

Effect of Organic Manure and Plant Spacing on Productivity of *Leucaena leucocephala* (Lam.) De Wit under Saline Conditions at Ras Sudr

Eman M. F. El-Saidy

Plant Ecology and Range Management Department, Desert Research Center, Cairo, Egypt.

THE ABILITY of trees and shrubs to coppice vigorously after being cut or pruned is of great importance in the management of agroforestry systems. A study conducted in the seasonally dry climate of Egypt. A field experiment was conducted at the Experimental Station Farm, Desert Research Centre (D.R.C.) at Wadi Sudr region, South Sinai Governorate. The experimental work covered two successive years (2005 and 2006) to focus the effect of plant spacing and organic manure on growth, forage yield and its quality of *Leucaena leucocephala* (Lam.) De Wit. The experiment was laid out in a split plot design with four replications. In this experiment, two cuts were taken during each season at 6 months intervals.

The most important results obtained could be summarized as follows:

- Increasing plant spacing from 50 to 100 cm caused a reduction in plant height, while branches number, stem diameter and shoot fresh and dry weights per plant or per feddan were increased in the two seasons for the two cuts. Moreover shoot fresh and dry weights at the second cut of both seasons at the three distances used were more than double of those for the first cut. The photosynthetic pigments (chlorophyll a, b and carotenoids) in fresh leaves at the two cuts of both seasons were increased by increasing plant spacing. Crude protein, total carbohydrates and crude fiber were slightly increased as plant spacing increased. Also the nutritive values, *i.e.*, dry matter, total digestible nutrients and starch values behave the same.

- Increasing the rate of organic manure from 0.0 up to 60 m³/fed significantly increased all studied growth traits and forage yield per plot and per feddan. Photosynthetic pigments in leaves were affected, crude protein, total carbohydrates and crude fiber were significantly increased with the highest rate of organic manure. While nutritive values take an opposite trend.

- The interaction between plant spacing and organic manure was significant in some studied traits.

- The soil analysis after harvest revealed that organic manure reduced the pH and Ec values which consequently increased nutrients solubility and availability.

Keywords: *Leucaena leucocephala*, Organic manure, Plant density, Growth criteria, Forage yield and its quality.