

Yield and Nutrient Efficiency of five Alfalfa (*Medicago Sativa* L.) Cultivars under Sandy Soil Conditions

A.B. El-Nasharty¹; O.A.Nofal² and A.I. Rezk¹

¹Fertilization Technology and ²Plant Nutrition Departments, National Research Centre, Dokki, Giza, Egypt.

Abstract: Five alfalfa cultivars (one Egyptian and four Chinese) were grown under sandy soil in the experimental farm of National Research Centre, at Nubaria District, located EL-Behara Governorate, Egypt to evaluate forage yield and nutritional status of plants. The cultivars were namely i.e. Nubaria (Egyptian cultivar); Chaoyinsu, Juneng, Liuji and Runbulexin (Chinese cultivars). The experimental design was a randomized complete blocks with three replications. A total of twenty-seven traits concerning content and uptake of macro- and micro-nutrients, fresh and dry forage yield, in addition to efficiency of nutrients absorption were determined for all cultivars. The results showed significant differences between alfalfa cultivars in all investigated traits. Nubaria Egypt cultivar recorded higher values than the other alfalfa cultivars for fresh and dry forage and crude protein yield and for these and utilization efficiency and fertilizer recovery of macronutrients. However, Liuji Chinese cultivar recorded the highest values for concentration of N, protein, P, Mn and Cu and uptake of Fe and Cu. While, Juneng Chinese cultivar had favourable values from concentration of K and Zn and uptake of K and its use efficiency and fertilizer recovery percentage. But Chaoyinsu Chinese cultivar was superior of Fe concentration. Whereas, the maximum values of N and P utilization efficiency was obtained by Runbulexin Chinese cultivar. It is apparent that a sufficient variation could be used in breeding program for improving vegetative and chemical composition traits and then the nutritional value of alfalfa forage. Subsequently application of different crossing programs is recommended between Nubaria Egypt cultivar and Chinese cultivars to develop new alfalfa cultivars for sandy soil such as in Nubaria District, Egypt.

Keywords : Alfalfa, Cultivars, Dry forage yield, Chemical composition and sandy soil.