drinker for a pen of 40 pigs which was not enough; the pigs looked thirsty and this was on a mild day – with the extreme temperatures which Brazil and other countries get I would think this should be one of the first legislations to apply worldwide. The more a pig drinks the more it will eat.

Feeder space

| | | |
|--------------------------------|-------|-------------------------------|
| Freedom UK | Foods | 10 pigs per 1 full feed space |
| Red Tractor UK | | 10 pigs per 1 full feed space |
| Sweden | | 10 pigs per 1 full feed space |
| Denmark, China, Brazil and USA | | None specified |

Drinker space

| | | |
|--------------------------------|-------|---|
| Freedom UK | Foods | 67 pigs per 1m |
| Red Tractor UK | | 30cm for 25 pigs |
| Sweden | | Water depends on what kind of supply there is |
| Denmark, China, Brazil and USA | | None specified |

10d.iii. Teething

This procedure causes a lot of discussion. The reason why pig farmers teeth piglets is because of the damage that the piglets cause to each other, and also to their mothers’ teats. Piglets are born with very sharp teeth and, although outdoor farmers do not teeth pigs, it is very rare that indoor farms can get away without teething. The effects of not teething result in a much greater welfare issue, and so all countries allow teething to be done with a grinder or by clipping them out.

We ourselves have tried not teething and it resulted in a lot of facial damage. The sows also dried themselves off, resulting in some very hungry piglets which caused more of a welfare issue.

We ourselves have tried not teething and it resulted in a lot of facial damage. The sows also dried themselves off, resulting in some very hungry piglets which caused more of a welfare issue.

Some countries perceive grinding as higher welfare than clipping and although there is no evidence that this is true I can see that this is the way things are heading. I also strongly believe that, as in Denmark, the timescale when you are allowed to do it will be set to a maximum of 3 days old.

| | | |
|----------------|-------|--|
| Freedom UK | Foods | Allowed where evidence is shown that injuries to pigs have occurred or are likely to occur and must obtain permission from the vet and RSPCA |
| Red Tractor UK | | Allowed but the necessity of this practice must be regularly reviewed |
| Sweden | | Is allowed if they can prove that they need to do it |
| Denmark | | Only grinding allowed and must be carried out in the first 3 days |
| Brazil | | Only grinding allowed |
| China and USA | | Yes |

10d.iv. Tailing

Tailing is very similar to teething and the reason we do it is to try and prevent further welfare issues from occurring. Sweden is the



only country that has banned tailing and they reported to me that they now see tail biting. This can have devastating effects on pigs as abscesses can get into the spine, plus there is no way to stop them from tail biting once they start. A lot of research has been done to try and work out why pigs tail bite; there are thoughts that they tail bite more on slats because of boredom but people also see it in deep bedded straw systems. The smallest thing can trigger it (running out of feed, temperature change, over stocking) and once pigs have tasted blood it's very hard to stop them.

| | |
|-----------------------|--|
| Freedom Foods UK | Allowed where evidence is shown that injuries to pigs have occurred or are likely to occur and must obtain permission from the vet and RSPCA. 6cm of the tail must remain at time of docking |
| Red Tractor UK | Allowed but the necessity of this practice must be regularly reviewed |
| Sweden | Not allowed |
| Denmark | No more than half the tail can be docked and must be carried out between day 2 and 4 of the piglets life |
| Brazil, China and USA | Allowed |

10d.v. Castration

Castration is another well discussed topic! If you are in an assurance scheme in the UK you are not allowed to castrate unless there is a major welfare issue and then the vet has to carry out the procedure. However the UK is the only country where this applies; all others are allowed to carry it out. Castration is done because of welfare for the pig; when the boars mature they start to ride the gilts and can actually end up bullying a gilt until it dies. Castrating the boars stop them from hitting

puberty and thus reduces the amount of riding. Another approach is by sexing pigs at weaning, which a few farmers in the UK do.

The main reason countries castrate is because of the boar taint that the meat from boars can sometimes carry. This is a very distinctive taste and smell that comes out in the meat and puts people off eating it. Some people can't taste or smell it but others pick it up very easily. In the UK we kill quite a small pig and so in general we get away with not castrating, although the boar taint can still be present. Many countries make farmers use a painkiller while performing the castration and state when it needs to be carried out. Countries such as Russia and Korea won't eat any meat unless it has been castrated. There is also a vaccine that can be employed, called improvac, that you give to boars. However this is not widely used and if the public got hold of this information I don't think they would be too keen, plus a lot of farmers think it is quite dangerous to use!!

| | |
|-----------------------|--|
| Freedom Foods UK | Not allowed |
| Red Tractor UK | Not allowed unless welfare issue then carried out by vet |
| Sweden | Allowed but painkillers or anaesthetise. Vaccination can be used although not very popular |
| Denmark | Allowed but pain relief must be used |
| Brazil, China and USA | Allowed |

10d.vi. Weaning age

The age at which pigs are weaned is also thought to be a welfare issue; piglets need to get all their immunity and strength from their mothers' milk, and need to be weaned when they are at their strongest. This has been proved to be at 28 days. There is no reason



for pigs to be weaned at less than 21 days, although this is happening currently on some farms in Brazil, China and America.

| | |
|-----------------------|---|
| Freedom Foods UK | 28 days |
| Red Tractor UK | 28 days unless being weaned in to special accommodation, then 21 days |
| Sweden | 28 days |
| Denmark | 28 days or 21 days if weaned into special housing units |
| Brazil, China and USA | No minimum |

10d.vii. Antibiotics

This is an ‘up and coming’ topic that will continue to be discussed. America currently has a trend for ‘no antibiotic’ animals. These animals will not have been treated with any antibiotics, and to be honest this is anything but welfare in my eyes! However they are not doing it for welfare, they are doing it because the concept has a good market and sells well. All countries are currently trying to use fewer antibiotics, even though the likes of America, China and Brazil do not currently have to record drug usage, meaning it will be hard for them to monitor use! The way in which we will reduce antibiotic usage is to make sure that the environment is correct for the pigs with high levels of bio-security. All-in all-out systems help to maintain the health of the pig and it will be these systems that improve the health status of pigs.

