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Microbial fluxes, chicken rearing conditions

INRAE unit

SECALIM
MICALIS
MAIAGE
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GABI

Partner

BIRD/ITAV (Tours
Nouzilly)



EGGTOMEAT

Proof of concept and construction of a project to identify the impact of rearing parameters on bacterial flow in broiler chicken production

The EggToMeat project aims to identify the impact of rearing parameters on the flow of microbiota throughout the chicken production chain, from eggs to carcasses. To this end, two rearing conditions (indoor vs. outdoor) will be compared on a single batch of embryonated eggs.

Poultry meat is the most consumed meat in the world and the second most consumed meat in France. Furthermore, the health, animal welfare and productivity of broiler chickens, as well as the microbial safety of meat cuts and the demand for healthy food, are important societal issues. These issues are driving changes in poultry farming practices, which raises the question of the influence of these farming practices.

Microbial communities in broiler chickens, mainly those in the digestive tract, have been widely described, as has their influence on nutrition, physiology and immunity of chickens. However, these studies have only covered part of the production chain.

Objectives

Our goal is to evaluate the impact of husbandry parameters on bacterial fluxes along the broiler chicken production chain. In this exploratory project, we will analyse the composition of the microbiota from the eggshell to the carcass and investigate the impact of rearing conditions (indoor or outdoor access) on chick colonisation, on the dynamics and formation of the microbiota during rearing and on the composition of the bacterial contamination of the carcass. These data will be confronted with zootechnical parameters in order to detect potential levers for improving the health and robustness of the animals by engineering the microbiota..



Partners

INRAE division	INRAE unit	Expertise
MICA Microbiology and the Food Chain	SECALIM	Microbiota, meat quality, Campylobacter, Microbiota, NGS, statistics, multivariate, intestinal pathobionts
	MICALIS	Chicken environmental microbiota, microbiota management, microbiota antibiotic resistance, Biological Resource Centre, biobank, Microbiota management, immunomodulation
MATHNUM Mathematics and Digital Technologies	MAIAGE	Modelling in microbial ecology, bioinformatics, multivariate analysis
PHASE Animal Physiology and Livestock Systems	BOA	Animal physiology, meat quality, animal physiology, gut health, microbiota analysis
	EASM	Animal physiology, gut health
	GABI	Chicken microbiota, Metachick data, chicken health
Partenaire		Expertise
BIRD / ITAV (Tours Nouzilly)		Technical expertise, chicken farming