



Animal welfare along the smallholder pig value chain in Vietnam: Current status, legal perspectives and way forward

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Introduction

Important points of concern for animal welfare in the pork value chain are production, transportation and slaughter. Improved animal welfare throughout the value chain benefits all actors due to increased ease and safety when handling animals. Furthermore, animal welfare is critically important for food safety, especially during the slaughter process. Improper animal handling before and during slaughter increases susceptibility to infection and disease and affects meat quality (Stajković et al. 2017). In Vietnam, pork is the most widely consumed meat making up over 70% of meat consumed, 80% of which is produced by smallholder and semi-industrial farms (Nguyen Thi Duong et al. 2015), predominantly slaughtered in small to medium-sized slaughterhouses and distributed through traditional wet markets. One major challenge in the pork value chain is food safety, as fresh pork is highly susceptible to contamination with

biological hazards (Nastasijevic et al. 2018). By minimizing stress prior to, or during, transport and slaughter the risk of contamination can be reduced (De Busser et al. 2013). While there is increasing attention from authorities on animal welfare (e.g. included in legislation and circular), public knowledge and awareness are still lacking.

The Welfare Quality® assessment protocol was developed and tested in Europe to assess pig welfare on farm and during slaughter. This protocol focuses on four principles of animal welfare: good feeding, good housing, good health, and appropriate behaviour under 12 criteria and several indicators (Czycholl et al. 2018). In work conducted to date, the Welfare Quality® protocol, in conjunction with other welfare assessment frameworks, has been considered for its relevance in Vietnamese pig value chains. It is anticipated that a modified protocol will be used to assess the welfare across the pork value

chain including among consumers. This brief provides insight on the current situation of animal welfare in Vietnam with a focus on the smallholder pig value chain to help in adapting the protocol to the Vietnamese context and by this ensuring its feasibility for implementation.

Methodology

The content of the review combines different sources, which were used in the ongoing 'Market-based approaches to improving the safety of pork in Vietnam' (SafePORK) project that is funded by the Australian Centre for International Agricultural Research (ACIAR). This includes (1) review of current project documents for animal welfare: The first document was a literature review that aims to create a checklist for animal welfare indicators, related to welfare quality assessment (Welfare Quality® 2009) in a Vietnamese context, while the second reviewed the guidelines and current state of pork welfare in Vietnam; (2) observational case study in two pig slaughterhouses operating in the study area affiliated to the SafePORK project; (3) a consumer survey including 225 urban and rural respondents across modern and traditional retail to explore consumers' views on animal welfare. Collected information was synthesized and reviewed to determine the status and perspectives in animal welfare in Vietnam.

Key messages

- Animal welfare at slaughter is important for meat quality and food safety. Stressed or poorly handled animals increase their muscle glycogen use, therefore reducing lactic acid levels, causing increased bacterial growth and decreased shelf-life of meat.
- Key aspects of animal welfare are included in the Animal Husbandry Law and Veterinary Law (compared to Welfare Quality® criteria), but there are challenges in its application because it needs to be adapted to the Vietnamese pig value chain context.
- Interviewed slaughterhouse managers are aware of the animal welfare concept and that using electric stunning equipment before slaughter is good animal welfare practice, but there is little use of it as concerns exist against it due to making pork appearance less attractive to consumers and affecting mince pork processing.
- Slaughterhouse workers are mostly unfamiliar with the animal welfare concept. While no one teaches them about animal welfare, they expressed their interest in learning more about it, especially from skilled trainers and free of charge.
- Only a few consumers had heard about the term 'animal welfare', referring to keeping pigs in good hygienic conditions or giving them enough space to move in the farm, or slaughtering them with the least possible suffering.

Results

Animal welfare in pig raising

The majority of pig production in Vietnam is small-scale where producers keep one or two sows and fewer than 10 fattening pigs and finish between four and 10 pigs per year (Lemke et al. 2008; Nguyen Thi Thuy et al. 2020). Table 1 shows the comparison between selected Welfare Quality® assessment criteria and indicators on farm with current regulations and context. Vietnam does have animal husbandry and veterinary laws relating to basic provisions of feed, water, housing and reduction of pain and disease. However, the extent of applying and monitoring these requirements needs to be strengthened. Welfare indicators included in the assessment are also relevant and feasible for the smallholder farms in Vietnam to adapt. Notably, very few studies on public awareness of animal welfare at the farm level have been conducted. For example, Sinclair and Phillips (2019) found that in Vietnam, addressing the lack of public awareness through education and training is perceived to be an important solution for animal welfare.



