

VIII. General conclusions and recommendations

Most indigenous species (*Hagenia abyssinica* and *Senecio gigas*) studied in the high altitude Galessa-Jeldi areas and the exotic species evaluated on Vertisols (*Sesbania sesban* and *Acacia saligna*) and Nitisols (*Chamaecytisus palmensis* and *C. proliferus*) played a significant role in affecting the properties of the soil beneath their canopies. Higher nutrient levels were investigated at positions close to the tree and shrub bases for most macronutrients and other soil attributes. The foliage nutrient concentration of *S. gigas*, *S. sesban* and *Chamaecytisus* species was found to be high in their respective growing agroecologies. The fast growth-rate and high biomass production potential of *Acacia decurrens* on Nitisols, and *A. mearnsii* and *A. saligna* on Vertisols indicated the potential of the species as sources of fuel wood. The supplemental fodder value of *H. abyssinica*, *D. torrida*, *Buddleja polystachya* and *C. palmensis* in the Galessa-Jeldu areas was substantial according to various animal fodder nutrition evaluation criteria. Based on the results of the studies and the observations during the research processes, the following recommendations are drawn for further research and development considerations:

- a) Limited indigenous and exotic tree and shrub species have been studied for fodder and soil fertility improvement values in the highlands of western Shewa. It is highly essential to exhaustively evaluate the existing species, as well as new introductions, for their nutrient content and other quality characteristics.
- b) The traditional fodder tree and shrub species management and feeding system, as well as the use of foliage biomass for soil fertility improvement, should be revisited and supported by research findings.
- c) The indigenous trees and shrubs abundant in the high altitude Galessa-Jeldu areas are non-N-fixing species. Therefore, more leguminous woody species are needed for the highlands of the western Shewa area, in line with the potential non-leguminous indigenous species to sustain the production of N rich fodder resources and add N inputs to the soil system.
- d) The demand for high value indigenous and exotic species in the highlands of western Shewa is increasing continuously. It is therefore important to explore specific niches for disseminating potential tree and shrub species that provide biomass for fodder, wood and soil fertility improvement.