

# Oral presentation

## Session I

### **Fodder function of trees and shrubs for domestic ruminants in arid areas : characterization with multi-dimensional functional traits**

**Hubert Guerin\*** (CIRAD) and A. Ickowicz (CIRAD)

\*E-mail: [hubert.guerin@cirad.fr](mailto:hubert.guerin@cirad.fr)

#### **Abstract**

Farmers in arid regions traditionally know trees and shrub species with fodder and medicinal interest. This knowledge has been capitalized by naturalists. Then ecologists, agro-forestry and livestock scientists have applied their analytical specialized methods. Droughts have prompted investigations to characterize, quantitatively and qualitatively, forage provision by trees and preferences of animals. Exotic species were also tested. Many descriptive and analytical data have been collected but had little effect on the management of forestry and tree species in agro pastoral rangelands. New research stimulated by climatic and demographic changes must integrate socio-economic processes of management of forest stands and the multi-functionality of trees. Within this overall framework, the functional traits related to forage function must express:

- productivity of foliage and reproductive organs
- availability of forage for livestock following simultaneity between phenological cycles and major nutritive needs of animals
- palatability of species
- nutritional value expressed by concentration of digestible nutrients (nitrogen, minerals, fiber)
- capability of re-sprouting after grazing or pruning.

Traits are related to demography, phenology, morphology, anatomy, chemical composition, animal browsing behavior and intake. Many data exist. It must be organized so that they are accessible, located in their agro-climatic and socio-economical environments and taking into account the multi-functionality of species. These criteria are not absolute and depend on biodiversity of forest stands. The use of such data for engineering in land management based on needs and constraints of the users must take into account this diversity between species and intra-species according conditions. Examples of situation and species present this diversity and explore ways for useful integration of information in databases.