Table 1. Pig welfare indicators on-farm between Welfare Quality® assessment and Vietnamese regulations

Welfare Quality®, 2009		Current Vietnamese regulation
Welfare criteria	Measures/indicators	
Good feeding		
Absence of prolonged hunger	Body condition score	Animal Husbandry Law, Article 69-2: Provide adequate animal feeds and water meeting hygiene conditions
Absence of prolonged thirst	Water supply	Not specified
Good housing		
Comfort around resting	Bursitis, shoulder sores, absence of manure on body	Animal Husbandry Law, Article 69-1: Own breeding housing and breeding space suitable for the livestock
Thermal comfort	Shivering, panting and huddling	Not specified
Ease of movement	Space allowance	Animal Husbandry Law, Article 69-1: Own breeding housing and breeding space suitable for the livestock Animal Husbandry Law, Article 70-1: Use appropriate vehicles and equipment for transportation, clear space and prevent fear and injury of livestock
Good health		
Absence of injuries	Lameness, wounds on the body, tail biting, swollen legs	Veterinary Law, Article 21-1, b: Reduce the pain, fright and treat the animals humanely during the raising, transporting, slaughtering, destruction of animals and, the prevention and treatment for animals diseases and scientific research
Absence of disease	Mortality, coughing, sneezing, pumping, rectal prolapse, scouring	Animal Husbandry Law, Article 69-3: Prevent and treat livestock diseases as per law provisions on veterinary medicine
Absence of pain induced by management procedures	Nose ringing and tail docking, castration, and teeth clipping	Animal Husbandry Law, Article 69-4: Do not beat or maltreat livestock
Appropriate behaviours		
Expression of social behaviours	Social behaviour is performed	Not specified
Expression of other behaviours	Stereotypies, exploratory behaviour	Not specified
Good human-animal relationship	Fear of humans	Not specified
Positive emotional state	Qualitative Behaviour Assessment (QBA)	Not specified

Animal welfare in pig transportation

During transportation to the slaughterhouse, the pigs can be exposed to stresses relating to poor husbandry, thermal discomfort and being in a new environment. Indicators for quality of welfare during transport include the duration of transport, the mortality rate, number of lesions, signs of disease, lameness and reluctance to move. Currently, in Vietnam, pigs are often transported by truck or motorbike, however, there is a lack of information about other pig transport practices. Pig transportation is an issue that some producers are concerned about. In an interview with a slaughterhouse operator, they emphasized that good transportation was an important welfare concern and explained that they only transport pigs during suitable time of the day to avoid heat stress on the animals. These aspects are also stated in the Veterinary Law (Article 21-1, b): reduce the pain, fright, and treat the animals humanely during the transport (to the slaughterhouse); and Animal Husbandry Law (Article 70-1): use appropriate vehicles and equipment, feed, water.

Animal welfare at pig slaughterhouse

Under Vietnamese legislation, several animal welfare aspects (condition and handling of pigs) at the slaughterhouse are stated. However, again they need to be adjusted to the country's context where only a small number of pigs are slaughtered per day. Table 2 shows the animal welfare measures for pigs at the slaughterhouses in Welfare Quality® compared to the current Vietnamese legislation and field observations at the two pig slaughterhouses under the SafePORK project. While some synergies between the animal welfare criteria and the current regulations exist, others are not specified. Some observations at a typical small- and medium-scale slaughterhouses found a lack of continuous access to water, instead large buckets of water mixed with food would be placed in the pens at certain times throughout the day. This might be critical during hot seasons and if waiting time in the lairage is prolonged. The flooring was also not satisfactory (e.g. open-waste drainage allowed for pigs to get in contact with faecal matter). However,

there was adequate space provided in lairage, and pigs were able to lie down. There was also a high prevalence of lesions on the tails of surveyed pigs from biting and signs of lameness. Pigs were moved around the

slaughterhouse area using a hook attached under the mandible, a serious violation of animal welfare, and all pigs demonstrated strong discomfort and vocalization while this was happening.

