

Research Application Summary

Effect of sowing date and genotypes on some yield components of kenaf

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Abstract

A study was conducted at the University of Gezira in Wad Medani experimental farm in Sudan during May - September 2014 to determine the optimum date for sowing kenaf (*Hibiscus cannabinus* L.). Two kenaf genotypes, i.e., GS and RS were used in the study. The experiment was designed as a randomized complete block (RCBD) and arranged as a split-plot with genotypes making main plot treatments and sowing date as sub-plot treatments. The effect of genotype on agronomic performance was not significant. Results showed that the first sowing resulted into higher plant height and stem diameter compared to the second. Days to 50% flowering were 130 compared to 110 for the second planting. The earlier planting date is thus recommended for Sudan.

Key words: Environment, gunny crop, interaction, Kenaf, production, quality, Sudan

Résumé

Une étude a été menée à l'Université de Gezira dans la ferme expérimentale Wad Medani au Soudan de mai à septembre 2014 afin de déterminer la date optimale pour semer le kénaf (*Hibiscus cannabinus* L.). Deux génotypes de kénaf, c'est-à-dire GS et RS ont été utilisés durant l'étude. L'expérience a été conçue comme un bloc complet randomisé (RCBD) et disposée comme une parcelle divisée avec des génotypes faisant des traitements de la parcelle principale et la date de semis comme traitements de la sous-parcelle. L'effet du génotype sur la performance agronomique n'était pas significatif. Les résultats ont montré que le premier semis a entraîné une hauteur de plante et un diamètre de tige les plus élevés que le second. Les jours à 50% de floraison étaient de 130 comparativement à 110 pour la deuxième plantation. Une date de plantation plus précoce est donc recommandée pour le Soudan.

Mots clés: environnement, récolte de jute, interaction, kénaf, production, qualité, Soudan

Introduction

Kenaf (*Hibiscus cannabinus* L.) is one of the most important fiber crops in the world. It has been cultivated and used as cordage crop to produce twine, rope, gunny bags and sackcloth for over six millennia. Kenaf is commercially cultivated in more than 20 countries, particularly in India, China, Thailand and Vietnam (FAO, 2003). In Sudan Kenaf is commercially cultivated in the two States of Sennar and Blue Nile. Kenaf has a high growth rate, reaching heights of 4-6 m in about 4-5 months with a yield of 6-10 tons of dry mass per acre per year. This yield is 3-5 times greater than that of the southern pine tree (LeMahieu *et al.*, 2003) which takes 7- 40 years to attain harvestable size. In Sudan, Kenaf is now grown in different areas under different climatic conditions. These different areas report a wide range of yield (Bhangoo *et al.*, 1986). Like other crops, kenaf performance is influenced by genotype, environment and agronomic practices. For optimal production and resource allocation, it is important to establish the performance of different kenaf genotypes. The effect of sowing date on the productivity of kenaf is also not known, yet it may have significant influence of its performance. The objective of this study was therefore to determine the effect of the sowing date and genotypes on some yield components of kenaf.

Materials and methods

The experiment was carried out at the experimental farm of the Faculty of Agricultural Sciences, University of Gezira during the period May - September, 2014. The experiment was arranged as a split plot under a randomized complete block design (RCBD). Two kenaf genotypes (GS and RS) were used and constituted the main plot treatment. Sub-plots were made up of two sowing dates, i.e., 15th and 30th May. Three to four seeds were sown per hole and later thinned to one after three weeks. No pest management measures were implemented in the trial. Data were taken for plant height, stem diameter, 50% flowering and yield. Means were computed for these parameters and subjected to analysis of variance (ANOVA) using MSTATC computer programme. Means were separated according to Duncan's Multiple Range Test (DMRT).

Results

The effect of genotype was not significant for plant height within sowing date. Plant height was higher in the first sowing compared to the second. For genotype RS, mean plant height was 246 cm and 158 cm in the first and second planting, respectively. The mean height for GS was 232 cm in the first sowing and 136 cm in the second sowing date (Table 1). Flowering was earlier in the late crop compared to the first crop. For the first sowing, 50% flowering was attained 130 days after sowing while for the second planting it was attained 110 days after sowing. The mean stem diameter for RS in the first sown crop was 6.9 cm while for the second crop it was 4.5 cm. On the other hand, mean stem diameter for GS in the first sown crop was 6.3 cm while for the second planting it was 4.2 cm (Table 2).

Table 1. Mean plant height (cm) for two Kenaf genotypes grown under two sowing dates in Sudan

Genotype	Sowing date		Mean
	15 May	30 May	
RS	246.0	158.7	202.3
GR	232.3	136.0	184.2
Mean	239.2	147.3	193.3

Variety means not significantly different within sowing

Table 2. Mean stem diameter (cm) for two Kenaf genotypes grown under two sowing dates in Sudan

Genotype	Sowing date		Mean
	30 May	15 May	
RS	4.5	6.9	5.7
GS	4.2	6.3	5.3
Mean	4.4	6.6	5.5

Variety means not significantly different within sowing

Conclusion

Sowing kenaf on 15 May resulted into superior agronomic performance compared to sowing two weeks later on 30th May.

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References

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