10d.viii. Transportation

The distance a pig can be transported is another point that can aid welfare. Currently no pigs in the EU can travel for more than 8 hours; however no other countries applied limits. In America weaners are constantly travelling for a whole day, as Americans like to have their breeding units isolated, and in fact

stated to me that a day on the wagon had the same impact as an hour (*Murphy Brown*). I don’t think I can agree with this; however if they put in water and feed stops I would maybe accept it due to benefits of keeping the breeding units isolated and thus healthy.



Fridge full of antibiotics and vaccines in Brazil

10d.ix. Vet Visits

In my opinion vet visits are a key role in welfare. Having vets present on farms is very important and a farmer can get a lot out of their visits, from the herd health to improvements that can be made.

| | |
|----------------|---|
| Freedom Foods | Every quarter |
| Red Tractor UK | Every quarter including Real Welfare Outcomes |
| Sweden | Every 5-8 weeks and 2 yearly health visits |
| Denmark | 6 or 12 times a year |
| Brazil | Once every 2 months |
| China | None |
| USA | Only by larger companies, not legislated |



10d.x. Management

Sometimes I think we try to over complicate ‘welfare’: maybe we overlook something that is very obvious: **Management**.

You can have the best farm that could possibly exist but if you have a bad manager and stock people then the welfare will be compromised and potentially totally lost. Perhaps this is changing; the UK has just introduced a training recommendation into their Red Tractor legislations and, for certain tasks, many other countries are making training compulsory.

| | |
|------------------|--|
| Freedom Foods UK | Stock-keepers required to have a range of skills |
| Red Tractor UK | They recommend training but is not essential currently |
| Sweden | None |
| Denmark | For certain jobs it’s compulsory, such as teeth grinding |
| Brazil | Not essential however with the Co-Ops this is growing |
| China | None |
| USA | Pork Checkoff, not compulsory |

Due to China’s large population and poverty, employing people is not hard, and so typically they have 1 person to every 30 pigs. The pigs are staffed 24/7, on solid floors, and as soon as the pigs make any mess there is someone cleaning it up. It really was quite strange to

see. To them this was high welfare. Unskilled staff are relatively easy to get in China, (for jobs like these of course I don’t feel you need a qualification, just on farm training) although I must say I would not like to work on a

Sometimes I think we try to over complicate ‘welfare’: maybe we overlook something that is very obvious: **Management**.

Chinese farm – you lose all your freedom if working for a big company. The farms I visited made the staff live on site and they were not allowed off due to bio-security.

Pork Checkoff Pork Quality Assurance (PQA) is the only standard that exists in the US. It is not compulsory; however any farmers wanting to work with larger companies will be made to obtain it. It consists of a one day course with a test at the end. (It is thought that 80% of US producers are PQA qualified – *Murphy Brown*). The course is classroom-based and lasts for 3 years. Random check ups are performed by PQA; however if you are an independent farm you are not made to sort out your non-conformances so I see little benefit!

A summary of the figures quoted in this chapter can be seen in Appendix 2, page 44

See photos of pigs under different systems of management - on next page



A very rare outdoor unit in America (in the middle of their winter)



Pigs on straw in the UK



11. The Implications

Many people have stated to me that if a pig is performing well then it must be kept in a high welfare system; I see the point - however I feel there is a lot more to it than just figures as a lot of factors can affect performance: genetics, feed etc.

This leads me to think about the current perception of welfare; outdoor farms are clearly perceived as higher welfare which is something I'm unsure about. I must also mention the free farrowing systems which, again, on first appearance paint a better picture to sell rather than a pig in a crate for 28 days. Yet if it truly is the best option we must ask why have we farrowed pigs in crates for decades?

The answer is simple: because of the welfare of the piglets.

At what stage does the reduction in welfare for the piglet outweigh the welfare of the sow? As in every business there are reasons why we do things. No one does something just for the sake of it and this is where I feel we fail, when explaining why we use the methods we do. I hope I have shown the reasons why we have to do certain procedures; some things do look harsh but once you understand the results if they aren't done I hope it's clear why we try to use methods with the lowest impact on welfare standards.

I visited countries that varied hugely in terms of human wealth and saw some horrendous living conditions, which makes you question why, if people are allowed to live in these conditions, governance should be worried about how an animal is reared? Really poor

people just want some protein that they can actually afford.

At what stage does the reduction in welfare for the piglet outweigh the welfare of the sow?

It quickly became clear that, in the main, the richer the country the more time the consumers had to think about where their meat comes from and how it's reared (Sweden and UK). However, I would suggest that, in some third world countries, animals do have better conditions than the human population. This could be because third world countries realise the value of their export market and understand they have to adhere to higher standards to get the orders; or purely because farming produces jobs and the more people they can employ within the industry the better for the country and, through this, the animal gets a better life.