Table 2. Welfare Quality® assessment criteria, Vietnamese legislation and pig welfare at slaughterhouses

Welfare criteria	Measures	Current Vietnamese legislation	Field observations at slaughterhouses under SafePORK project
Good feeding			
Absence of prolonged hunger	Food provision	Not specified	Buckets/tray of water mixed with food would be placed in the pens at certain times throughout the day
Absence of prolonged thirst	Water supply	Animal Husbandry Law, Article 71-1: Provide sufficient water suitable for the livestock pending slaughter	No continuous access to water, instead large buckets/tray of water mixed with food would be placed in the pens at certain times throughout the day
Good housing			
Comfort around resting	Flooring, bedding	Animal Husbandry Law, Article 71-1: Have places for storage of livestock for hygiene assurance	Concrete floors, open drainage trough so pigs could lie in excrement
Thermal comfort	Shivering, panting, huddling	Not specified	Majority of pigs lying in the drainage trough, potentially to remain cool
Ease of movement	Slipping, falling, stocking density of lorries, stocking density of lairage pens	Not specified	3–4m ² each in lairage pens, all pigs had space to lie down
Good health			
Absence of injuries	Lameness, wounds on body	Veterinary Law, Article 21-1, b: Reduce the pain, fright and treat the animals humanely during the raising, transporting, slaughtering, destruction of animals and, the prevention and treatment for animals' diseases and scientific research	Lameness was observed in all pigs who were standing (4). 2 pigs had lesions on tail from tail-biting, 3 had scratches (old wounds)
Absence of disease	Sick animals, dead animals	Veterinary Law Article 25-1, b: Prevention of disease transmission from slaughterhouse	Sick or dead animals were not observed
Absence of pain induced by management procedures	Stunning effectiveness	Animal Husbandry Law, Article 71-2: Reduce fear and pain of livestock; do not beat or maltreat such livestock. Article 71-3: Take measures to make the livestock pass out before slaughter	All pigs had tail docked Pigs moved using iron hook attached under the mandible Despite presence of electrical stunning equipment, it was not used.
Appropriate behaviours			
Good human-animal relationship	High pitched vocalizations	Not specified	All pigs showed discomfort and vocalized while being restrained by hook
Absence of general fear	Reluctance to move, turning back	Not specified	Several pigs could move and turn around lairage/ slaughterhouse area

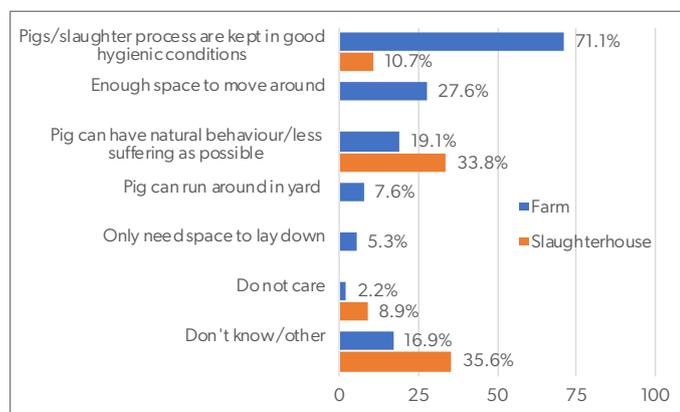
Animal welfare in retailing pork and consumption

Consumer views on animal welfare are important, as strong consumer demand for positive animal welfare could persuade changes in policy and practice. Three-fourths of consumers mentioned that they had not heard of the term 'animal welfare'. However, 71% of them were aware that pigs should be kept in good hygienic

conditions and 27% of consumers thought that pigs should have enough space to move around and lie down in pens. Only 34% of respondents thought they should be slaughtered with the least possible suffering (Figure 1). Interestingly, animal welfare aspects tend to be more considered by rural consumers than urban ones. For example, rural consumers were more concerned with pigs being able to run around the farm and were

more likely to care about how pigs were kept on the farm. Furthermore, rural respondents were more likely to believe that less suffering during slaughter results in improved meat quality.

Figure 1. Consumers' concerns on how pigs are kept at farm and handled at slaughterhouses in northern Vietnam (n=225).



Recommendations

- As there is a limited perception of animal welfare among pig value chain actors there is a need to increase their overall knowledge and awareness through specific training or wider campaigns.
- Pig value chain actors need to be made better aware of the negative aspects of animal welfare violations such as poor meat quality and food safety outcomes.
- Observed misperceptions (e.g. poorer meat quality due to electric stunning) need to be corrected. Additional case study may address this point in more detail.
- Design of farm and slaughterhouse facilities should be more integrated so that animal welfare is considered early in their planning stage.

- Consumers can play a key role in promoting animal welfare. They need to be made better aware of the negative aspects of animal welfare violations through wide communication campaigns.

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