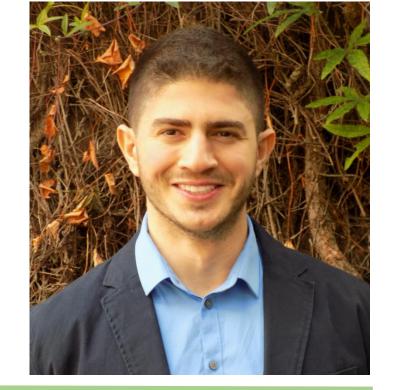
J. Albechaalany^{1,2,3}, M-P. Ellies-Oury^{1,2}, J. Saracco³, M.M. Campo⁴, I. Richardson⁵, P. Ertbjerg⁶, S. Failla⁷, B. Panea⁸, J.L. Williams^{9,10}, M. Christensen¹¹, J-F. Hocquette²



Background

Vanhonaker et al., 2013

The majority of meat consumers claim to reduce their meat consumption due to multiple reason as:

- Environment
- Animal Welfare
- Disappointment by the Quality

Experimental protocol

- 3 450 Steers / 15 breed / 5 EU country
- Similar Diet

Genetics of Meat Quality (GemQual)

- slaughter age: 15month
- sample collected from Longissimus thoracis muscle
- 9 51 variable describing the physiological, muscular and sensory characteristics, to evaluate beef quality

Objective

Modeling the impact of the physiological and muscular characteristics on the beef sensory quality

Methodology

- Using a Hierarchical cluster and Principal component analyses approach to reduce the total number of variable
- Implementing an Analysis of covariance (ANCOVA) to study the relationship between the different selected cluster :

Yi = Breed + aXi + b

Yi = single cluster

Xi= All variables – (Variables of the cluster Yi)





Selecting the important explicatory variables using the Akaike information criterion (AIC)

