

Feed wastage: Reducing a hidden cost



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Feed wastage is notoriously difficult to measure despite existing in the majority of farming systems. Where studies have measured feed wastage, it is not unusual for an amount of 2 – 10% to be recorded. At the lower 2% figure for feed wastage, this wastage equates to 30 tons of feed per annum for a 250 sow to finish unit. In the midst of the current high feed costs, reducing the hidden cost of feed wastage should be a routine objective for any farm wanting to maximise feed efficiency and farm profit. This article covers some important factors when considering reducing the hidden cost of feed wastage.

Feeder design

A high percentage of feed wastage can often be seen at the feeder itself. The design, size, and adjustment of feeders can all help control waste if implemented correctly. In the effort to reduce feed wastage, consider replacing older or inefficient feeders with well designed,

efficient feeders. Replacing a broken or hard to adjust feeder can quickly pay for itself if feed wastage can be reduced. Eating a dry feed necessitates drinking water. The location of the water source should be near to the feeder and pigs should not be required to cross over the sleeping area in order to minimise movement and effort. Wet-dry feeders, which incorporate a drinker within the feeder, reduce the need for pigs to walk away from the feeder to get water. Wet-dry feeders may reduce feed wastage and dust as pigs can wet the feed to the consistency they desire.

Things to consider when using a wet-dry feeder:

- Pigs will spend more time at a feeder each trip and will visit the feeder fewer times a day, which results in a reduction in total time at the feeder.
- The benefits in using a wet-dry feeder need to be weighed up against the increased possibility for feed to become mouldy and the increased management attention which these feeders require.
- Drinkers located within feeders should be considered as feed intake enhancers, not as a specific water supply.

All feeders should be covered, as uncovered feeders can contribute up to 30% of the dust in the air. The uncovered feeder can also be exposed to rodents and possibly birds, which can both eat the feed and soil the remaining feed. Although costly to install and maintain, an increasing trend towards the use of electronic sow feeding systems has developed due to the multiple advantages of these systems over a manual feed

delivery. These include collection of feed intake data, controlled delivery of fresh feed, reduced feed wastage, and lower labour costs.

Feeder adjustment

Balancing restricted access to feed and proper feeder design is the best way to optimise pig growth and feed efficiency. Piggeries that are still making use of manual limit feeding practices for fattening pigs will not only physically see the feed wastage, but will be wasting more feed in the form of achieving lower feed conversion efficiency and daily growth rates of pigs. Practically, if feed is on the floor, then the goal of getting feed into the pigs is not being accomplished and action should be taken to reduce the feed output or fix the feeder. Conversely, if pigs appear to be working too hard for feed and pigs are fighting at the feeder, then feeders should be adjusted to allow more feed in the trough or perhaps more feeder space is required.

Things to consider when making use of *ad libitum* feeders:

- Feeders should be set so that 50% of the feeder trough is covered in feed during the weaner phase, whilst the coverage should be 30-40% during the grower/finisher phase.
- For increased efficiency, all stockmen should understand exactly how each feeder works and how to adjust the feed availability.
- Research shows that pelleted diets result in more highly available nutrients, less dust, less feed wastage and better feed conversion.

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average number of litters for a DanBred production sow. This results in a discrepancy between longevity in production sows, in which the trait has to work (or to be expressed), and sows in multiplier herds, from which the information is collected.

New breeding methods for longevity

In DanBred, there is an increasing focus on the sow's longevity. A new Ph.D. project at the Danish Pig Research Centre seeks to improve the methods used to select for longevity in the DanBred breeding programme, and thereby increase the genetic progress in longevity.

The main goal of the project is to investigate the challenges surrounding the discrepancies between data on longevity from multiplier herds and the longevity of production sows. These discrepancies can be attributed to different culling strategies in multiplier and production herds. The project will use longevity data from DanBred production herds to develop mathematical models that will further improve the selection for longevity in the DanBred breeding programme and increase the genetic

gain in future selection.

