Planting density effects on feed and fibre yield of two kenaf (Hibiscus cannabinus L.) varieties in Malaysia

ABSTRACT

Background and Objective: Kenaf (Hibiscus cannabinus L.) has been identified as a viable alternative crop to replace tobacco in Malaysian agriculture. Since 2001 V36 kenaf variety has long been planted and currently a new variety MHC123 is being evaluated. The study was conducted to determine the effects of planting density and harvesting age on yield and quality of MHC123 compared to V36 kenaf varieties. Methodology: The study was conducted at MARDI Serdang Selangor and planting was carried out on 4th-6th April, 2013. The treatments of planting density, harvest age and variety were arranged in a split-split plot design with 4 replications. Harvest age was set as the main plot, planting density as a sub plot and variety as a sub-sub plot. Data were analyzed using SAS software. Results: The MHC123 had higher (p<0.05) CP content (18%) at planting density of 666,700 plants ha^{-1} while V36 with 20.6% CP at planting density of 500,000 plants ha^{-1}. The MHC123 and V36 varieties had lower ADF content at planting density of 666,700 plant ha^{-1} (30.7 and 30.8%, respectively) compared to the other planting densities. Planting density of 444,400 plants ha^{-1} produced the highest fibre production for MHC123 and V36 where both varieties were higher in dry matter yield, bast yield and core yield compared with other planting densities. Across both varieties, dry matter yield was highest (p<0.05) at the lowest planting density of 444,400 plants ha^{-1} at 12.7 t ha^{-1}, followed by decreased dry matter yield of 11.5, 11.2 and 10.3 t ha^{-1} for planting density of 500,000, 571,500 and 666 700 plants ha^{-1}, respectively. Conclusion: The MHC123 is superior to V36 variety in leaf yield, stem yield, leaf to stem ratio, leaf area index, number of days to flowering and bast yield. For kenaf forage production the suitable planting density for MHC123 variety is 666,700 plants ha^{-1}.

Keyword: Kenaf; Plant population; Fibre; Animal feed; Fibre analysis; Nutritive values