

Unlocking the flavour

Investigating how extensive husbandry practices elevate pork and broiler meat quality

In the ever-changing landscape of livestock farming, the *mEATquality* project is delving into the intricate relationship between extensive husbandry practices and the intrinsic quality of pork and broiler meat. Over the decades, shifts in population, urbanization, and consumer preferences have spurred changes in animal production methods, leading to various systems with varying degrees of extensiveness. As consumers increasingly associate extensive production with higher quality, the *mEATquality* project aims to unravel the mysteries behind this perception.

By Mariana Couto

Livestock systems have evolved over centuries depending on agricultural and ecological conditions and regions. Tradition, resources, economic situation, and lifestyle have been vital in generating livestock breeds and management methods, leading to extraordinary gastronomic diversity. This interconnection between humans, animals, and the environment has resulted in the predominantly biocultural and multifunctional European landscape, which brings together economic, social, cultural, and environmental processes. During the past half century, due to human population growth, urbanisation, economic progress, and changing consumer preferences, the intensification of animal production has involved a change in production methods. Systems emerged that generally kept animals in specialised indoor environments and used hardware and automation.

Nowadays, various production systems for chickens and pigs exist, ranging from conventional intensive systems to organic or dual purpose in the case of chicken production (meat and eggs). These systems vary in the degree of extensiveness. The extensive production provides more space, environmental enrichment and varied diet with foraging opportunities compared to intensive farming. Also, local or slow-growing breeds (mainly for chicken farming) are often only used in extensive production. In addition to differences concerning sustainability aspect, meat quality may also be affected by the production system.



For seasonal fattening of Iberian pigs, often crossed with Duroc for better meat quality, the animals live on a diet of acorns and pasture, giving their pork a unique fatty acid profile. Photo: Ecovalia

Meat quality refers to aspects such as safety and authenticity and the extrinsic value of the product. For example, slower-growing broiler breeds are often raised in extensive systems. Although these slower-growing broilers may have a lower breast meat yield, meat quality concerns typical for intensive production systems have been reported to be smaller. Diet composition is another important factor for meat quality, affecting, for example, the chicken meat's fatty acid profile, yield, and other quality aspects. Another example is the southwest Mediterranean; the *Dehesas* (in Spanish) and *Montados* (in Portuguese) are agroforestry systems. They have scattered oak trees with understory grazed by cattle, sheep, goats, and pigs. This farming system generally uses low animal densities. The Iberian pigs, a native breed raised extensively or semi-extensively, are mostly crossed with Duroc to improve their meat quality. The animals are raised here with a diet of acorns and pasture,

giving their pork a unique fatty acid profile. —the seasonal fattening with acorns and pasture, resulting in pork's specific fatty acid profile.

Modern-day consumer perceptions of meat have expanded not only sensory and health attributes but also aspects of animal welfare and other social and ethical aspects. Generally, they believe that extensive production is synonymous with better production quality. However, the degree of the extensiveness of production systems, conventional, organic, and free-range, is often confounded with other aspects of the husbandry systems.

Investigating the link between extensive farming and meat quality

So, how does “extensive husbandry” promote the quality of meat? And how can consumers perceive it? The *mEATquality* project focuses on housing and managing two intensively kept livestock species: broiler chickens and pigs. It links extensive husbandry practices to the intrinsic quality of pork and broiler meat on conventional, organic farms and farms in niche chains. The project aims to provide consumers with quality pork and broiler meat by developing scientific knowledge and novel solutions with farmers and chain partners to address societal demand, environmental concerns, and economic needs on farms and in the chain. The project is proposed and co-designed collectively by a consortium of partners spanning the entire chain, from farm to fork. It will also develop innovative techniques for automated meat quality assessment at high line speeds and combat food



Slower-growing broiler breeds typically have fewer meat quality issues. Photo: Naturland

fraud through authentication of the final product via 'fingerprinting techniques' and blockchain technology.

The 'extensiveness' of production is a key issue and will gradually develop throughout the duration of the project. The first step surveys extensive husbandry factors concerning intrinsic meat quality through data collection on conventional, free-range, and organic farms and includes consumer expectation studies. The second phase will include controlled on-farm experiments to investigate intrinsic meat quality characteristics concerning husbandry factors such as genetics, feed (commercial or locally produced products or forage as part of the diet), quantity and quality of the space allowance, and enrichment. The third step will check novel farming practices that support sustainability aspects on the farm, including animal welfare, environmental impact, and economic viability.

During the research phase, the credence attributes (which consumers cannot assess but need to be conveyed via product packaging) will be investigated, as they offer an additional means to achieve product differentiation in the market. For successful product differentiation, it is necessary to understand which animal welfare attributes consumers view as relevant when choosing between different meat products.

Evaluating consumer perception to assist in market differentiation

As consumers differ in terms of their preferences, it is essential to understand how consumer groups in the market assess these attributes. Semi-structured expert interviews were conducted with pork and broiler meat professionals in six countries (NL, DE, ES, DK, IT, PL) to understand this matter better. Based on these interviews, the researchers will identify the most relevant pork and broiler meat attributes across breed, forage/feed, space allocation and space quality. As mentioned earlier, this information feeds into the design of a discrete choice experiment with 250 consumers in each of the six countries. During this task, consumers make tradeoffs between different attributes displayed with pork and broiler meat packaging to choose their preferred product.

The *mEATquality* project will study the acceptance of new products in the market and ways of communicating them to consumers. The fourth and final step will be communicating and disseminating the project results. Key outputs are an 'Extensive Practices' app, informational videos and EIP Practice Abstracts for farmers, educational tutorials for consumers, retailers and restaurants, and an EU Meat Database for authentication purposes.



Funded by
the European Union

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No101000344. It reflects only the author's view and that the European Commission is not responsible for any use that may be made of the information it contains. The project *mEATquality* is proposed and co-designed by organic sector representatives Ecovalia and Naturland in collaboration with CLITRAVI, the Liaison Centre for the Meat Processing Industry in the European Union.



Mariana Couto

is the International Projects Officer of Organic Livestock Farming at Ecovalia Association. She has a master's degree in Veterinary Medicine and in Global Health. At Ecovalia she links

scientists and livestock farmers and fosters knowledge from farm to science and vice versa.

Author's address

Mariana Couto

ecovalia.projects@ecovalia.org

Advertisement

The turkey-meat producer

- Halal certified
- German efficiency with over 50 years experience
- High quality products
- Added value and convenience portfolio
- Large volumes and capacity
- Delivery reliability



heidemark.de

VIEL.MEHR.WIR.



HEIDEMARK
GEFLÜGEL-SPEZIALITÄTEN