

IRRIGATION INTERVALS AND POTASSIUM FERTILIZATION IN RELATION TO SORGHUM PRODUCTION IN FAYOUM CALCAREOUS SOIL

EL-BASIONI, S. M., H. M. HASSAN AND R. A. DRAR

Soils, Water and Environment Res. Inst., ARC, Giza

(Manuscript received 25 June 2009)

Abstract

A field experiment was conducted during the summer season 2008 in the calcareous soil of Kom Oshim Farm, Fayoum Governorate to investigate the effect of irrigation intervals (2- or 3-week) and applied K levels (0, 24, 48 and 72 kg K₂O/fed) in a split plot design on sorghum grain yield (cv. Dorado), 100 grain weight and grain content of N, P and K. Also, available K in soil was determined after harvest. The obtained results could be summarized as follows:

* The 2-week irrigation interval had a significant positive effect on grain yield than that of 3-week one. For K application treatments, there was a significant difference in grain yield compared with control treatment. The irrigation intervals or applied K levels had no significant effect on 100 grain weight. The interaction between irrigation intervals and applied K levels has no significant effect on grain yield and 100 grain weight.

* Increasing applied K increased K content of sorghum grains and available K in soil after harvest while the irrigation intervals being with no effect. The values of N and P % in grains were almost the same for both studied variables.

INTRODUCTION

Grain sorghum (*Sorghum bicolor* L. Moench) is considered as the fourth important cereal crop after wheat, rice and maize; in the world. In Egypt, sorghum is widely cultivated in about 400 thousand feddans. Most of these areas are found in Fayoum, Assiut and Sohag Governortaes. It is one of the most adapted summer cereal crops to adverse conditions of water shortage, salinity and low soil fertility. Ahmed and Salem (2005) pointed out that watering and K fertilization are the important factors affecting sorghum growth, yield and their components. They added that exposing sorghum to stresses of soil moisture and K availability at any phase of its life cycle might lead to detrimental effects on growth, yield and yield components. Moreover, this problem is so clear during summer especially at the tail end of irrigation canals. Consequently, selecting the appropriate hybrids, soils and managing irrigation water for sorghum are the main issues under Egyptian conditions.