

Case Study - Group Housing for Sows

Background

Heilongjiang Dongnong Sanhua Pig Animal Husbandry Food Co., Ltd (hereafter Dongnong Sanhua Pig) are a group enterprise which owns three pig breeder to finishing farms in Harbin, China. They currently finish 15,000 pigs per year and have a long-term plan of producing 500,000 finishing pigs per year. The company partners with 'Sengong Forestry Group' which provides them with more production sites to expand the business. The rearing methods of all company farms are in line with the farm in this Case Study. The company manages two slaughterhouse facilities for two of the farms and contracts a local slaughterhouse for the third farm.

The company's pork products are sold in supermarkets and in 30 company managed shops. The number of sales outlets is set to increase in line with the company expansion, along with the introduction of online sales. Due to the method of production and breed used, the products demand a premium and are 40-50% more expensive than the average pork price.



东农三花猪



Photo provided by Dongnong Sanhua

Dongnong Sanhua Pig were awarded a 5 star Good Pig Production Award from Compassion in World Farming (CIWF) in 2015. They were awarded for meeting five criteria:

1. They keep sows in groups throughout the gestation period, providing pigs with a suitable environment (including temperature control and hygiene), as well as meeting several specific food safety requirements - current policy
2. No sow stalls or farrowing crates - current policy
3. Provision of appropriate bedding and manipulable material throughout life - current policy
4. No tail docking - current policy
5. No teeth clipping - commitment basis (current policy as of Nov 2018)

Summary of farm information

Farm type:	Breeder-grower
Breed	Cross breed: North eastern indigenous pigs (25%), Large White (50%), Duroc (25%)
Total herd size	6700
Number of sows	600 (plan to be 5000 by the end of 2021)
Replacement rate	18-20%
Av. Mortality (sows and pigs)	Average of 7% across farm
Av. Number of piglets per litter	12.1
Av. Pre-wean mortality	<5%
Av. Weight at weaning	8.5kg
Number of finishers per year	15,000 (plan to be 100,000 by the end of 2021)
Age/weight at slaughter	100-110kg at 170-180 days 170-180

Stall Free Rearing

Since their establishment in 2009, Dongnong Sanhua Pig hoped to be a leader in farm animal welfare. They developed a close collaboration with the China Northeast Agricultural University to ensure they designed a farm system with potential to deliver high pig welfare and satisfy the needs of the animals. Through working with the farm, the university carried out welfare-focused research and subsequently set up a company to strengthen the research and promotion of technology (i.e. Dongnong Livestock Production Technology Company Limited, hereafter Dongnong Livestock Technology). Both Dongnong Sanhua Pig's

collaborators, Dongnong Livestock Technology and Sengong Forestry Group, worked together to design and implement a completely stall free system whereby the farm does not use stalls or crates at any stage of service, observation, pregnancy or farrowing of sows.



Service, observation and pregnancy

Sows are moved into groups of 15-20 once weaning has finished. After 5-7 days, artificial insemination is undertaken in groups, and observation / confirmation of pregnancy takes place. As the sows come back to oestrus at a similar time, it is not necessary to separate them. Sows remain in these static groups for the duration of the pregnancy until 1 week prior to farrowing. Gilts and sows were previously housed in groups of 35 but the group size was reduced due to the difficulty of managing the high levels of aggression at the initial mixing. Aggression is reported to peak within 3-5 hours of mixing and subsequently reduces in the following 24 hours. Although minor lameness can still occur at mixing due to aggression, it is

reported it does not reach high levels of severity. Stockpeople monitor aggression at the initial mixing. If necessary, individuals will be separated from the group if an infection occurs and treatment is required. Lameness and mortality are both reported as an average of 1-2% per year.



Sows are housed on solid floors and straw is added into each pen at mixing and topped up once a day for the duration of the pregnancy, which provides pigs with comfortable bedding and gut fill. Manipulable materials, such as straw, as well as adequate space provision (3.5m²/sow), also contribute to reduced aggression within the groups, as they promote more positive exploratory behaviours.

When comparing sows reared in group housing to those in gestation crates, the farm has seen no detrimental impact on production. The farm also reports a 90% successful farrowing rate in their free farrowing pens, higher than the industry average on farrowing crates of around 85%. They attribute this success to reduced stress levels throughout the pregnancy.

Other benefits of group housing recorded include: a longer production life (number of parities), average 8-10 litters per sow and a reduction in staff labour due to the Electronic Sow Feeding (ESF) system installed in 2015. Since replacing trough feeders with the ESF system, the farm has seen an improvement in body condition of sows owing to the precise feed amount in relation to individual weights.



Management of sows has become easier where labour is not being spent on manual feeding. It is also reported that sows appear more resistant to health challenges, likely due to improved space allowance and reduced stress levels, in comparison to sows confined in stalls. Additionally, the medication previously included vaccinations and antibiotics for virus and bacteria control. Now antibiotics are only used on very rare occasions, as Traditional Chinese Medicine (TCM) helps with digestion, the cost is only for vaccination and TCM. These have contributed to a reduction in medication use which now costs an average of 20RMB per pig, compared to an average of 80RMB per pig (an average cost the farm has obtained from other businesses).

