

## MANAGEMENT OF SPECIALIZED HOLDINGS FOR MEAT PRODUCTION

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***Abstract:** The meat industry must use the most efficient production systems and managerial strategies to enable it to adapt quickly to the demands of consumers in the meat market, respecting production factors and avoiding the influence of pathogens that may jeopardize the economic efficiency of the operation. It is necessary to develop best practice manuals in the fight against bacteria affecting the health of meat hybrids exploited in intensive and superintensive systems and strategies to reduce their adhesion to the epithelial cells of animals and birds exploited for meat for market distribution. In order for commercial hybrids specialized in meat production to reach their genetic potential, they need in the exploitation systems a specific efficient production management on the entire meat chain, which maintains the health of the hybrids, an exploitation environment that satisfies all their requirements. physiological for the expression of the genetic value, efficient operating conditions for the constant assurance of the market with quality meat, with organoleptic, physico-chemical and sanitary-veterinary properties, which satisfy the requirements of the consumers.*

***Keywords:** holdings, management, commercial hybrids, meat*

### INTRODUCTION

The meat industry faces a number of problems, to solve them requires the implementation of the most effective measures to improve the operating systems and quickly adapt production to market challenges, without reducing the economic efficiency of the operation. It should be noted that the research objectives for the meat industry mainly focused on the following aspects:

- at global level, only super-industrial production systems produce most of the quantities of meat distributed on the market profitably and have the capacity to adapt quickly to the needs of meat consumers;

- commercial meat hybrids are best suited to the rapid increase in production depending on the challenges of the meat market, due to:

- a. high feed conversion rates;
- b. high rates of daily growth;
- c. the efficient rate of obtaining quality meat.

The short production cycles of commercial hybrids allow the managers of large holdings producing animal or poultry meat:

- a. to respond quickly to market demand for meat;
- b. to allows them to rapidly improve the quality of hybrids exploited for meat;
- c. to improve the operating systems for the welfare and health of commercial hybrids;
- d. to improve their hybrid nutrition technologies in terms of efficient feed conversion;
- e. to implement economically efficient measures on the technological flow of obtaining, storing and distributing meat on the market;
- f. to improve its environmental risk management;
- g. to improve the marketing management of the production distribution;
- h. to retain their meat consumers and in areas where meat consumption has increased slightly, at least some of the preferences of consumers can be provided by meat obtained in small organic farms or where exploitation is done in alternative systems.

Improper production factors and pathogens can influence the efficiency of production and the quality of the meat obtained (21, 29):

a. campylobacter jejuni is one of the most common causes of food poisoning the researchers focusing their studies on assessing the risk of the presence of this bacterium (29), the effects on para-cellular permeability (2,4), and proposed managerial strategies in farms to reduce the adhesion of the bacterium to epithelial cells (9).

b. eimeria spp. is a parasitic protozoan that causes coccidiosis (6) a disease that affects the meat consumer (1).

c. enterococcus faecalis, a bacterium which affects the health of consumers (27).

d. escherichia coli, causes severe food poisoning. The researchers focused on the changes in antibiotic resistance of E. coli in the poultry feeding cycle (11), on the effects of packaging of meat products in modified

atmosphere on *E. coli* (24), on the role of *mcbR* protein in regulating *E. coli* pathogen susceptibility (28) and on the influence of poultry vaccination against *E. coli* (22).

- a. PMV-1 paramyxovirus that causes Newcastle disease (1, 8).
- b. *Pasteurella* spp., a disease-causing bacterium in meat hybrids (2, 15).
- c. *Salmonella* spp., which causes salmonellosis. The researchers analyzed the effects of phytobiotic additives on meat exposed to *Salmonella typhimurium* (2), antimicrobial resistance (13) and the role of highly nutritious diets in *Salmonella typhimurium* infection (12), proposing veterinary management strategies for rapid detection of bacterial prevalence at meat hybrids (9).

The health of meat hybrids also needs to be researched from the perspective of management of operating systems, production factors and nutrition management to obtain high-quality production and quality meat that meets the requirements of consumers from the market.