However, I feel strongly that people come before animals and, therefore, if you can produce a cheaper pig with conditions still acceptable to the minimum welfare standards then we should be doing this. Everyone has a right to protein as long as the animal has a minimum standard. Each and every country is different - we must look after our own and if there is a market for higher welfare pork then someone must fill that market. But if it is merely about feeding people let's do it cheaply, but with a minimum standard. Some would argue that if people cannot really afford meat they should not eat it and instead make better use of the crops with which we feed the animals. However I feel this is a



totally different topic and one I am not going to go into. In my opinion everyone should have meat available to them.

There are two ways of looking at welfare: the science based assessment, and the perception

I have figured out that there are two ways of looking at welfare: the science based assessment, and the perception. Which is the most important and which is the truest?

When considering the science based assessment of welfare I think it's fair to say that actually we don't have enough evidence to support any system as 'higher welfare'. However with the new 'Real Welfare' (which is 'an industry-led project funded by BPEX to help pig producers demonstrate pig welfare and boost productivity, using "welfare outcomes" or "animal-based" measures' (BPEX)) standards, starting in the UK, this may change. We could be about to upset all that we think we know to date – could the slatted 'lower' welfare system outperform the 'higher' straw based system? Less body scratches and marks? Is this really welfare?

I think perhaps what we currently use is people's *perception* of welfare. People see pigs outside and automatically think that is the way animals should be kept, after all that's how they used to be in nature. However, in the natural world pigs would not be having piglets in the winter and so when it's -20° all the animals would be big enough and strong enough to cope. We are making pigs do some unnatural things so should we really be thinking all the way back to their natural behaviour? Do we choose to paint a nice picture and not allow anyone to question it?

I saw 2 children cleaning shoes in Brazil which, without context, could paint a picture of children in a nice house cleaning their shoes for school. However I saw them in the street scrubbing at some rotten shoes that they had obviously found. Suddenly perception is changed, the setting and environment can change the whole meaning. Does the consumers' lack of knowledge mean that they can only look at the *perception*?

..... perhaps what we currently use is people's *perception* of welfare.

One thing I think we in the UK do very badly is educating the consumer; in the UK we tend to hide the slatted accommodation, yet this is the way the majority of pigs round the world will be bred and reared, so is this system really that bad? And by hiding it are we making it worse than it really is? After all we do have minimum standards in the UK. Every country has a problem with activists breaking into farms. If we show them exactly what we do and why, we have a chance to explain the consequences if we don't use these methods, and surely this is a better option?

All the farmers I visited in every country had one major thing in common: that he or she kept pigs because they wanted to, no one was forced into it and so why would they not look after them in the best possible way they could? Farmers are also businessmen. A car mechanic would not continue to fix Porsches if he was not making money - but could make money if he fixed Fiats - so why should a farmer be expected to rear 'higher welfare' pork when they can't cover their costs? No one will sell a product for less than it costs them to make it, so why are farmers expected to be different? If the retailers, or the market you are selling to, strive for 'higher welfare'



then there is a market for it if the price is right. But that does not mean that every market is the same, it's a niche and should in my opinion stay that way.

What we can do is have a standard way of carrying out procedures.

The building and the system are a small part of animal welfare and it's fair to say one system that suits Brazil would never work in the UK. What we can do is have a standard way of carrying out procedures. The age at which we wean a piglet, castrate or not, the use of antibiotics, the way we handle the pigs are some of the basic standards of the industry and no matter which country you are in we should be doing this to the 'highest' of welfare standards.

Weaning a piglet younger than 28 days, castrating a pig over the age of 4 days, using antibiotics as a 'just in case' (rather than getting the environment correct and the bio security) are all things that we should be striving to change and there is no reason why we can't achieve this across the world.

Management is something that will help achieve the highest welfare. It all comes back to attracting the right person, and selling the pig industry for what it is: challenging and rewarding. We are not merely muck shovelers, we are vets, nutritionists, mechanics, stockmen, computer operators and anything else that is thrown at us. We should be - and need to be - attracting intelligent people. If we can do this we will see genuine welfare across the industry improve. Training should be a key part of the pig industry, for example cutting a tail off a pig sounds easy but it's such an important job and done badly can be devastating; therefore

no one who is untrained should be carrying this out.

We should be - and need to be - attracting intelligent people. If we can do this we will see genuine welfare across the industry improve.

At what cost does this all come, and can we really compare different countries? If they are not importing into other countries I really think it is irrelevant. The problem arises when countries set out standards and then allow

The problem arises when countries set out standards and then allow cheap imports (free trade rules which apply in the EU means this has to be the case).

cheap imports (free trade rules which apply in the EU means this has to be the case). However even the UK government bought cheaper meat to feed the MPs in the Houses of Parliament, the hospitals, jails and the army, thus kicking pig farmers in the teeth a little more! The National Pig Association (NPA) continues to fight hard over this issue.

The table below shows the difference in cost of production (COP) (BPEX). (I could not obtain a figure for China). This shows very clearly that the higher the perceived welfare the higher the COP. This is fine as long as the farmer is getting paid for this added cost. Many of the points I have listed to change in order to achieve a minimum standard worldwide will not add much cost, the added cost comes from new designs, using straw and



in some countries increased labour. It is like all goods that are sold, if there is a market for a more expensive product then someone will fill it if they see a premium, but it must stay a niche market otherwise the premium is removed and the industry becomes uncompetitive.

