



Deutscher Tropentag, October 11-13, 2005, Hohenheim

“The Global Food & Product Chain—
Dynamics, Innovations, Conflicts, Strategies”

Species Diversity of the Tropical Legume Genus *Stylosanthes* in Venezuela

TEODARDO CALLES¹, RAINER SCHULTZE-KRAFT¹, ORLANDO GUENNI²

¹University of Hohenheim, Biodiversity and Land Rehabilitation in the Tropics and Subtropics, Germany

²Central University of Venezuela (UCV), Agricultural Botany, Agricultural Ecology, Venezuela

Abstract

Stylosanthes is a predominantly neotropical genus with several species currently used as forage, for soil cover and improvement, and increasingly for leaf meal production. Some species are well adapted to prolonged drought conditions and to the acid, low-fertility soils that prevail in the tropics. This makes *Stylosanthes* particularly important for cultivar development for low-input production systems.

Venezuela can be considered, after Brazil and Mexico, as the third centre of diversification of *Stylosanthes*. The most important Venezuelan contribution to cultivar development of a tropical forage species is *S. hamata* cv. Verano, an ecotype that was opportunistically collected in the mid 70s in Maracaibo and which is currently the world's most important pasture and ley-farming legume for the dry tropics. *Stylosanthes* species have a wide natural distribution in Venezuela and are found in a broad range of environments. According to taxonomic studies, eleven species occur in the country: *S. angustifolia*, *S. capitata*, *S. gracilis*, *S. guianensis*, *S. hamata*, *S. humilis*, *S. scabra*, *S. sericeiceps*, *S. viscosa*, as well as two new, as yet undescribed species.

To properly assess and subsequently utilise the potential of both inter- and intraspecific diversity of *Stylosanthes* for cultivar development, and to create the basis for future collection strategies, a database of Venezuelan *Stylosanthes* material was assembled: approx. 1.000 specimens held in indexed Venezuelan herbaria and five major US herbaria were documented, and passport information of approx. 500 Venezuelan *Stylosanthes* germplasm accessions held at major gene-banks recorded, constructing a comprehensive biogeographical database. Using FloraMapTM, a GIS tool combining topographic and climatic information, maps of both actual and predicted distributions of each species were generated.

As a result, we could identify not only species niches, plant populations and geographic regions with importance as a source of germplasm, but also collection gaps. The information assembled will furthermore help to better understand species distributions and adaptations, and to design further collection and conservation strategies. In addition, we found FloraMapTM to be a powerful tool for mapping geographic distributions, but to improve prediction accuracy, it needs to be complemented by other GIS tools which also take soil characteristics into account.

Keywords: Biogeography, cultivars, FloraMapTM, legumes, *Stylosanthes*, Venezuela