## MATERIAL AND METHOD

Researchers in the field of meat and farm management recommend the use of the Hirsch Index, a quantitative measurement based on research analysis by number of publications and citations to estimate the importance, significance and impact of a scientist's cumulative research in assessing management specialized holdings for meat production in intensive and super-intensive systems (5). From this managerial perspective, the main factors of production and pathogens that affect commercial meat hybrids and endanger the health of consumers in the meat market can be analyzed.

## RESULTS AND DISCUSSIONS

In order for commercial hybrids specialized in meat production to reach their genetic potential, they need:

- a. an efficient production management that maintains the health of the hybrids, the phytosanitary quality of the meat on the entire system of production, processing, distribution;
- b. an operating environment which satisfies all the physiological requirements for expressing the genetic value of hybrids;
- c. efficient operating conditions to ensure the meat market that meets consumer requirements on the principle of quality-price-sanitation;

d. implementation of the following types of management specific to intensive and super-intensive holdings in order to obtain maximum efficiency on the entire meat supply chain:

- shelters management, to ensure an ideal physical environment as commercial production progresses from small farms to large farms, to control microclimate factors depending on the season, age and weight of commercial hybrids (21);

- the nutrition management of commercial hybrids must take into account the constant supply of quality and discretionary food to meet their nutritional requirements. In terms of costs, food is the most important contribution to intensive production and the availability of low-priced, high-quality feed is essential for the expansion of the meat industry. For maximum performance and good health, commercial meat hybrids need a constant source of essential amino acids, water, energy, minerals, protein, and vitamins. We believe that recent advances in the nutrition of commercial meat hybrids need to focus on:

- determining the availability of nutrients in feed ingredients;
- developing an understanding of nutritional metabolism;
- knowledge of nutrient requirements;
- formulating the lowest cost diets that bring together the necessary nutrients;
- the supply of nutrients to meat production plants for meat hybrids.

It should be noted that the nutritional management implemented for meat production (7, 23) must take into account the fact that:

- livestock species are the most efficient feed converters in meat;
- food mainly derived from cereals and legumes can be used directly for human consumption;
- improving food efficiency is a key factor in reducing the impact of production on the environment;
- commercial meat hybrids consume more than 70.15% of the cereals used to feed the other components of the livestock.

The importance of the diet of commercial meat hybrids is highlighted by studies by different researchers (17, 19, 20,26) who compared the carcass composition of hybrids fed with typical species diets, concluding in favor of balanced diets balanced protein-vitamin-mineral, because delayed access in food it affects the morphology of the small intestine in meat broilers (14).

- welfare management must take into account the behavioral and social needs of commercial meat hybrids. Their well-being is important from the following:

- ethical reasons:

- a. commercial meat hybrids have a sufficient degree of awareness;
- b. suffer from pain if their health is poor;
- c. are frustrated if they are poorly maintained;

- practical reasons:

a. meat consumers appreciate the welfare of hybrids through the quality of the meat (18);

b. producers who ensure adequate welfare of their herds can benefit from better market access.

In the super-intensive and intensive breeding systems of commercial meat hybrids, significant progress has been made in recent decades in developing viable methods of measuring welfare. Scientific research regarding adaptability and comfort preferences has led to the development of measures that can be used to audit welfare on commercial farms. Accurate measurement is the first step in improving welfare, with strong economic incentives to take action when welfare problems are detected, as improving welfare often leads to improved production. The legislation sets limits on the environmental factors to be ensured as well as the operating system and density conditions in a given space. We believe that an important issue in intensive and super-intensive exploitation is the impact of exploitation on well-being at the inflow through meat processing and production units due to stress at:

- boarding to processing units (16);

- the transport of commercial meat hybrids on their welfare (17).