It is worth mentioning now that the feed costs account for approximately 75% of the COP. All the countries I visited had very similar costs

for feed, which shocked me, especially in Brazil where all the feed is readily available.

| | 2011 : Average COP (Euros/kg deadweight) |
|---------------|---|
| Brazil | €1.30 |
| Denmark | €1.59 |
| Great Britain | €1.78 |
| Sweden | €1.97 |
| USA | €1.27 |



Pigs on slats in Denmark



12. Analysis

Every farmer and country has their own way of farming and I have to say what I have seen has totally changed my view on 'welfare'. I think it is fair to say that every country believes they are breeding pigs to a high standard, but they all agree that the EU and particularly the UK has the highest welfare. However few countries seemed to know that Sweden is also operating a higher welfare system and has been doing so for some time.

Countries around the world seem to be looking up to the UK and the EU, and are very aware that they must change in order to be able to export to us here. Having said that I wish I was as confident that the retailers won't just buy the cheapest possible regardless of how or where it's been reared!

I would have loved to come away from this experience with a definition of High Welfare that could be applied across the world, but in reality I was never going to achieve this. There are so many variations in countries' environment it would be impossible to have a standard that worked across the board or that was viable in every country. I can therefore only add my definition of what I consider to be High Welfare, which is purely my opinion:

- High Welfare for a pig is to make sure the pig is comfortable in the environment it is surrounded by.
- that the people who look after it are trained to the highest level and are up to date with current changes within the industry.
- the feed and water that is fed to the pig is both clean and suitable for the state the animal is in, be it pregnant,

lactating, skinny, fat, or growing and there is ample feeder and water spaces - pigs like to eat together

- The housing is big enough for the number of pigs in a pen and provides separate areas for laying, dunging and eating.
- I do not perceive stalls to be welfare friendly and moving a sow out of a stall into loose housing 28 days post service seems less welfare friendly than housing them in stalls all the way through; I'm sure that the amount of fighting must be high when sows are mixed at this time (I believe that when mixing sows it should be done whilst they are either not in an established group or are on heat).
- Routine jobs are carried out with the right equipment and assessed regularly to see if there is a better way of doing the jobs and if they are really needed. The health of the pig is not controlled through drugs but through good bio-security and the cleanliness of the farm.

Production figures vary a lot throughout each country and I strongly believe that **the system is not what drives the output; as in every business it's the way the system is managed.** Therefore I would suggest that welfare will not challenge the production of pork; however the type of person which we attract into the industry may do just that. The average age of a farmer in America is 60 years'. Worldwide we need to seriously consider how to get the younger generation involved.



13. Conclusions

There are areas which should be addressed in each country. These are:

- **Castration** – a time frame by when it must be done and the enforced use of painkillers.
- **Teething** - a time frame by when it must be done and constant research into how to avoid the necessity of doing it.
- **Tailing** - a time frame by when it must be done and constant research into trying to avoid doing it.
- **Stalls** – should not be allowed.
- **Solid floors** with no straw or bedding – these do not stay clean and contained the worst looking pigs I saw.
- **Stocking density** should be set to a minimum pigs/m².
- **Weaning age** – should be set to 28 days unless weaning into a special building. This figure is due to the pig being at its strongest at this age.
- **Ventilation** – pigs should have fresh air at all times be it through a ventilation system or natural.
- **Antibiotics** should be used when an animal is ill, not as a ‘just in case’, and a clean environment should be achieved in order to keep the health status high.
- **Feed and water space** should be adequate to allow pigs to feed together.
- **Auditing farms and standards** – a consistent method across all farms (easier said than done).



14. Recommendations

- Management and staff are key to the welfare of animals. I therefore suggest that the industry needs to do more to: 1. Encourage youngsters into the industry, and 2. Pay people on a qualification basis.
- A standard set of principles should be adhered to in all countries: such as minimum space, sick pens, and feeder and watering requirements. This should not increase COP too much and will result in high welfare for both the animals and stock people.
- Educating the consumers is key; they can then make an informed decision.
- Castration should only be allowed in the first week of a piglet's life. Research should continue to try and solve the boar taint issue and abolish castration altogether, given that sexing can occur at weaning to stop aggression of boars towards gilts in yards.
- There should always be the option of niche markets and we must make sure the consumer knows why something is 'better welfare'.
- Higher welfare pigs will always have a place but we must remember that people are more important than animals and therefore we must make sure that people can afford pork, otherwise we kill our own market. We rear the animals to eat!
- If you don't have a contract for a niche product then don't produce it, only produce what your market wants!
- Auditing needs to be addressed so that it is delivered consistently throughout each country meaning everyone is up to the minimum standard.



15. After my study tour

What an amazing experience I have had during the last 18 months, not only from travelling the world and meeting some fantastic people but also the way that it has given me more confidence. The Nuffield Farming Scholarship has made me a much more confident person when talking to others within the industry and I now hold the position of Northern Young National Pig Association Chairperson.

I was, perhaps, a little naive before embarking on my Nuffield travels and thought there was no excuse not to rear animals to the highest of welfare like farmers do in the UK. My eyes have been opened and I now realise that different countries have far more important things to worry about and yet they are still striving to achieve our standards which to be honest made me a little upset; I can't help thinking people's welfare must come before animals.

The fact that every country had activists entering farms taking pictures and videos made me realise that these people will always be around. However, it made me recognise that if we as farmers allow the public to see what we are doing and explain why we are doing it what will the activists have to show? Educating children can only be a good thing as they are not only the future consumers but also our future farmers' employees.

