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ANIMAL WELFARE APPLIED TO PIG FARMING: PRACTICES AND CHALLENGES FOR SUSTAINABLE PRODUCTION

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ABSTRACT

Pig farming plays a relevant role in the Brazilian and international socioeconomic scenario, standing out as one of the main agribusiness activities. Despite advances in productivity, the sector faces challenges related to the compromise of animal welfare, especially in intensive production systems. This work aimed to analyze the application of animal welfare principles in pig farming, discussing its implications for productivity, pig health, social acceptance and sustainability of the production chain. Through a narrative literature review, it was observed that well-being goes beyond the absence of disease, involving the expression of natural behaviors, comfort, adequate nutrition, and stress reduction. The World Organization for Animal Health (OIE) establishes the "five freedoms" as the basis for more ethical breeding practices, which have been incorporated by national and international legislation. The adoption of improvements in environment, handling and housing has shown positive effects on feed conversion, meat quality and physical and psychological well-being of the animals. In addition, the integration of technologies and good practices in pig production contributes to environmental sustainability and strengthens the sector's image before demanding consumers and markets.
It is concluded that animal welfare represents not only an ethical imperative, but an efficient strategy to add value to the product, meet legal requirements and promote the competitiveness of Brazilian pig farming in the global context.

Keywords: Animal welfare. Pig farming. Sustainability. Productivity. Ambience.

INTRODUCTION

Pig farming in Brazil, as well as in several regions of the world, is an activity of great socioeconomic importance, having a relevant position in the international market as the fourth largest producer of pork, with 3.6 million tons produced in 2015 (Galvão *et al*., 2019). With its

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easy handling and high value, it makes it a successful business on large, medium and small farms (Santos et al., 2016).

With all the positive points added to the good performance of pig farming, the problems end up being growing, negatively causing production such as the reduction of breeding space, the decrease in mobility for the animal, as well as stress and low social interaction, compromising well-being. In the future, these situations will generate a drop or delay in weight gain, reproduction, increase in the prevalence of diseases, meat without or with poor quality, which the producer will financially feel the loss (Veloni et al., 2013).

Currently, the concern with Animal Welfare (BEA) has intensified in several countries around the world. This growing interest has stimulated investigations focused on behaviors and conditions that affect both the physical and psychological state of animals, directly reflecting on their quality of life. As a consequence, there has been a significant change in the management practices adopted by producers, especially with regard to animals destined for slaughter, promoting the adoption of production systems and methods aimed at obtaining meat with higher added value and superior quality (Carvalho et al., 2021).

The World Organization for Animal Health (OIE) has more extensively adopted animal welfare as a main focus, recognizing that animal health is a crucial point in this topic. With this, recommendations and practical guidelines for animal welfare at the places of production, transport and slaughter were created and discussed (OIE, 2009)

As pig welfare has been a topic explored and debated for issues of social interest, the integration of scientific studies already available must be practiced to establish the new standards (Averós et al, 2010). According to Fraser (2012), "science does not answer ethical questions, but influences the kinds of ethical questions we ask and the kind of answers we find satisfactory".

Therefore, the ability to jointly consider the development of well-being as well as the profitability of this market, becomes a positive point in this area, and can achieve even more significant changes.

OBJECTIVE

The present work aims to analyze the application of animal welfare principles in pig farming, discussing their implications on productivity, animal health, social acceptance and sustainability of the production chain.

METHODOLOGY

This is a narrative literature review, carried out through a bibliographic survey in the Scielo, Scopus, Web of Science and Google Scholar databases. Scientific publications that directly address the theme of animal welfare in pig farming were selected. Articles, dissertations, technical standards (such as those of MAPA and OIE) and manuals of good practices were considered, with emphasis on Brazilian production conditions. The analysis was qualitative and exploratory.