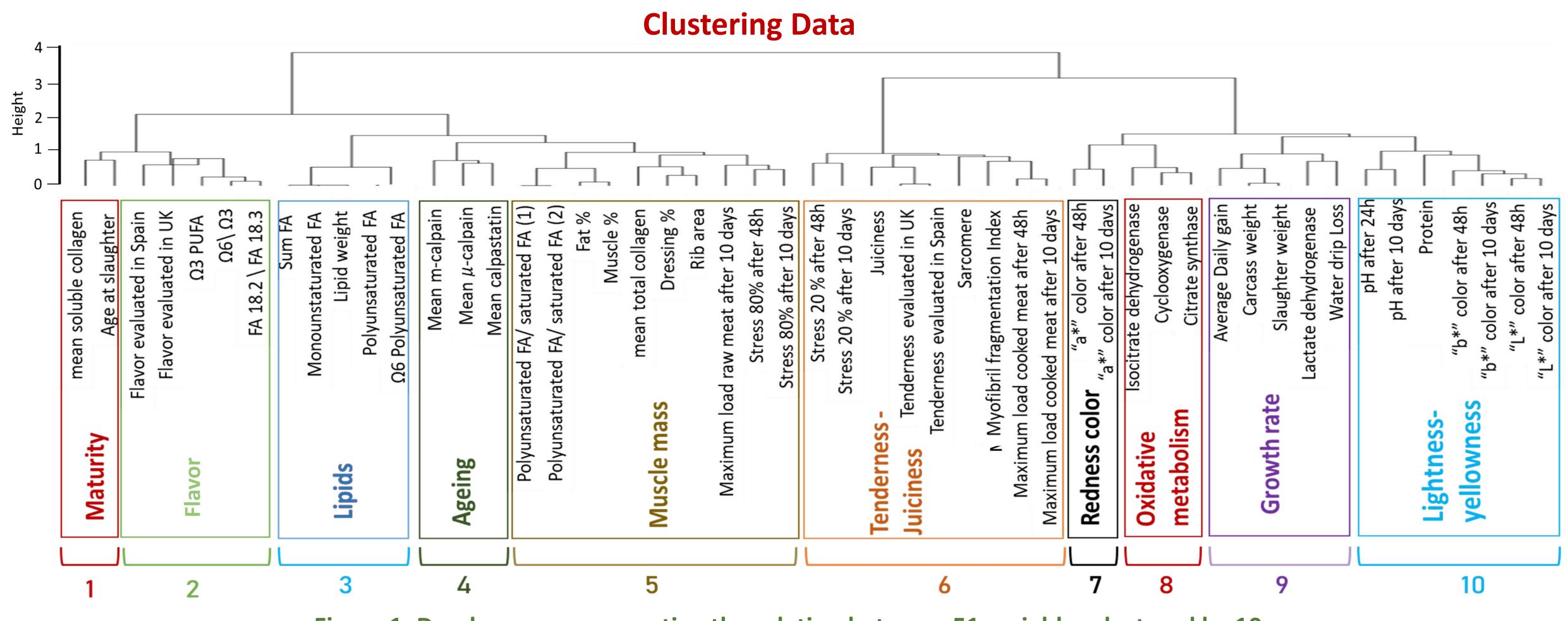
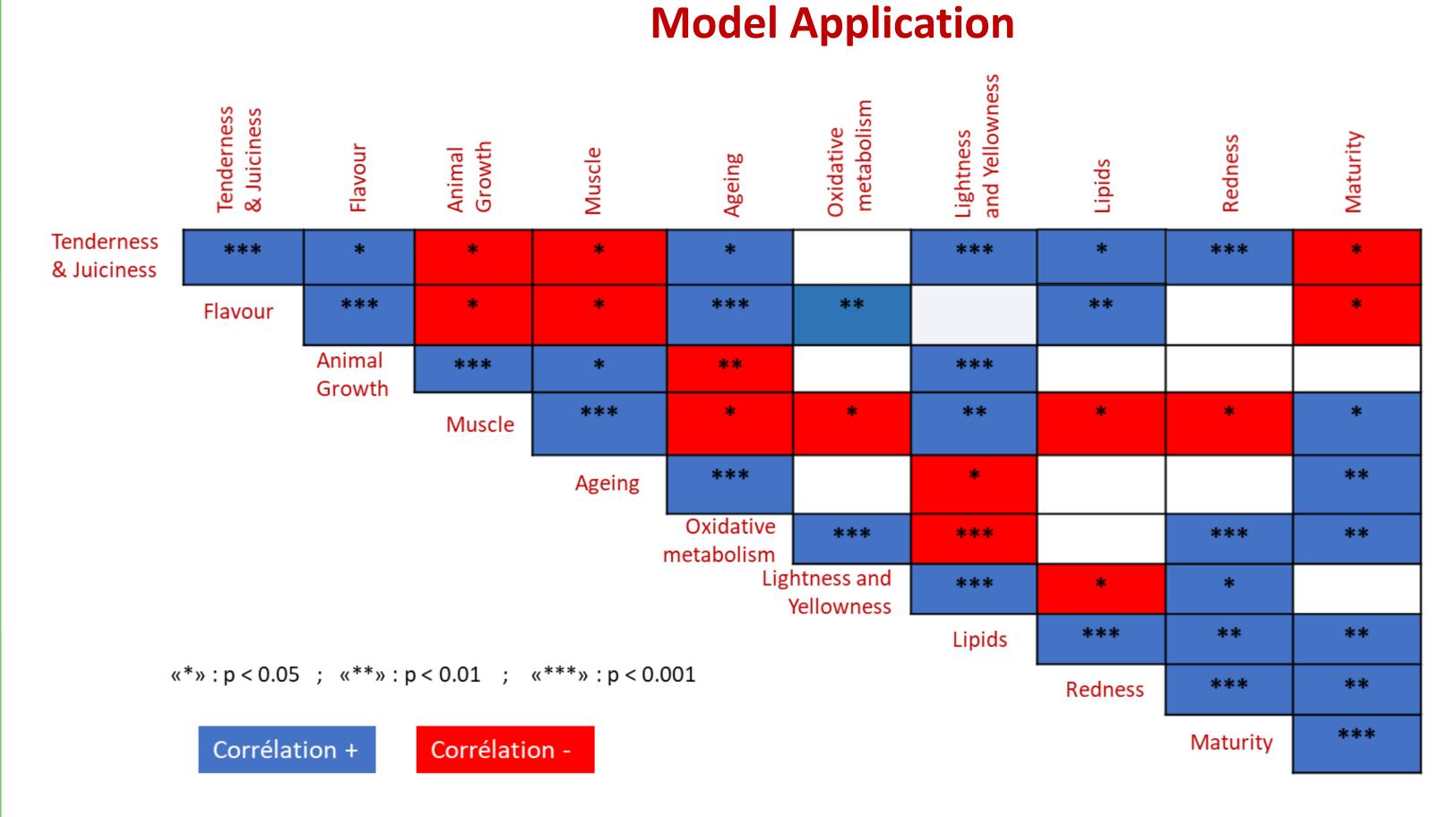


Figure 1: Dendrogram representing the relation between 51 variables clustered by 10 groups



Conclusion

- The physiological characteristics studied (growth, muscle mass) negatively impact sensory quality
- The muscle characteristics studied (Ageing, lipids, oxidative metabolism) have a positive impact on sensory qualities

Perspectives

- Validation of model simulations based on actual results
- Comparison of the taste results of the jury (GemQual) with the taste results obtained by consumers (Meat Standards Australia project)

Table 1: Representation of the relationships between the 10 clusters from the ANCOVA model





























(8)

This Project Has Received Funding From