

# IMPROVING ANIMAL WELFARE AT SLAUGHTER BENEFITS BOTH PIGS AND SLAUGHTERHOUSES

By Joanna Klaaborg and Rikke Bonnichsen

**M**ost people would agree that we have an ethical responsibility to treat animals so that they experience the highest possible animal welfare while in our care. This certainly applies to farm animals where European consumers are becoming increasingly concerned about the way livestock is housed, transported and slaughtered. In line with this trend, the largest Danish animal welfare organization, Animal Protection, has argued that animal welfare should be included in the United Nation's Sustainable Development Goals. This concern for animal welfare has resulted in an increased demand for meat produced with high animal welfare in focus.

## Two Approaches to Increase Animal Welfare in Livestock Production

One approach to increase animal welfare in livestock production is legislation. For example, the EU Regulation on the protection of animals at the time of killing, from 2009, has introduced a minimum set of requirements for animal welfare during slaughter. However, several European countries (e.g. Denmark, Sweden, Finland) have adopted stricter national regulations, for example that all animals must be stunned before slaughter. Another method of increasing welfare in livestock production is to supply the market with meat from animals that have been produced under specified requirements that are stricter than what is mandated by national legislation. These products are typically sold with a



welfare label and at a premium price to compensate the farmer for the increased costs associated with this production. If consumers increasingly demand animal welfare labelled meat it is reasonable to assume that soon the supply will follow. This constitutes a market-driven approach to increase animal welfare. A market-driven approach to increased animal welfare allows consumers to determine the level of animal welfare according to their willingness to pay for the extra production cost. However, the market-driven approach is dependent on a transparent and credible system for documenting animal welfare such as welfare claiming labels issued by states or independent private organizations. Yet, no Danish animal welfare label includes the assessment of welfare at slaughter. Even the latest academic attempt to benchmark animal welfare across European countries does not include assessment of welfare at slaughter, but only of how animals are reared on the farm (Sandøe et al., 2020). Consequently, currently consumers cannot make

meat purchasing decisions based on the level of animal welfare at slaughter. Thus, in the short term, slaughterhouses do not have a market-driven incentive for improving animal welfare at slaughter beyond what is required by legislation and by certain business to business customers with a focus on animal welfare. However, better handling of animals before slaughter leads to a better meat quality with reduced downgrading and trimming of the carcass and thus directly increases profit for the slaughterhouse with no or very low additional costs. In addition, a slaughterhouse can create a positive brand associated with a high level of animal welfare, which, as consumer focus on animal welfare increases, can generate a higher profitability for the slaughterhouse.

## Meat Quality

Animal welfare and meat quality are strongly correlated. For instance, animals that are stressed before stunning have a faster metabolism, which in combination with a warm carcass after slaughter leads to

the production of lactate post-mortem and ultimately a larger than optimal drop in pH of the meat. If the final level is below roughly 5.7, it is defined as pale, soft and exudative (PSE) meat. PSE meat is usually trimmed away and used in lower price segments or discarded. It is a well-known quality defect that can occur in carcasses. A study from 2015 showed that a suboptimal handling of pigs at stunning can increase the percentage of carcasses with PSE by 7%. In combination with a suboptimal unloading procedure and environment in the holding pens, the percentage of carcasses with PSE increases by 19% (Vermeulen et al., 2015). An incorrect handling at the slaughterhouse can also cause pigs to slip, fall and get injured leading to blood spots and bruising in the meat, which is usually trimmed off and discarded. A study from 2010 showed that a gentler driving of pigs can reduce the percentage of blood spots in hams by 6% and bruised carcasses by 14% (Correa et al., 2010). PSE-meat, blood spots and bruising in the meat can be avoided by improving the handling of pigs during driving, by correct design of the holding pens and the runway leading up to the stunner, and by proper stunning. In practice, nearly all slaughterhouses could improve animal welfare and thus increase profit through lowering the amount of meat quality defects.

## Brand Equity

As consumers have, to a greater extent than previously, started to request products from animals

that have been produced in an ethically responsible manner, slaughterhouses have an increased incentive to brand themselves on a high level of animal welfare, also during slaughter. Once a year, the Business Benchmark on Farm Animal Welfare ranks leading food companies according to their integration of farm animal welfare as a part of their business strategy. This includes having a clear position on key welfare issues, transparency on welfare policies and strategies as well as implementation of welfare auditing schemes. In this way, a slaughterhouse can distinguish itself from the competitors on the market, thus increasing profit through a higher brand equity.

## Welfare and Quality Check

A way of improving animal welfare, meat quality and brand equity is to continuously assess all areas in the slaughterhouse that can impact animal welfare. However, this can be time consuming and is therefore at risk of getting sub-prioritized in the long line of other work tasks at a slaughterhouse. To conduct the assessment of animal welfare in an easy and time-efficient way, The Danish Technological Institute has developed the Welfare and Quality Check (WQC). The WQC provides the slaughterhouse with a systematic and operational protocol to be used during assessment of animal welfare. It includes observation and grading of typically 4-6 indicators at the slaughterhouse from unloading to sticking and meat quality. The indicators combine

management related issues with practical arrangements, animal-based measures and meat quality. It can highlight potential focus areas enabling the slaughterhouse to efficiently improve procedures and pinpoint required layout improvements. Furthermore, the WQC includes an app for data collection and data presentation to monitor and show improvements in animal welfare over time, which makes the assessment even more time efficient. The WQC is a tool for continuous improvement of animal welfare and can be used to document and benchmark animal welfare status to customers.

Improving animal welfare on the day of slaughter not only satisfies demands from consumers but can also contribute to a higher profitability for the slaughterhouse through a better meat quality and brand equity. A win-win situation.

### About the authors:



Joanna Klaaborg,  
Consultant at DMRI  
Danish Technological Institute



Rikke Bonnichen  
Senior Consultant at DMRI,  
Danish Technological Institute

### References:

- Correa JA, Torrey S, Devillers N, Laforest JP, Gonyou HW, Faucitano L. 2010. Effects of different moving devices at loading on stress response and meat quality in pigs. *Journal of Animal Science* 88, 4086-4093.
- Sandøe P, Hansen HO, Rhode HLH, Houe H, Palmer C, Forkman B, Christensen T. 2020. Benchmarking farm animal welfare - A novel tool for cross-country comparison applied to pig production and pork consumption. *Animals* 10, 955.
- Vermeulen L, Van de Perre V, Permentier L, De Bie S, Verbeke G, Geers R. 2015. Pre-slaughter handling and pork quality. *Meat Science* 100, 118-123.