DEVELOPMENT

Animal welfare, as much as it appears to be a summary only that it is the absence of illness or physical suffering, it goes beyond that, encompassing the possibility of animals manifesting behaviors typical of the species, that they have an appropriate environment and experience assertive emotional states (Mellor, 2016). The World Organization for Animal Health (OIE, 2021) simplifies these principles into what they call the "five freedoms": freedom from hunger and thirst; guaranteed comfort; protection against pain, injury and disease; freedom to express natural behaviors; and absences of fear and stress. These are points that guide the development of more ethical and effective systems in pig production.

According to Ludtke (2010), cited by Costa (2016), the first formal advances in the field of animal welfare date back to 1965, when the Brambell Committee was created in the United Kingdom. The establishment of this committee was a response to society's growing concern about allegations of mistreatment in intensive animal production systems, a situation widely publicized by the work "Animal Machines", by Ruth Harrison. From its creation, important foundations were established for the development of deeper investigations about the concepts and guidelines related to the welfare of farm animals.

Animal welfare has been consolidated as one of the fundamental pillars of modern pig production, being driven by changes in the consumer profile, legal requirements and the growing concern with ethical practices in livestock. Pig farming, traditionally marked by intensive systems, has been undergoing a transformation process that seeks to reconcile productivity, environmental sustainability, and respect for the physiological and behavioral needs of pigs (Pandorfi et al., 2020).

Frequently in the study of pig farming, ambience and well-being focused on the physical environment are discussed, such as floor characteristics, climatic aspects, light, food supply and water quality. When it comes to the climate, the external environmental conditions and the microclimate of the facilities (temperature, humidity, ventilation). In the social part, it refers to the

reactions of animals in relation to the environment aimed at well-being (Naas; Tolon; Baracho, 2014).

Animals whose health is good, are well cared for and are in properly adequate environments usually have a higher production and have more efficient levels in terms of conversion of food into products. Stress reduction is related to well-being in places where management practices are adequate, improving animal health, and consequently increasing productivity (Azevedo et al., 2020).

Any actions can impact the quality of the products and the final values for the producer and the agribusiness, from practices established in the breeding process as well as those involved in the slaughter stages (before, during and after). Changes in metabolism and physiology are observed due to mistreatment, even causing the death of the animals, harming the carcass and reducing live weight (Silva et al., 2022).

Several nations have adopted specific standards and legislation that establish minimum criteria to ensure the welfare of animals used in production. Failure to comply with these guidelines can lead to legal sanctions, in addition to significantly compromising the image and credibility of both the companies and the countries involved (Miele et al., 2022).

In the Brazilian context, the protection of animals is supported by specific legislation, such as Law No. 9,605, of 1998, known as the Environmental Crimes Law, which establishes punishments for acts of cruelty and mistreatment. In addition, in 2008, Law No. 11,794 was enacted, which regulates the use of animals in teaching and scientific research activities, defining parameters aimed at reducing suffering and ensuring ethical conditions during such procedures.

According to Alves (2019), in recent years changes in legislation have been seen, as well as the development of food production based on practices and processes that focus on animal welfare. These changes cause favorable impacts on social and sustainability issues, production systems (mortality, productivity, costs and added value to the product), food quality and safety, as well as animal and human health.

In Brazil, pig farming represents a strategic sector of agribusiness. However, the current challenge is to make this production system more humanized, without compromising zootechnical efficiency. In this context, practices based on the principles of animal welfare have gained space as a response to new market demands and as a strategy to add value to the product (Sbardella et al., 2024). The incorporation of technologies, improvements in management, and the redesign of housing systems are essential components for this transition.

FINAL CONSIDERATIONS

Based on the analysis carried out, it was evidenced that well-being is an essential factor for good zootechnical performance and for obtaining superior quality products, in addition to meeting the demands of a consumer increasingly attentive to ethical production practices.

Contemporary pig farming needs to deal with the challenge of combining economic efficiency with socio-environmental responsibility, with animal welfare being a key component in this process. The implementation of improvements in management, in the structure of the facilities and in respect for the natural needs of pigs is effective both to raise production indicators and to enhance the image of the sector in the face of current legislation and social demands. Thus, promoting animal welfare goes beyond a moral requirement — it represents a strategic approach to make national pig farming more sustainable and competitive on the international stage.

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