Further information on group housing can be found at:

<https://www.compassioninfoodbusiness.com/media/5823244/indoor-housing-systems-for-fry-sows-practical-options.pdf>

Farrowing

Sows are moved to individual farrowing pens (3.8m x 1.5m) one week prior to farrowing. Pens are a simple design and piglet protection measures, such as bars, are minimal. The breed is reported to have a good maternal instinct with a pre-wean mortality rate of 5% (of this only 10-20% of this is caused by crushing). Straw is provided so that sows can have the opportunity to perform important nesting behaviours prior to farrowing. The farm previously used farrowing crates when they began rearing pigs but found that confinement caused significant frustration to the sows. After one year, crates were removed and replaced with simple pens. The farm has discovered that management adjustments have been minimal, labour has only been marginally increased and mortality has not been affected.

Piglets are weaned at 35 days old. Aggression can occur during the mixing of piglets at weaning. On this farm the calm temperament of the breed helps to minimise these problems at mixing. They also mix the piglets at nighttime when the pigs are naturally calmer. In their innovative approach, the farrowing pens are designed to provide a contact area (2m x 1.5m) between every two pens. On days 15-16, 20-21, 27-28 and 32-33, piglets from two pens have access to the contact area for 1-2 hours on each of these days. Although the farm is still trialling this new approach of providing contact during weaning, they have found that this early contact time is having a positive impact and significantly reducing aggression in weaner groups.



Further information on free farrowing can be found at:

<https://www.compassioninfoodbusiness.com/media/7428869/indoor-free-farrowing-systems-for-sows.pdf>

Rearing pigs without tail docking and tooth clipping

No tail docking

The farm has never tail docked their pigs and reported that they can successfully rear their pigs without the need for tail docking. 1.5kg of straw is added to each pen for pigs to use as bedding and manipulable material. Straw for growing pigs, finishers and sows is changed once per week and replenished once a day for piglets in the farrowing house and weaning pens. Tail biting had occurred occasionally, so the farm increased the straw provision and noted that incidences of tail biting were greatly reduced. Cleaning the pens, which have a solid floor, was initially more of a challenge. However, the farm changed from long to short straw and noted that they saved approximately two hours per day on labour once this change had been made. Ensuring appropriate ventilation and clean bedding is key to maintaining pig comfort

and minimising risk of tail biting. Overall, the farm reported improved health and a reduced use of medication since they have improved the environment where their pigs are housed.



Further information on reducing tail docking in pigs can be found here:

<https://www.compassioninfoodbusiness.com/media/7438940/infographic-reducing-tail-docking-in-pigs.pdf>

Tooth Clipping

As part of their award in 2015, the farm committed to phasing out teeth clipping or grinding procedures on any of their piglets. This was implemented on a trial basis and the farm initially started with 100 pigs over three months. Although they found there were some cases of sow udder damage, they had no cases of piglets injuring each other in any aggressive encounters due to competition for access to the udder. Feed intake and piglet weights were not affected, and sow udder injuries were estimated at 1% and piglet injuries minimal. The farm acknowledges that minor injuries may not be avoided and now they monitor more closely in order to respond quicker in the event of any udder injuries. The farm has noticed that by adding straw, piglets are kept occupied and damage to the udder has decreased. Early interaction between

piglets also helps to reduce fighting and associated injuries at later ages. In general, labour on farm has been unaffected after phasing out the tooth clipping procedure. The farm views avoidance of stressful handling and tooth clipping practices as beneficial to stress reduction. Since November 2018, the farm has fully achieved their commitment to phasing out the practice of tooth clipping.



Enrichment

Bedding and manipulatable materials are provided to all pigs across the farm. Straw is provided to sows, weaned piglets, growers and finishers once per week and every day in the farrowing house. The farm initially trialled other forms of materials, such as chains and toys, however, pigs quickly ceased interacting with these. Sourcing of straw where the farm is located in north-east China is not a challenge, and the farm has observed that straw is a much more effective enrichment material to provide sustained occupation.

All stages of rearing, apart from the weaner housing, have solid floors. Weaned piglets are housed on a part slatted floor. Blockages in the drainage system where slatted floors are used caused some challenges. This was overcome by using shorter cut straw that was placed onto an added solid area on top of the slatted flooring which covers 2/3 of the floor. Labour has been increased slightly due to necessary cleaning and replenishment of straw. This slight increase in staff labour is balanced by the reduction in aggression observed since using straw across all stages of rearing, improved cleanliness of pigs and reduced medication use.

The farm trialled enrichment for one year and have now fully embedded this practice. Straw is the main enrichment material, during weaning and mixing, toys such as rubber balls and wood blocks are also used.