One thing that drives us farmers mad is that what consumers say and what they do are often very different. This is the same across the world. After returning from my travels I feel very passionate about educating consumers. How can we expect them to pay more money for something that they don't really understand?

Something that is really clear to me is that people within agriculture do not understand the different ways of rearing a pig and so how can we expect the general public to? We should not hide what we are doing, we have minimum standards and they are not to be ashamed of, so I feel we need to show people how the animals are being raised, explain why each process is different and then allow them to choose!

It is because of this I am trying to get involved in educating children; after all they are the future. I am currently looking into starting a place where schools and children can come and help look after animals and help grow food in order to gain an understanding of why we do the things we do. I want to teach children about cooking healthy meals and also show them all the different opportunities that agriculture offers - you don't just have to shovel the muck – well, not always.

Kate Morgan

Pockthorpe Hall

Pockthorpe

Kilham

Driffield, East Yorkshire. YO25 4SX

tel : 01377253722

mob : 07875416842

email : Katemorgan25@hotmail.com



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My sponsor – BPEX - for funding me and helping me gather facts and figures.

My Mother and Father, David and Sue Morgan, my sisters Vicky and Rachel for supporting me and looking after all my animals whilst I was away and of course Dad for travelling with me in Brazil and Sweden.

Eric Raine, my Fieldsman – I promise I won't leave for that long again (well maybe not promise!)

The class of 2012 Nuffield Scholars – you guys have made this experience what it's been – Thank you for all your help and support, friends forever! (unlucky!) Not forgetting past Scholars.

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17. Executive Summary

My dad has always taught me that we only produce a pig if we have a market for it. We have always favoured the straw based systems and invested heavily throughout good and bad times but as much as I love seeing pigs on straw is this the right way to be going? Retailers in the UK are generally all pushing us down the 'high welfare' systems and so I decided I wanted to go and see how other countries reared pigs and viewed welfare, to see if we were correct in going down the welfare path.

My travels took me to countries that were all very different both environmentally and economically. I visited Denmark, Sweden, China, Brazil and America. The one thing that shocked me was the degree of attention to welfare in each and every country; they were all aiming to up their standards even though humans were experiencing conditions which were well below the pig's standards. How can something we breed to eat have a better life than a human being?

Throughout, all the farmers I have met, plus the farms I have visited, made it obvious that the key driver of welfare is the attitude of the manager. The buildings and the systems have little influence over the level of care. If you

have a manager who is passionate about the care of the animals then you see a well-run unit. If, on the other hand the manager has little interest in the welfare of the animal then the level of wellbeing will be low regardless of the system.

We perhaps look at the obvious when considering welfare, yet - from my experiences - my opinion about welfare has changed, and looking at the system and building alone is not the be-all and end-all. No two countries can have the same buildings but I do feel that certain procedures can be carried out to a 'high welfare' standard across the world, whilst not adding much to the cost of production (COP). I strongly believe that there will always be a market for what is classed as 'higher welfare' meat and a section of farmers needs to fill this market. But I do not feel that we should all be pushed down this route and out-price meat; everyone has a right to protein.

It is our job as farmers to inspire and educate the next generation, not only as the future consumer but also our future farmer employees; we need to attract intelligent forward thinking people to keep our future bright.



18. Appendix 1 : Case Studies

18a. UK Case Study

D P Morgan (my family's operation) farms 1,700 breeding sows taking the progeny through to slaughter, then sells to Sainsbury's via Cranswick.

All sows are housed in large straw yards in weekly groups. They are then moved into farrowing accommodation.

We have two different types of accommodation for the farrowing sow: we have the conventional crate which is seen all over the world and then – 2 years ago – we put up some loose farrowing pens which we ourselves designed and which are accredited by Freedom Foods.

The difference in performance in the loose rooms is approximately 1 pig/sow/less than in a conventional crate because of the increase in laid-ons. However we consider that, at the 28-day stage, the sow comes out in better condition from the loose rooms and her piglets are tougher and stronger. Gilts perform really well in the loose accommodation.

At weaning the piglets all go to third party finishers. They are weaned at 28 days and are all moved into straw yards, an all-in all-out system. Because the buildings are generally redundant sheds there is no heating system and so kennels are built out of straw bales and the piglets trained to go to them for warmth. The majority of the pigs will stay in this straw yard all the way through to slaughter. However there are a few yards that go from weaning to 35kg, and 35kg to slaughter.

18b. Sweden Case Study

Sven-Olof, Ulrika and Christian Carlson's farm 460 sows, breeding their own replacement gilts since 2003. They have all loose farrowing pens and dry sows are housed in groups with straw. They believe that the sows have changed since they have had loose housing and they adapt to the system – something which we at home think would happen if we could have the same pigs through the loose farrowing pens each time.

Sows are served 2 to 3 times depending on how strong they are standing, and are housed in one group during service and until 5 weeks when they know they are well in pig; at this point they are mixed into dynamic groups.

Sows farrow in the loose pens, and whilst farrowing the room is at 22°C to start with, dropping down to 19°C (piglet light 34°C). They are not allowed to teeth clip so teeth are ground. At four days old creep feed is given on the floor, peat is also given to try and help a temporary scour problem. Piglets are weaned at 33 days and weigh on average 9.5-10kg. Piglets are weaned in groups of 20 to a pen and given straw every day. They are fed liquid feed four times a day, with zinc in it for 2 weeks, and the piglets take a hit when they come off this diet. Pigs stay in here for approximately 7 weeks until they are 30- 32kg. They have a post-wean mortality of between 1-2%.

