

EU PiG Grand Prix 2017 – winning best practices:

Precision production – smart water usage

- **Clean and accessible water**
- [Jens Ole Bladt; Sydals, Denmark](#)

The herd uses a water purification system (Danish Clean Water) which ensures clean water and impairs the formation of biofilm in water pipes. The result is improved pig health and productivity and, in turn, lower costs. The component is a disinfectant, which is biodegradable and approved for drinking water for production animals.

Innovation in practice

There are a number of practical steps taken to ensure clean water is provided consistently. For example, to help ensure pigs get a good start after weaning:

- The producer provides water for newly weaned pigs using feed troughs and systematic checks several times per day ensure that clean water is accessible for all pigs
- The troughs are cleaned systematically at least once a day and more often if the water is not clean enough.

When the pigs are older:

- The troughs are solely used for wet feed but two drinking cups are present in each pen (28-30 pigs per pen), which is double the number of cups normally advised for that number of pigs.

The system's supplier calculates the running costs to be 0.10 - 0.50 DKK per cubic meter of water.

Benefits

The water purification system helps reduce occurrence of disease and also, thereby, the consumption of antibiotics.

Precision production – feed management

- **Routine weighing for accurate feeding**
- [Aage Lauritzen; Ribe, Denmark](#)

Systematic routine weighing is used to choose the right feed mix as well as routinely monitor pig productivity. Pigs in the entire pen are weighed on a weekly basis and data is typed into a system to monitor weight gain.

Innovation in practice

Routine weighing is used for a number of reasons as well as growth monitoring, including:

- Internal experiments testing new types of feed mixes
- Weighing the largest pigs before sending pigs to slaughter.
- Optimising management in real time, as reduced weight gain is difficult to recoup later on.

The investment required includes:

- Buying a scale where pigs in the entire pen can be weighed simultaneously
- One hour of labour per week for weighing pigs.

To perform feeding trials, additional equipment is needed for registering feed consumption or this has to be done manually.

Benefits

Key benefits of this system of real time, continuous growth monitoring include:

- It makes it possible to identify problems and to intervene earlier
- Feeding regimes can be changed accordingly in finisher pigs
- Management is improved
- Positive results can be celebrated which is motivating for employees
- Better prices are received for finished pigs because they are able to finish them at the right time at the optimal weight.

Meat quality – innovations in the supply chain

- **'Heart Pig': marketing via welfare brand – Denmark**
- [Niels Aage Arve; Krannestrup, Denmark](#)

The farmer's pork is marketed under the 'Heart Pig' welfare brand, having put in place specific management practices required.

Innovation in practice

Key areas of management include:

- Tail docking is not performed in the herd
- The rearing and finishing pigs have more space than normal
- All animals must have access to straw. Straw racks are used and they have found a key advantage of using racks compared with straw on the floor is that straw is accessible all the time.
- Sows are in loose housing for the entire cycle, except for a few days at farrowing.

Benefits

The farmer receives an extra 1.30 DKK per kilo at slaughter, which matches the extra production costs (according to calculations by SEGES).

Meat quality – reduction of boar taint

- **Male fatteners without boar taint**
- [GFS Topgenetik, Germany](#)

The EN-Z-EMA and Strat-E-Ger study looked at how fattening of uncastrated male piglets can work in practice and found a way to reduce boar taint via the breeding programme, through selection of terminal line boars.

Innovation in practice

Boar taint is determined by the key elements androstenone and skatole. Both of these substances have high heritability so these traits can be included in a breeding value calculation.

Semen is commercially available for piglet producers across the EU.

Benefits

The risk of boar taint for male fatteners is nearly zero if a group of the 25% best AI boars (in relation to their breeding values for boar taint) is chosen.

This gives pig producers the potential benefits of:

- Being able to stop castration and to reduce the linked labour costs
- Improving finishing traits like daily gain and feed conversion.

Welfare – castration methods

- **Entire male production**
- [Ramon Armengol ; Mas Sant Sebastià, Spain](#)

The unit is a 720-sow, farrow-to-finish 'closed unit', producing entire males. It is estimated that around 80% of male piglets in Spain are produced without castration. This enables them to take advantage of the better efficiency of producing entire males and to produce meat with a lower fat content. At the same time, they avoid the practice of castration, and preserve high welfare standards.

Europe is facing a voluntary abandonment of piglet castration without anaesthesia and analgesia from 2018 and the work in Spain shows entire male production is a possibility for all countries. Obviously, the risks of boar taint and welfare issues have to be taken into consideration, especially for systems producing heavy pigs in which alternatives have to be properly developed.

Innovation in practice

The cost of non-castrating is difficult to assess. There is a risk of boar tainted carcasses, along with a risk of increased aggression and more sexual behaviours, both with possible negative impacts on welfare and quality.

Further investigations are needed to understand the patterns in non-castrated pigs' activity in order to avoid tail biting.

