

Characterization of dairy sheep and goats production systems in France: first step for a GXE study

H. Larroque¹, G. Lagriffoul², A. Combasteix², J.M. Astruc², D. Hazard¹, A. Rolland¹ and I. Palhière¹
¹INRA, UMR 1388 GenPhySE, Chemin de Borde Rouge, 31326 Castanet-Tolosan, France. ²Institut de l'Elevage, Chemin de Borde Rouge, 31326 Castanet-Tolosan, France ; jean-michel.astruc@idele.fr

In a fluctuating economic, environmental and societal context, farms of dairy small ruminants attempt to increase their autonomy in feed resources. Due to the diversity of soil and climate conditions in France, breeders develop diverse farming and feeding strategies. In order to investigate presence of GXE interactions, the first step consisted in describing dairy sheep and goats production systems to identify contrasted farms typologies. An exploration was carried out using a large set of variables present in the databases of milk-recording, genetic evaluation, technical support (describing farming and feeding systems, when available), and also geographical and meteorological data (METEOFRANCE, French official service of meteorology and climatology). The most discriminating variables were selected to conduct a multiple correspondence analysis. A classification of herds was then performed within geographic areas for sheep (440, 463 and 98 herds in Roquefort area, Western Pyrenean, and Corsica island, respectively), and within all the country for goats (1,136 herds, whose 514 in the breeding nucleus). For dairy sheep in the Roquefort area, 4 clusters of flocks in Lacaune breed were identified according to their geographical location, precocity of grass growth (in relation to altitude), and amounts of concentrate and forages distributed. In the Western Pyrenean area, 4 clusters in Basco-Béarnaise breed and 7 clusters in Blond-faced Manech breed have been highlighted on the basis of their location-altitude and of herd management criteria (rate of first lactations at 2 years, flock size). In Corsica, the study has highlighted 3 groups of flocks according to their altitude and level of production (linked to the artificial insemination rate). For goats, 4 clusters of herds were discriminated according to area of production (West / East gradient), breeding goals (fat and protein contents or milk yield), system of sales (cheese maker or deliverer to dairy industry), herd size and reproduction organization (out of season or not). This study was carried out with the financial support of the European project iSAGE.