

IMPROVEMENT OF SWINE MEAT PROCESSING METHODS

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Abstract: The ability of farms to constantly produce meat and to adapt to the demand of the processing industry to sell a certain amount of meat of a certain type, depending on the preferences of consumers from the market is an essential condition in the swine breeding and exploitation of in integrated production systems. Taking into account these aspects of major importance for the economy of farms and compliance with the recommendations regarding environmental issues, the purpose of the research carried out in Satu-Mare County was to find solutions to ensure the need for meat according to the needs of the meat market, not by increasing the herds subjected to fattening but by stimulating the fattening use of fat pigs with high biological value, meaning increasing their individual production by shortening the fattening period, obtaining the amount of processed meat according to consumer needs.

Keywords: swine, meat, methods

INTRODUCTION

Today, swine and swine meat businesses have become popular all over the world and numerous breeds are available for different uses. In each country, there are exploited swine breeds and hybrids specialized for meat production, exploited in intensive and super-intensive production systems, and traditional breeds, adapted to extensive exploitation, which make very good use of household waste and industrial residues and convert them into meat [1,5,9,11]. There are also many specialized lines for meat production developed by commercial companies producing swine meat with high growth rates and superior feed conversion rates [2,8,13,15]:

- lines and hybrids made up of three white breeds – Yorkshire, Landrace and Chester White – are known for maternal traits, high lactation capacity and high piglet productivity;
- paternal breeds and dark hybrids – Duroc, Hampshire, Poland China, Spotted and Berkshire – are known for their carcass traits, high amount of meat in the carcass, they are used as terminal breeds, meaning they excel as good male producers of commercial pigs for the market;
- cosmopolitan breeds – Berkshire and Duroc – are frequently used because they excel in meat quality traits

To fully exploit the biological potential of swine for meat production, pig farmers resort to crossbreeding systems designed to maximize the vigor of hybrids [3,6,10]. Mixed breed sows are particularly advantageous due to better conception rates, higher piglet numbers at farrowing and after weaning, also higher piglet weights than purebred sows [4,7,12]. For pig production farms, free range or vaulted barns, a sow crossed with a dark breed ancestor may be more resistant than any white breed sow.

MATERIAL AND METHOD

All stages of the swine meat chain are of major importance and contribute to improving the economic activity of integrated farms if management aspects and good production practices are respected at each stage. Since each stage has its importance within this scientific approach, based on the specific methods known, we looked for solutions to achieve the proposed objectives regarding the adaptation of the processing methods to the needs of consumption and the improvement of the recovery yields for a better capitalization of the meat on the market.

The objectives aimed to be achieved following the studies are the adaptation of production on the meat chain through:

- diversification of production according to market needs, with the control of natural environmental factors;
- adapting the methods of obtaining carcasses to market standards and the slicing and distribution of meat to the market trend;
- diversification of farm activities, by using unused surplus spaces by adapting production to demand according to the degree of environmental tolerance;
- increasing individual productions and obtaining a certain type of meat according to consumer needs.

Multiple processing facilities through the integration of meat production, contribute to the improvement of distribution and methods of capitalization in a shorter time either through direct sales or through intermediaries, all contributing to the improvement of the efficiency of meat production throughout the chain, producer, processor and distributor.

RESEARCH RESULTS

In obtaining good economic results on the pork chain, in addition to obtaining competitive individual productions by farms of major importance are also the meat processing methods, the most important aspects that must be solved and adapted to the needs of the market are:

- the method of obtaining the carcasses, their quality starting with the slaughtering of fat pigs according to weight and age, the hygiene of the carcasses and their evaluation, the recovery yields;
- methods of refrigerating and freezing meat, to improve its quality;
- the methods of slicing the meat and adapting the distribution to market requirements;
- the hygienic quality of the meat;
- distribution and capitalization methods.

Standard procedures for obtaining carcasses by slaughtering involve a multitude of operations to prepare the animals for slaughter, resting them, followed by grooming, stunning, stabbing, scalding and evisceration. In order to obtain quality carcasses if the market demands distribution in this way, some measures must be followed, as the methods need to be improved:

- the use of electric stunning with control of the stunning time, to obtain quality carcasses without blood stains;
- prolonging the period after stabbing where the animal will remain hanging for blood collection and obtaining well-drained carcasses, by adjusting the speed of the conveyor;
- scalding at 70°C, to avoid degradation of the skin and then the carcass will be cleaned by burning with a flame to remove the remaining hair and print a commercial color;
- evisceration will be done through a cut on the abdomen to avoid contamination, with the aim of obtaining a carcass with good hygienic properties.

In the case of the request for sliced portions, the carcasses after refrigeration or freezing, in order to be brought to the optimal storage temperature, will be sliced and packed according to the rules imposed by the standards for critical control points, but the rules regarding meat hygiene in the following points must be respected must have in mind:

- meat cut into portions must come from healthy and disease-free farmed animals where biosecurity measures are respected;
- it is important that the facilities maintain high sanitary conditions because cut products can become contaminated;
- ensuring the sanitary-veterinary inspection of the meat distributed for sale on the market;

- the use of appropriate logistics for meat packaging;
- it is recommended to use means of transport that ensure cold conditions at supplying the market with meat.