The vet has to visit the farm every 6 weeks, and twice a year pays a special health visit. Vet costs are approximately £60/sow and 70 pence per finished pig.

They believe they could get better production figures if standards were dropped a little.

More case studies overleaf



18c. Denmark Case Studies

Gert Ladegaard Jeensen is an Organic pig farmer in Denmark

He has a co-op with a neighbouring farmer who breeds the pigs (outdoor organic) and Gert then finishes them. I never thought I would see a system in Denmark that uses straw - and enough for pigs to lie on - in the past when Danes say they use straw it is normally a token strand! Gert's buildings were naturally ventilated with slats near the feeders and then a deep-bedded laying area. The pigs could also go outside if they wanted. The buildings were lovely to walk round, fresh and clean. Gert was putting up a new shed with a sorter in, so he can feed the pigs according to their weight, a good system which is operating in England, however not with straw! The idea looks great, with welfare at the top of the list, nice comfy laying area and then feeding them to their needs.

Gert's performance is not great compared to the rest of the Danish producers, but he is organic so will be feeding differently and have other factors affecting his performance. It will be interesting to see if his performance figures pick up with the new shed. One thing that is worth noting is that he had 2 different age groups of pigs on the farm – I feel quite strongly about this; pigs are very susceptible to diseases and in my eyes keeping the same ages together and not mixing them is key to healthy animals. I know this is not always possible but I feel it's simple and could have a huge effect on welfare.

Asger Krogsgaard, a pig farmer and also a member of the Danish Crown board and chairman of the Danish Agriculture and Food Council N

Needless to say my visit to his farm was very informative. Asger has 1,800 sows and operates a farrow-to-finish system on 3 farms. In the past he has tried loose farrowing but has reverted back to the conventional farrowing crate. It was great to talk to someone who had decided to go backwards. Before we met I could not understand why you would do this: opt for welfare then take it

Continued in same column on next page

Karsten Pedersen farmer

Karsten was the first farmer in Denmark to go fully loose farrowing. He has 1,200 sows and takes the pigs up to 35Kg on his home farm. Although in Denmark you are allowed to keep sows in stalls post *weaning*, Karsten has decided that he keeps his sows in the stalls for 2 days post *service* as he believes that his system is better on 3 accounts:

1. The environment
2. Animal Health and
3. Sustainability.

He believes it costs him 20% more to put up a system like this and he can run it on the same number of staff. Karsten's whole system was up to the UK standard except for the stalls.

The technology on the farm was great. He had a robot feeding the sows in the yards and also bedding them up with straw. I have to say they were not deep bedded but they had a 2/3rds solid area and slats over the feed and dunging area. His figures were good although mortality was a little higher than I would expect at 15%. He said it had gone up when he had employed a new member of staff as she was new to the system but it was improving again (shows how important the right staff are).

He was doubling up the farrowing pens and putting 2 gilts in one pen once they had farrowed as he had room for 112 sows every two weeks and his target was 120 to farrow – this also increased mortality but he had worked out he would still get more pigs out the door which was his main aim.

Karsten was weaning at 32 days when piglets were 8Kg. Again this would reduce

Continued in same column on next page



away. However, once I understood, I realised it was actually because of welfare he had taken it out. He stated that the loose farrowing system was good and he liked it and strongly believed that there was a place for it in Denmark as a niche market. However he had realised that the staff he had could not work it and therefore he changed back to the conventional crates. This is a key point. Operating a loose farrowing pen requires stockmen that can read the animals, and as I have seen, the wrong person in this building can have a very negative effect.

his pigs/sow/year but he felt that the piglet was stronger at this time – welfare is a key driver to him and he is targeting the UK market. His performance figures were good, getting 11 weaned piglet/sow with conception rate at 88-90%. He stated that he was getting 2.3 litters/sow/year but, with a weaning age of 32 days. This seems quite optimistic, although sow condition does improve in these systems which would help days-to-service. If these figures are correct he will be performing as well as the average UK farmer.

18d. China Case Studies

Mr Fan - 150KM east of Beijing - Co-Op with JSR

Mr Fan, a pig farmer who is working with JSR, was in the middle of building a state-of-the-art unit which was going to cost him £30m. including the pigs, from start to finish. The land is rent free from the government for 70 years and they have also given additional funding. The site is for a 600 nuclear unit and he hopes later to put up a multiplication site. Mr Fan is confident that with UK genetics he will be able to achieve the same performance as the UK. He stated that nutrition in China was very difficult and perhaps what has let them down in the past!

The setup is going to be very good once finished. For the nursery pigs he will have 20 in a group on solid floor with a laying area of 1.2m². All pigs will be fed automatically and every room will have a good standard ventilation system, air con and heaters under the floor. The unit from the outside looks like a hotel, with bio-security being a key driver. There are living quarters for 40 staff on the farm, and they are not be allowed off the farm. Mr Fan even said himself that working on a pig farm was like being in prison!

In Mr Fan's eyes the welfare of the pigs means that they must be in *'large groups with more space. The right nutrition with low medicine usage. The staff must be right* and ditto the management of the pigs (treating them well) and to finish it off, efficient killing'.

