Proceedings of the XLIX Italian Society of Agricultural Genetics Annual Congress
Potenza, Italy – 12/15 September, 2005
ISBN **88-900622-6-6**

Oral Communication Abstract - 4.08

GENES AFFECTING MEAT QUALITY

A. VALENTINI, A. NARDONE

Department of Animal Production, University of Tuscia, Viterbo, Italy - alessio@unitus.it

meat quality, fat composition, technological properties, transcriptomic

Meat is the most important commodity among livestock products traded worldwide. Meat has been regarded as a primary food containing fundamental nutrients and microelements for the human health since a few decades ago, with the exception of populations with particular religious believes. Recently, several studies demonstrated that fat contained in the meat may be harmful to human health, therefore one of the first nutrients targeted for a change is fat, because of its implications in cardiovascular disease, stroke, and cancer. Therefore, a hot topic of current researches is to reduce the amount of unsafe components, like saturated fats, while rising the health-promoter ones, like Conjugated Linoleic Acids. Another important modern issue is the definition of characteristics that contribute to the features and in some cases to uniqueness of typical products. These are considered as an important commodity that can help countries with high production costs to survive in the global market.

Both objectives can be addressed in a systemic view that includes nutrition, husbandry techniques and processing; however, genetic assessment and selection are key methods to obtain a sustainable production according to the chosen parameters with the precision required.

A considerable number of QTL's affecting meat quality parameters has been found in different species and methods have been developed to exploit this information while waiting for the discovery of the genes behind the QTL effect.

However, the most promising outcomes are expected from the direct examination of candidate genes. Several progresses have been achieved recently due to the full sequences of livestock species (chicken and cattle) and to transcriptomics approaches (microarrays). A few genes have been pinpointed as target for selection for better meat quality. Among these, some are within the obvious lipid metabolic pathway, like Stearoyl- CoA desaturase, others are less obvious including adiposity signals, like leptin or cell cycle regulators like myostatin.

Very powerful methods of SNP detection are expected to provide outcomes in the next future that will permit the assessment of many genes involved in meat quality determination and therefore the direct selection for the most suitable genetic variants.