- waste management. Technological progresses and the growth of meat hybrids favor the intensification of production, however, in some countries, traditions and economic aspects continue to promote extensive, semi-intensive growth systems. In order to avoid conflicts and ensure the sustainability and potential growth of all production systems, the basic knowledge of environmental and health aspects associated with waste management must be taken into account by both small and large producers. Secondary products have value if they are properly managed and recycled, regardless of the size of the herd. However, if they are not properly managed or recycled, they are also compounds, elements or vectors for pests and pathogenic microorganisms.

- environmental management. The management of secondary products from hybrids exploited for meat focuses on issues related to soil, water and air quality. These concerns concern the degradation of surface and groundwater due to nutrients and pathogenic microorganisms produced by poultry. Air quality issues include ammonia emissions, volatile organic compounds, hydrogen sulfide and dust. Greenhouse gas emissions and the

health effects associated with odors are also issues in the context of global climate change and human population growth near poultry farms. The planning, construction and operation of installations of any size should take into account aspects related to the storage, management and use of waste. At global level, many researches have been done to identify ways to recover value-added products from animal waste to mitigate their environmental impact. Many systems and approaches, including soil application as fertilizer, recycling in the form of animal feed components and obtaining biofuel, are available and can succeed if properly operated and managed:

- manure produced by commercial hybrids of poultry has a high nutrient content for crops, is relatively easy to manage and is widely used as fertilizer (10);

- on average, commercial chicken hybrids emit less greenhouse gases (GHGs) than broilers or the extensive rearing system when measured in kg of protein;

- chickens emit 0.6 gigatons of CO<sub>2</sub> equivalent, representing 8% from the total emissions of the livestock sector;

- management of the sustainable development of farms and areas from their vicinity. The concept of "sustainability" or "sustainable development" is multidimensional because it encompasses aspects of economic, environmental, social and institutional governance. The sustainability of meat production is built on this multi-dimensional understanding of this complex and contested concept. Raising commercial meat hybrids has five types of aspects (25):

- a. the working conditions of human resources on holdings and their social welfare;

- b. food chain governance;

- c. pollution and use of antibiotics in the nutrition of meat hybrids;

- d. preserving the biodiversity of the environment;

- e. the transformation of commercial hybrids at the end of the cycle, from a valuable nutritious food, into a cheap staple food, accessible to a wide category of population.

We propose several ways of sustainable development of the production from intensive and super-intensive holdings of commercial meat hybrids:

- commercial hybrids can be well integrated for exploitation in many types of peri-urban and rural growth systems in which they benefit from contributing to these systems and to the livelihoods of households;

- local production offers production potential with minimal transport and, at the same time, minimal use of fossil fuels;

- commercial hybrids specialized in meat production have the best feed conversion rate and the lowest environmental footprint in terms of energy and water consumption per kg of meat.

-management of farm biosecurity, must take into account the minimization of exposure of specialized commercial hybrids for meat production to diseases, which can have a devastating impact on productivity and production, on trade in meat and meat products. Some pathogens present in commercial meat hybrids cause zoonosis and can also have an impact on human health. The ability to diagnose the causes of disease losses and to quickly recognize an emerging disease is essential, so commercial farms must have the means to defend themselves in order to exclude pathogens - through biosecurity programs. A health network must involve both the public and private sectors in close collaboration with small producers.

## CONCLUSIONS

High-performance production management throughout on the entire meat sector, shelter management, nutrition, welfare, waste, and environment, ensures the maintenance of hybrids, quality and food safety of consumers in the meat market and contributes to the sustainable development of areas near intensive farms and super-intensive meat production. The exploitation of commercial hybrids with high genetic value in specialized units ensures working conditions for human resources and social welfare, food chain governance, preservation of environmental biodiversity and obtaining food with high nutritional value, as hybrids can be well integrated for exploitation in many types of systems. For the sustainable development of regional production in intensive and super-intensive farms, specialized commercial hybrids will be used according to the requirements of the meat market with the best feed conversion rate and the lowest environmental footprint in terms of energy consumption and water per kg of meat. Improving the biosecurity management of specialized meat production farms will help minimize the exposure of commercial hybrids to meat, reducing the devastating impact on the productivity of meat production and trade, obtaining healthy meat that will not have adverse consequences on consumer health.

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