Da Kang group – Hunan – Mr and Mrs Xia

Da Kang is a very large business in China that controls all sectors of the supply chain. They pride themselves on being most focused on the farming part of the supply chain. They have 22 farms producing over a million slaughter pigs a year, are constantly expanding and have 700 staff working on the farms.

Staff were working 24/7. The pigs were loose housed on solid floors and mucked out constantly. This, they felt, equalled high welfare. They worried about the temperature and also the water quality and only women were allowed to collect semen as this was considered nicer for the boar! All rooms on the farm had CCTV which fed to a screen in the office so I could see what was happening, but because of bio security I was not allowed on the farm.

Figures were really hard to get but Mr Xia told me they were obtaining a FCR of 2.5 and finishing pigs in 140 days from 7kg through to 100kg.

I also saw one of their abattoirs which was a very large state-of-the-art factory. However there is no legislation as to how to kill pigs; the facilities are there because they think it's the best way for people and pigs.



18e. Brazil Case Studies

Topgen – Genetics company – Arapoti

Born alive – 12.96

Weaned – 11.77

Mortality – 9.84%

Pigs/sow/year – 30.12

Beate Von Staa owns this genetic company which has 3.5% of the Brazilian market. Production figures are very good. Beate can see she needs to start breeding a pig for loose gestation as she believes this is the way that the market will go. She does however think that their genetics are quite good already and will adapt to the loose housing well.

When asked to define high welfare Beate said *'Barns that are well constructed with good ventilation and climate, feed and good health. Pigs need things to play with because they played in the wild and you only get problems with tail biting when micro toxins are present in the feed. Also training is essential, you should hire people to train staff, it's not just about housing'*. She thought Brazil had a lot of 'smart uneducated people' where as the UK had a lot of 'thick' people and so it was harder for us to get staff! She also says that *'Brazil is a big sleeping giant which is currently still sleeping!'*

Her unit was on slats in loose housing with liquid feeding as she felt that this was better, no dust and less waste. Work on the food conversion rates of pigs kept on straw and slats indicated a 0.3 difference in favour of the slats.

Master Farm – Papanduva

- 35,000 sows in the total business.
- 15,000 in Papanduva on 2 sites.
- Biggest private company in Brazil.
- 10 vets (is a vet is the same level as a vet in the UK?)
- 90 farmers.
- 8 feed mills.
- Slaughter 1 million pigs per year.

There are 26 staff for a 15,000 herd with a min wage of \$US300 which includes food and bus. The unit is staffed round the clock, and individuals work 44 hours per week. All training is done in house. A vet will visit the farm once a month and will do a formal report every 3 months. They will bleed 60 sows to make sure they are foot and mouth free.

They wean at 22 days of age and average weight of 6.3kg. They needed to produce meat as cheaply as possible as many people were hungry and there was more concern for people than for pigs. Despite not exporting they invested in welfare and were always looking at new ideas. I saw a fantastic air blowing system that blows air onto the sows' heads in the farrowing crates – clearly liked by the sows!

There is a big emphasis on people welfare, and Rafael (Manager) said that management makes the welfare. Staff are looked after well, with lots of different programmes - such as keeping things tidy, and being accident free - to potentially increase wages.

The cost of production was put at 26 US \$ per weaned pig. 55% of that is feed, 6% labour, 6% health and 6% depreciation, the rest energy. They also have a bed and breakfast type operation for which they are paid US\$2.2 for a 6kg pig to 22kg, and US\$8 up to finish which is 122 live weight, approx £7 a pig. Wish it was as cheap for us!

The nursery unit housed 2,600 pigs and it took 45 days to get to 22kg. Pens were very simple slats and open sided, very fresh with 90 pigs per pen with just 4 nipple drinkers and one round feeder - I felt more water points were required! Mortality was 1.7% in this shed.

The fattening shed had solid floor pens which were cleaned by hand once a day



18f. USA Case Studies

Niman Ranch – Business selling a niche product

Niman Ranch is the largest company in America selling no antibiotic pigs, using third party farmers to breed and rear all their pigs. They state that all their pigs are reared outdoors or on straw and they farrow everything in a free system – I did not get to see this! They did not sell any pigs that had been injected with drugs.

They are weaning 8 piglets per litter on pasture and 10 in the hoops. They wean at 5 weeks of age and the company sells approx 2000 to 3000 a week. The average size of the farms are 40 sows and they have about 475 farms. Just using very simple maths they have 19,000 sows, say 130,000 finished pigs a year (2500x52) an average of 7pigs/sow/year! You have to remember that most of these farmers were hobby farmers and so maybe they were only having one litter a year. They pay \$1.04/lb of dead weight against a commodity pig \$0.70. Niman Ranch pigs take 7 months to finish.

Murphy Brown – One of the largest businesses selling commodity pigs into Smithfield

All Murphy Brown breeding units are situated in very isolated parts of America, which is fantastic for bio security and the health of the pigs. However the piglets once weaned can be on a wagon for up to a day!

They have just declared they are moving away from stalls and into gestation pens. This will cost them \$330 million to change the accommodation for their one million sows! (I asked who was going to pay for this, the consumer or them!)

They think their farrowing rate has improved from 80% up to 90% since moving away from stalls (not all farms are stall free currently). They are '*pushing 13 born alive*' and weaning 10.5; they say their mortality is high as their pens are too small so they are making the crates larger.