Carcasses and meat quality evaluation is done according to the specific standards of each country, but paying attention to the purpose for which the evaluation is done, sale in carcass or sliced portions:

- the shape of the carcasses depending on the conformation of the slaughtered animal, preferably those with large amounts of meat:
- classified in the higher classes S and E regarding the percentage of meat in the carcass 60.1-65.0%;
- fat in small quantities and firm;
- good color and texture;
- organoleptic properties of meat, aroma and smell specific to the swine species.

The cut portions, the anatomical parts can be capitalized according to needs and the others as secondary products are used for:

- hooves and bones are used to obtain gelatin, glue and to make buttons;
- intestines as membranes in the production of sausages;
- blood in the use of some sausages.

The economic efficiency of the production of specialized integrated farms for meat production is given by the way they distribute their processed products, carcasses or cut portions on the domestic market, but intra-community or extra-community export must also be a major concern of theirs. In order to expand on the foreign market, integrated pork farms must improve their marketing management through marketers at:

- direct export through authorized distributors, export departments, sales representatives;
- indirect export through intermediaries;
- direct investment through which a company can acquire the rights of the farm and build its own capacities;
- licensing;
- joint venture.

Today these possibilities for integrated farms have been blocked at national and regional level because of:

- viral diseases in swine, classical swine fever from 2009 and African swine fever from 2019;
- high costs for export;
- the price of pork carcass;
- transport on long distance.

However, at the national level, in the reference period of 2021, compared to 2020, there were increases in the number of sows and live pigs between 20-110 kg and decreases in the number of sows. The forecast for the production year 2022 shows that there are no export opportunities for meat and pork products, with 13.80% decreases in the number of fat pigs destined for slaughter and 14.00% in meat production. These aspects have also been analyzed by other researchers who note an evolution of farm meat production and pork export activities as follows:

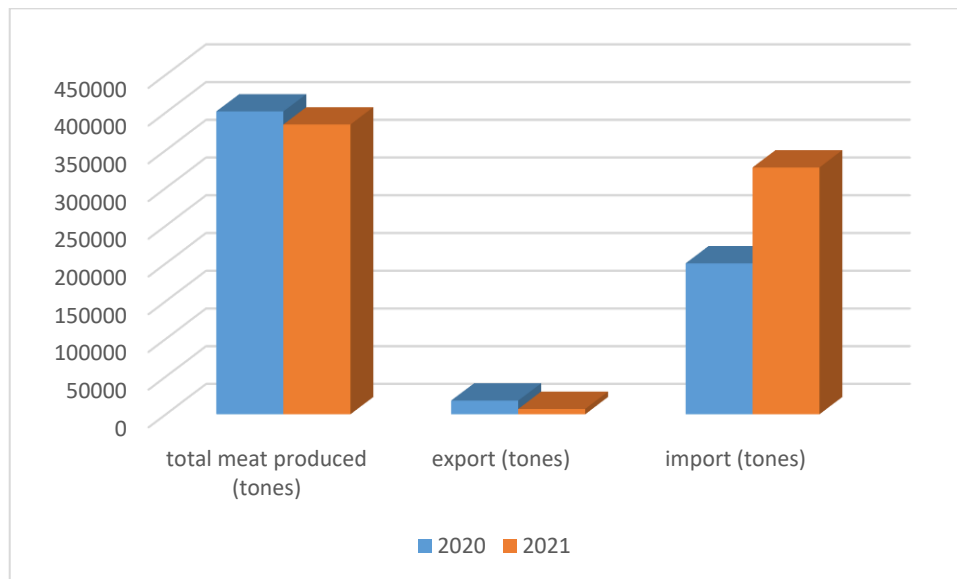


Figure 1. Production and export of swine meat

There is a decrease both in terms of total meat production (tons) and meat export (tons), respectively a decrease of 4.07% in the case of production and a decrease of 60.77% in the case of meat export.

It is noted that the import of pork increased by 127,100.00 tons, from 200,000.00 tons in 2014 to 327,100.00 in 2019, which means an upward trend (63.60%).

CONCLUSIONS

In order to ensure the domestic market with meat and encourage exports with pork meat in conditions of integrated farms, they must diversify their production and resort to methods that allow them, control of natural environmental factors, obtaining carcasses in accordance with the prices and standards of transfer to satisfy the consumption needs of the population.

Obtaining quality carcasses involves a multitude of technological operations, but for the market distribution of meat in carcasses, modern methods of stunning, bleeding, scalding and evisceration must be used in order to maintain the hygienic quality of the carcasses. If the distribution of meat on the market is done in cut portions, they must be packed according to the norms imposed by the standards, respecting the quality management throughout the technological flow and especially in the critical control points.

Although the integrated farms planned their productions in order to be able to resort to the export of pork meat, due to the viral diseases that appeared in the swine, they were stopped, many holdings decreased their production today at the national level and on the regional market as it is needed to satisfy consumers' needs to resort to imports of meat and pork products.

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