Improving technological quality of pigmeat for manufacturing cooked ham through an optimal genetic selection

Summay

Companies in the meat sector in Catalonia, especially those dedicated to the production of ham have been increased in recent years the incidence of inadequate quality meat to produce acceptable products. Scientific studies that have been done recently indicate that animal genetics largely determines this issue, as it has tended to select animals that give a high meat yield and production efficiency, but most problems of quality.

Objectives

Improve the technological quality of pork for the manufacture of cooked ham. In particular we want to improve the color, texture and water-holding capacity of pork. In this way we want to achieve a significant reduction in the cost of production of cooked ham, and increase its selling price due to a clear and demonstrable increase their added value.
To achieve this improved more suitable for the production of pork for ham, using innovative technologies of genetic improvement and measurement systems quality meat and pig final processed product will be identified genetic types.
It is a proposed project to obtain meat consumer and affordable for most people, from pigs of white layer prices, but that bring added value to the processing enterprises cooked ham and other pork products and finally make them more attractive to the consumer. The ultimate goal is to get a quality product that due to the high quality of the raw material, do not need to add additives for processing.
Another objective of the project is the use of technology based on near-infrared spectroscopy (NIRS) to establish prediction equations quality fresh piece and finished product. With the implementation of this technology it is to provide an alternative to the reference methods applied to determine the quality of the meat, improving control of the meat pieces to be obtained from animals of different genetic and quality control of matter premium at the entrance to the processing plant cooked ham.
It is intended that this pilot project will be replicable for other companies in the Catalan pig meat sector, since most manufacturing companies cooked ham and other cooked or cured pork products suffer from the same problems of high percentages of raw materials of low quality, probably due to genetics of animals from which meat is then processed. The Catalan cluster INNOVACC pig meat contribute to the maximum of firms can use the results of the project and, ultimately, try to reduce the percentage of raw material not suitable below 5% from 2020.

Description of project activities

Activity 1. Obtain different types of pigs (from four batches of pork white layer with different genetic selections and probably best, where A is the control group, and it is compared with three improved groups B, E & F).
Activity 2. Breeding and fattening pigs of different types (with comprehensive monitoring of all its growth and productivity and economic factors to consider.)
Activity 3. Control parameters carcass quality and meat slaughterhouse and cutting room (defining the most suitable parameters of control and measuring equipment the best quality, even the most innovative).
Activity 4. Control of quality parameters in fresh ham and processed product (defining the most suitable parameters of control and measuring equipment the best quality, even the most innovative). Establish

quality ham categories based on the evaluation of the final product.
Activity 5. Calibration of NIR equipment "on-line" for parameters related to the quality of the ham and other processed products.
Activity 6. Proposal to develop a breeding program of the technological quality of meat by recording parameters of technological quality of pigs crossed.

Final results and practical recommendations

Genetics F obtains the best results, both as meat in the different measuring points and in the results observed in the final product, although at the fattening level it has a lower conversion efficiency of meat feed.
Genetics B, selected based on animals with a better final pH, obtains better percentages of denaturation in cooked ham compared to the genetics A, with similar efficiency results in fattening.
Regarding the quality parameter predictions with the NIRS, accuracy is low, either by the great variability within the same category or the range of the spectrum used by the team. The data show a level of differentiation in the spectra for some of the characteristics of interest for what may be a technology in power. Therefore, the current prediction is not too good.

Conclusions

It is shown that F and B genetic selections are valid ways to improve the quality of cooked ham.
On the other hand, it would be necessary to continue working in order to improve the predictions if the number of samples evaluated were increased and a suitable design was made.

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Keyword-category

Animal husbandry and welfare
Food quality / processing and nutrition

Territorial scope

Province	*County*
Girona	Selva

Genetic resource	Gironès

Project dissemination *(publications, seminars, multimedia...)*

Pàgina web del projecte

Other project information

Projecte period

Starting date (month-year): Novembre 2015

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Project status: *Finalised*

Approved budget

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Basic regulation: Ordre ARP/258/2015, de 17 d'agost, per la qual s'aproven les bases reguladores dels ajuts a la cooperació per a la innovació a través del foment de la creació de grups operatius de l'Associació Europea per a la Innovació en matèria de productivitat i sostenibilitat agrícoles i la realització de projectes pilot innovadors per part d'aquests grups, i es convoquen els corresponents a 2015.

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