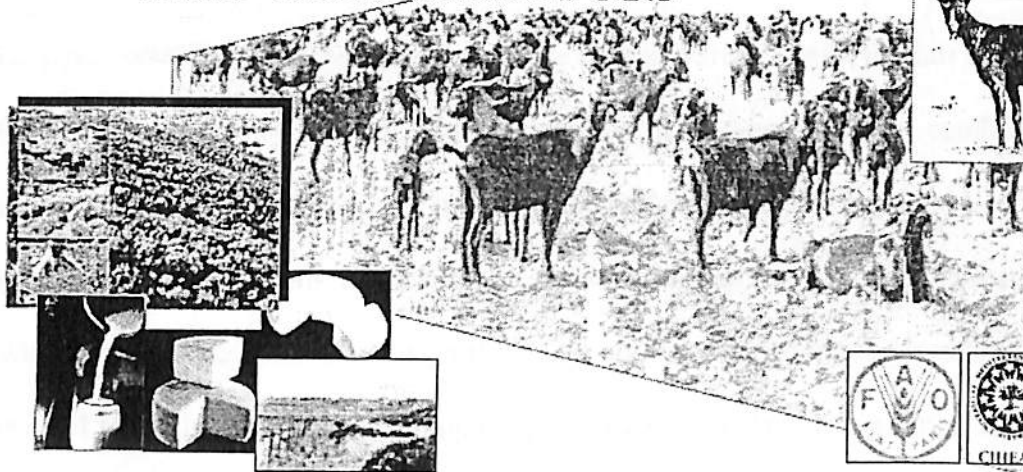
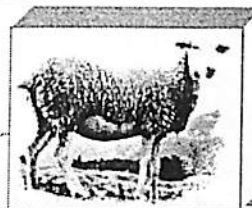


First Joint Seminar of the Sub-Networks FAO-CIHEAM on Sheep and Goat Nutrition and on Mountain and Mediterranean Pastures

***“SUSTAINABLE GRAZING,  
NUTRITIONAL UTILIZATION  
AND QUALITY OF SHEEP  
AND GOAT PRODUCTS”***



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## **Use of terpene profiles for the mountain pastures characterisation**

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Terpenes are volatile compounds originating exclusively from plants that can be recovered in dairy products. In fact these terpenes are readily recovered in milk fat thus making possible to trace the diet of dairy animals. Several studies have therefore been conducted to use the terpenes to trace the geographical origin or the nature of the feed supplied to animals. Results have showed that the milk from different production sites (lowland vs. highland) and seasons (winter vs. summer) can be distinguished. Our aim was to determine if the terpene profile can be used to distinguish among mountain pastures with different vegetation types resulting in different forage types. The terpenes and the sesquiterpenes of ricotta cheese samples produced during summer in three mountain farms were determined with SPME-GC-MS. The ricotta cheeses were produced with cow and goat milk and samples were analysed every three days. In all samples high quantities of terpenes (over all  $\alpha$ -pinene,  $\beta$ -pinene, camphene, p-cymene,  $\beta$ -myrcene and limonene) were determined. Several sesquiterpens as  $\alpha$ -caryophyllene,  $\alpha$ -copaene and 9-epicaryophyllene were identified too. These compounds showed a wide variability between the samples due to stage of plant development but a discrimination among the farms still was highlighted with the Linear Discriminant Analysis and the Artificial Neural Network. Hence terpenes and sesquiterpenes can be used not only to distinguish between summer pastures cheese and the one produced during other periods but also as markers of each mountain pasture.