



Growth of fodder crop (*Sorghum bicolor* L.) as animal feed

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Abstract

An experiment was conducted at experimental farm of Faculty of Agriculture (U of K) in 2007 July to October to study the effect of three different Khartoum State soil obtained from river Nile (G), shambat area (SH) and El-Fetehab area (F) on the growth of sorghum (Abu-sabeen). The experiment was done in plastic pots in glass house. Complete randomized block design (CRD) were used. Plant height was recorded throughout the plant growth which showed significant difference. G Soil gave higher range followed by SH and F respectively.

Key words: Soil, Nile, Pots, Sorghum, Abu-Sabeen

Introduction

Among the fodder crops suited for Khartoum area is sorghum fodder (*Sorghum bicolor* L.) locally known as (Abu-sabeen). It is classified as moderate salt tolerant crop and is presently the most widely grown crop in this area. The implication of the Arabic name is that it matures in about seventy days (Bacon, 1948). Although this variety has palatable seeds it is commonly used as fodder in Khartoum and Northern province (Sattell et al., 1998). The fodder adapted to wide range of soil types. There are some variations between production areas (National Research Council, 1995) and is greatly affected by soil type and soil minerals status (Haby, 1995). Warm season, annual grasses, have the potential to produce large amount of nutritious forage during summer months (Zeyada and Eisa, 1984).

They fit well into dry land and limited irrigation situations because of tolerance to drought. It can provide nutritious forage during hot dry summer months when cool-season, perennial grasses have some dormant and warm season perennial pastures are lacking in nutrition (Venuto et al., 2003). If managed properly, they make excellent hay for supplemental feeding during times of inadequate forage production. As a cover crop, they do an excellent job of suppressing weeds and improving soil quality, organic matter and nitrogen status (Sattell et al., 1998). The diversity of management option depending on which species and variety is selected; the grasses may be used for grazing

pasture, hay production, and silage and green-chop operations.

In general, sorghums are coarse, erect grasses that vary in height from 2 to over 15 feet. The majority of growth occurs in July and August but persists until maturity or fall frost. Growth increases with long days and warm temperatures, with 77-86°F being the most favorable temperature range. Most have tiller at least to some extent and will fill into open spaces between rows or other plants. Sorghum can tolerate significant moisture stress and will resume vegetative growth after drought-induced dormancy (Venuto et al., 2003). Inflorescences were arranged primarily in erect panicles and yield from 11,000 to 70,000 seeds per pound, depending on sorghum type. *Sorghum bicolor* (L.) is considered as main cereal forage crop in Sudan (William et al., 1994).

Materials and Methods

Experiment was carried out in 2007 at experimental farm of Faculty of Agriculture University of Khartoum. Topsoil surface samples (0-30 cm) were collected using auger from 3 different sites, selected along the river Nile (Entisols) coded by (G), from the terrace of Shambat area coded by (SH) and from production area sand soil (El fetehab) (F). Abu sabeen seeds obtained from Arab company, Sudan. Three seeds were placed by hand in plastic pot contain having 10 kg soil which after one week thinned to one. Irrigation was added according to field capacity of each soil. Each

treatment was assigned to an experimental unit. Complete Randomized block design was used.

One plant was randomly selected and labeled. The plant height was measured in situ from the ground level to the tip of the panicle. The mean height for the three plants was recorded in cm.

Results and Discussion

The means of plant height in 3 different soils indicated the height ranged between 163.4 to 293.3 cm, indicating significant difference. Effect of soil types on plant high was recorded and the results showed that the tallest high of plant Abu sabeen (293.3 cm) was found in (G) soil (Table 1). The same result indicated by Elamin (1980).

Table 1: Plant height (in cm) of abu sabeen in different soils

Soil type	Abu 70
F	163.3333 ^b
G	293.3333 ^a
SH	191.0000 ^b
C.V = 12.6849	
L.S.D for soil = 14.159	

^{ab} Means with same letter are not significantly different

G = Soil from along river Nile (Entisol)

F = Soil from the production area, sand soil (El-Fetehab) area.

SH = Soil from the second terrace of Shambat area.

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