"Using data from production herds rather than data from multiplier herds will solve the first challenge in relation to breeding for longevity, but it will also create new challenges. Production sows are rotationally cross-bred. This is a challenge, as most of the breeding value estimation methods are based on purebred animals, and these methods have primarily been extended to only cover breeding value estimation of F1 offspring. However, we will solve this challenge by using relatively untouched methods for genetic analysis in crossbred animals regardless of their composition of breed," says Ph.D. student Bjarke Grove Poulsen, who just started the project Improving the method for selection of longevity in the DanBred breeding programme will increase the robustness and sustainability of future DanBred sows.

Facts measuring longevity

Longevity can be measured as either the number of days from birth to culling, or the number of days from first farrowing to culling. But it can also be measured as the number of litters produced or total production

of piglets.

Genetics of longevity

Longevity is a low-to-moderately heritable trait. Estimated heritability in studies on Landrace and Yorkshire pigs typically vary between 0.08 to 0.17. The variation in heritability is not only due to breed differences, but also due to data quality and differences in the environments in which the trait is recorded.

Longevity in DanBred's breeding goals

Longevity has been part of the breeding goals for DanBred Landrace and DanBred Yorkshire since 2006. It is defined as the probability that a sow will be mated after her first litter, which serves as an indicator of the reproductive lifetime of the sow.

Phenotypic records on longevity are obtained from DanBred's multiplier herds. The phenotype of longevity is available for individual sows at the same time as recordings of litter size of first parity. Thereby, you avoid a time lag, which would often be problematic if longevity was recorded over the total lifetime of the sow.

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However, over-running a feeder will dramatically increase the amount of fines in the feed leading to the reversal of these advantages.

- Feed agitators should be routinely checked to make sure feed is not blocking their proper function and preventing the free flow of feed.

Review stocking density, animal health and culling

Stocking density: Pig performance and consequently, feed wastage can be impacted by many factors such as air quality, poor ventilation, humidity and poor environmental temperatures. However, the most applicable factors to this current topic and industry are stocking density and pig health. Overcrowding reduces daily feed intakes and increases the possibility for feed wastage through reductions in the feed utilisation. This can be partially addressed by an increase in nutrient density of the feed and by supplying another water point. When considering the stocking density, time should be spent on calculating the undesirable econom-

ic effects of using a higher stocking rate. To meet the optimal stocking density in the rearing period, revision of the breeding herd size or the option to sell some younger pigs may be considered. Keep in mind that feeder space is vitally important in newly weaned pigs as they require three times more space than is required one week later. This is because newly weaned pigs are social eaters and fight over feed when there is insufficient feed space. **Health and cull management considerations:** Losses in pigs or sows at any stage of production are a costly feed wastage. Attempts should be made to routinely remedy these losses. Early identification and action to emerging health problems will improve efficiency of the production unit. A review of the culling protocol should include an aggressive action on all pigs that are not going to be marketable in a reasonable time period, particularly during periods of high feed cost. Piglets which are born below 800 grams should have their survivability and feed cost carefully reviewed; studies have shown that 60% of these piglets will not

reach market. In addition, the FCR from these weak/small piglets are often twice that of a larger/healthy piglet. Poor performing pigs may show little or no improvement after treatment and result in ongoing losses to the operation if a decision to market or euthanise them is not timely. Once the decision to cull a sow is made, ensure that she is culled as soon as possible. Cull sows are eating 2.2 kg per day. Dirty and poor hygiene in pens increase the antigen challenge for pigs. As with stocking density, this can easily lead to a reduction in growth rates as the immune system uses protein and energy to mount an immune response, rather than using these nutrients for growth. Poor feed management, although not planned, can sometimes result in pigs going without feed for 12 - 24 hours. This predisposes the pigs to the formation of gastric ulcers and ileitis resulting in chronic feed wastage through poor feed digestion and in severe cases, mortality.

* References are available on request.