Benefits

The benefits of producing entire males are:

- Better production efficiency
- Meat with a lower fat content
- No need for castration and avoidance of the welfare side effects of the practice
- From an economical point of view, farmers save the associated costs of surgical castration including labour, materials, anaesthesia and/or analgesia.

Welfare – tail docking

- **Rearing pigs with intact tails**
- [Sikana Oy; Finland](#)

Tail docking has been banned in Finland since 2003, so this unit rears its 2,980 finisher pigs with intact tails and uses a number of practical measures to ensure they comply with legislation and maintain both welfare and productivity.

Rearing pigs with intact tails is possible in every country by taking care of pig health and welfare and minimising stress caused by competition for feed and water resources.

Innovation in practice

Pigs are housed in groups of 10 pigs per pen, with 1/3 slatted floor and 2/3 solid floor with heating. Further management practices include:

- Installation of heating pipes on the wall and negative pressure ventilation
- Pens have two pieces of chewable wooden activation toys and pigs are provided with wood shavings twice a day as enrichment material.

Liquid feed is supplied five times per day and the trough (>30 cm/pig) is never totally empty. All pigs can eat simultaneously. Feed consumption is checked daily and supply adjusted as needed.

- Pigs always have access to water that is quality analysed regularly.
- Health status is high (national SPF: freedom of enzootic pneumonia, swine dysentery, atrophic rhinitis, mange, PRRS, Aujeszky disease and zero tolerance of salmonella); the piggery is divided in two buildings which have several compartments. There is separate equipment in buildings and boots are changed between buildings for biosecurity.

Benefits

The unit is able to comply with regulation on leaving tails intact while maintaining welfare and productivity. The unit's production results are good. Examples from 2016 are:

- Average daily weight gain from 30kg to slaughter was 1046 g/d
- The production cycle was 12.9 weeks
- 2.5% condemnations due to tail biting.

Health – Bio-security

- **Biosecurity tool**
- [Eugene Sheehan; Ireland](#)

This 300-sow farrow-to-finish unit which produces its own feed. It was the first to use an innovative Biosecurity Scoring Tool (Biocheck.UGent) to review biosecurity and help identify areas they needed to improve. The ultimate aim is for improvements in biosecurity to translate into better pig health and performance, along with lower costs.

The farmer was considering some changes at that time, in 2015, so the advice he got during the discussion guided the changes.

Innovation in practice

Biocheck.UGent provides detailed scores for different aspects of external and internal biosecurity. Used as a benchmarking tool for farmers it allows them to identify, within a group of farms with similar characteristics, the issues and weak areas in each particular farm. It can then be used to point out possible actions in the farm and the farmer can decide how to proceed with the guidance of veterinarians and advisors.

For this farm, the tool was used together with a review of the medicine and nutrition programmes. It is positive for PRRS, APP, Mycoplasma and influenza and, at the time had clinical problems with diarrhoea, respiratory disease, meningitis and ear and tail biting. Initially there was a discussion of the results with the veterinarian, the nutritionist and the advisor and a series of changes were agreed with the farmer.

The changes implemented as a result include:

- Reduction of density in particular areas of the farm
- Changes in the flow of animals
- Stopping mixing of piglets

- Introducing the use of foot baths and other hygiene measures

So far scoring has been carried out for 70 farms (25% of the Irish pig population). The Teagasc Pig Development Department has adopted the tool from the University of Ghent as part of its Advisory Services package.

Benefits

- Since the application of Biocheck.UGent there has been significant improvements on the performance of the farm including:
 - The control of most of the respiratory and digestive problems and meningitis
 - A reduction in the use of antibiotics of 90%
 - Removal of ZnO at therapeutic levels
 - Control of the ear biting problems.
 - All this has resulted in a reduction in the time to slaughter of two weeks, with no changes in the final carcass weight.

Health – reduction of antimicrobial medication

- **Reducing antibiotic use**
- [Kees van der Meijden; Oirschot, Netherlands](#)

A Dutch farmer and his team has used biosecurity to reduce use of antibiotics to a very low level in order to reduce health risks in the herd and take a proactive approach to reducing use of antibiotics, which has become a huge priority for veterinary and human medicine

Innovation in practice

In 2014, they designed new pig accommodation harnessing technologies for good internal and external biosecurity. For example:

- They started to work with different colours for different parts of the unit with strict protocols and a management system that is easy to implement.
- The pigs' environment was then the main identified risk to health so they focused on providing constantly fresh air and there is almost no production of ammonia. The technology they use to achieve this is a cooling plate to cool the manure to 15°C in the farrowing house. This means cleaner air inside and outside the farm, healthy pigs and a better working environment for the employees.

The investment for this business was €1,500 per sow, including the feed system, the building and also the education rooms and terrace.

Benefits

- The unit is producing one piglet more per sow per year than a few years ago
- Also the pigs can reach the right slaughter weight three weeks earlier
- There is a saving on energy costs, through using the cooling plate system, which has a heat exchanger to warm up the water
- Antibiotic use is almost zero as a result of all the investments and practices in place
- Another benefit is the effect on the environment because ammonia production has been reduced by 85%