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Salt stress tolerant plant species with minimum water, fertilizer requirements, and cultural practices for sustainable agriculture in desert regions and bioremediation/reclamation of desert saline soils to combat desertification

Mohammad Pessarakli
University of Arizona, USA

Desertification is one of the greatest challenges facing mankind. Particularly, in arid regions, the rate of desertification is frighteningly high and crop production is alarmingly at high risk. In such circumstances, initiatives should be undertaken to prevent further desertification processes. A wide range of measures, including various reclamation techniques for reducing soil salinity, runoff barrier (i.e., vegetation strips) are developed to prevent further desertification progresses. Among these measures, re-vegetation of the lands, using plant species that are more adapted to the harsh and stressful desert conditions is probably the most effective practice.Halophytes are particularly effective in this regard by reducing soil salinity via removing salts or by utilizing saline waters for their growth. Seashore paspalum and bermudagrass, true halophytic species, were used in this study to reduce salinity levels of the growth medium by absorption and secretion of the salts from their leaves. Four replications of each salt treatment were used in a RCB design in this experiment. The growth responses of the plants in terms of biomass production were measured under the salinity stress conditions. Results showed both of these plant species, particularly, Seashore paspalum, substantially reduced the salinity levels of the culture medium. Therefore, these species can be recommended for production under arid regions that are characterized with highly saline soils and low quality/saline waters. Consequently, these plant species can effectively prevent further desertification processes in arid regions or in similar regions that are vulnerable and are at high risks of desertification, therefore, biologically combating desertification processes.

Biography

Mohammad Pessarakli has completed his Ph.D. at the age of 32 from University of Arizona and postdoctoral studies from the same University, Soil and Water Sciences Department. He is a Research Professor in the School of Plant Sciences, same University. He has published over120 papers in reputed journals, 20 book chapters, 4reference books: Handbook of Plant/Crop Stress (1993, 1999, 2010), *Handbook of Plant/Crop Physiology* (1994, 1999), *Handbook of Photosynthesis* (1997, 2005), and *Handbook of Turfgrass Management/Physiology* (2007), and serving as an Editorial Board member of *Plant Nutrition Journal, Communications in Soil Science and Plant Analysis*, and Crop Science Book Advisory Committee member.

pessarak@ag.arizona.edu

Performance of Panchayeti Raj institutions (PRI) towards rural development-an assessment from some selected backward villages of Cooch Behar district of West Bengal

Prabhat Kumar Pal
Uttar Banga Krishi Viswavidyalaya, India

The present study was undertaken in the backward villages of Cooch Behar -II block of Cooch Behar district, West Bengal, India to assess the performance of the Gram Panchayets in respect of different development activities undertaken by the same. After the inception of Panchayeti Raj Institutions (PRI) in India and as a consequence of different constitutional amendments undertaken time to time to empower and authorize PRI, the overall development of the rural areas is mostly taken care of by this institution in an integrated manner. The present paper assesses the performance of the PRI through an index developed specially for this study. The index was developed taking different development indicators like transport and communication facilities, health and sanitation status, success status of government development programs undertaken by PRI, literacy and employment scenario of the villages, agricultural development status etc. Some proxy indicators like villagers' opinion regarding performance of the PRI have also been taken for assessment. The study reveals that the development status of the studied villages is on the lower side and concluded that the performance of the panchayets is not so impressive in the study areas in respect of different rural development aspects.

pkpalubkv@gmail.com