The pigs are weaned into farms of 44,000 pig spaces at the age of 23 days. They operate two systems: wean to finish, and a 2 stage finishing system. However they are moving totally to-wean-to-finish as they feel this is the best system both for performance and to improve the stress level on the pigs. Murphy Brown have hundreds of farmers who put up buildings to house pigs simply because they value the muck so much (\$1,2 million for 44,000 pigs!!). They all follow the same building design and in theory should get the same performance. They operate on 7.5ft² per finished pig in a 1/3rd solid and 2/3rd slatted house with 80 to 85 pigs in each pen, 12 feeder spaces for 60 pigs and 4 nipple drinkers!

They pay \$38 per pig space/year and do not offer a bonus system. They operate the system just like third party finishers in the UK (although they have a 10 year contract as these are specialised built buildings). The fieldsman has to visit each farm once every 2 weeks and the farmer reports in every week to let Murphy Brown know if they are having any issues. All the third party farmers have to have the PQA certificate and Murphy Brown has a very large folder on how to carry out all procedures.

Any pigs being treated with drugs after week 17 have to go to a different market such as a cull market.



19. Appendix 2

High Welfare Standards across the various Countries: summary chart

| Standard | UK Freedom Foods | UK Red Tractor | Sweden | Denmark | China | Brazil | USA |
|----------------------|--|---|--|---|-------|--------|-----|
| Stalls allowed? | No | No | No | Allowed for 4 weeks post service then must be allowed out | Yes | Yes | Yes |
| Minimum sow space? | 3.5m ² /sow and 2.5m ² /gilt | 2.25m ² / sow and 1.64m ² /gilt | Lactating sow: 6m ² – 7m ² depend on what kind of pen Un-served sow: 2.25- 2.5 m ² Pregnant sow: 1.6 – 1.8 m ² | 0-17 sows – 2.0m ² 18-39 sows – 2.25m ² More than 39 sows – 2.025m ² Less than 20 gilts – 1.9m ² More than 20 gilts – 1.5m ² | No | No | No |
| Minimum service age? | No | No | No | None Specified | No | No | No |
| Minimum weaning age? | 28 days | 28 days unless being weaned in to special accommodation | 28 days | 28 days or 21 days if weaned into special housing units | No | No | No |

Continued overleaf



| Standard | UK Freedom Foods | UK Red Tractor | Sweden | Denmark | China | Brazil | USA |
|------------------|--|--|---|--|-------|-----------------------|-----|
| Tailing? | Allowed where evidence is shown that injuries to pigs have occurred or are likely to occur and must obtain permission from the vet and RSPCA. 6cm must remain of the tail at time of docking | Allowed but the necessity of this practice must be regularly reviewed. | Not allowed | No more than half the tail can be docked and must be carried out between day 2 and 4 of the piglets life | Yes | Yes | Yes |
| Teething? | Allowed where evidence is shown that injuries to pigs have occurred or are likely to occur and must obtain permission from the vet and RSPCA. | Allowed but the necessity of this practice must be regularly reviewed. | Is allowed if they can prove that they need to do it. | Only grinding allowed and within the first 3 days of life | Yes | Only grinding allowed | Yes |



| Standard | UK Freedom Foods | UK Red Tractor | Sweden | Denmark | China | Brazil | USA |
|-------------------------------------|---|---|--|--|---------|------------------------|---|
| Castration? | Not allowed | Not allowed unless it's a welfare issue then has to be carried out by a vet. | Is allowed but they need painkillers or/and anaesthetize. Vaccination can be used although not popular | Yes but pain relief must be used | Allowed | Allowed with injection | Allowed |
| Minimum space for fatteners? | Under 35kg – 0.5m ² 35-50 – 1.3m ² 51-75 – 1.5m ² 76-95 – 1.67m ² 96-110 – 1.72m ² | 10-20kg – 0.20m ² 20-30 – 0.30m ² 30-50 – 0.40m ² 50-85 – 0.55m ² 85-110 – 0.65m ² Above 110 – 1.00m ² | Area for resting: 0.10 + (weight in kg)/167 Total area including resting area: 0.17+ (weight in kg)/130 | 0-30Kg – 0.3m ² 30-50Kg – 0.40m ² 50-85Kg – 0.55m ² 85-100Kg – 0.65m ² Over 100Kg – 1.00m ² | No | No | No |
| Vet Visits? | Every quarter | Every quarter and Real Welfare Outcomes | Every 5-8 weeks and 2 yearly health visits | 6 or 12 times a year | No | Once every 2 months | Only by larger companies, not legislation |



| Standard | UK Freedom Foods | UK Red Tractor | Sweden | Denmark | China | Brazil | USA |
|----------------------------|--|--|---|---|-------|---|----------------------------------|
| Feeder space requirements? | 10 pigs per 1 full feed space | Guidance of 30cm for 15 pigs | Growing pigs (10-130 kg): 0.164 meter + (weight/538) Gilt: 0.45 m Sow: 0.5 m | No | No | No | No |
| Water space requirements | 67 pigs per 1M | Guidance of 30cm for 25 pigs | Water depends on what kind of supply there is. | No | No | No | No |
| Transport duration? | 8 hours max | 8 hours max | No longer than 8 hours for slaughter pigs | If over 8 hours water must be available | No | Not currently | None |
| Staff training? | Stock-keepers required to have a range of skills | They recommend training but is not essential currently | No | For certain jobs it's compulsory such as teeth grinding | No | Not essential however with the Co-Ops this is growing | Pork Checkoff but not compulsory |
| Bone and blood meal? | No | No | No | No | Yes | Yes | Yes |

End of Report

