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Biomass Production Potential on the Salt Affected Soils of India: a Database of the Requirements of Fast Growing Salt Tolerant Tree Species

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Abstract

Arid and semi-arid ecosystems belong to the ecosystems naturally vulnerable to salinisation. Due to increasing population and the economic development in the region of South-West Asia there is growing requirement of crop and wood production. Based on the intrusion of sea water, irrigation with poor quality water and climate change induced increase in evaporation, the extent of naturally salinized land is enlarged. The area affected by salinisation is rising in this region every year so that arable land used for agriculture is transformed to wasteland unsuitable for traditional agriculture.

The BIOSAFOR Project financed by the EU Commission is working on improvement of agroforestry cropping systems for producing biomass on salt affected soils and reclaiming strongly saline or sodic soils. These systems should avoid a competition with food production and should be economically and socially acceptable.

In the frame of BIOSAFOR, seven case study areas in India were chosen to characterise the typical conditions of salinisation having a potential for biomass production.

The long term biomass data, growing parameters of salt tolerant trees and experience collected during the last 30 years at Central Soil Salinity Research Institute, Karnal and also literature data regarding the growth of salt tolerant tree species was used to build a database with the most important tree requirements. The tree requirement database developed for a BIOSAFOR project comprehends four groups of parameters impacting the tree growth: terrain parameters, soil fertility parameters, ground water parameters and climatic conditions. The tree requirements for most suitable salt tolerant trees e.g. *Acacia* spp., *Prosopis* spp., *Tamarix* spp. etc. comprised in these four categories have to be matched with the site characteristics of the potential area according the Land suitability Classification (LSC) of FAO to characterise the biomass production potential on saline soils for different tree species. Thus the database can improve the optimal choice of trees for biomass production and reclamation of salinized sites.

Keywords: Biomass production, salt affected soils, salt tolerant trees, tree requirements database

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