

**GROWTH CHARACTERISTICS, FORAGE YIELD
AND NUTRITIONAL COMPOSITION AT
DIFFERENT HARVESTING STAGES OF FODDER
SORGHUM AND FODDER MAIZE GROWN IN
DRY ZONE, SRI LANKA**

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
in partial fulfillment of the requirement of
the degree of
Bachelor of Animal Science

by

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2016

ABSTRACT

A field experiment was conducted to evaluate growth characteristics, forage yield and nutritional composition (dry matter-DM, crude protein-CP, ether extract-EE, crude fiber-CF) at different harvesting stages of fodder sorghum and fodder maize grown in dry zone, Sri Lanka to determine the best harvesting stage to be used as a cattle feed. Randomized complete block design (RCBD) was used as the experiment design with 5 treatments; for sorghum: T1(4 weeks/vegetative), T2 (6 weeks/early growth), T3(8 weeks/half bloom) T4 (12 weeks/dough) and T5 (14 weeks/mature); for maize: T1(4 weeks/ vegetative), T2 (6 weeks/ silking), T3 (8 weeks/blister) T4 (12 weeks/milk) and T5 (14 weeks/mature). Plant height, stem diameter, leaf number were measured at different stages to determine the growth characteristics and forage yield (fresh basis) was measured. Furthermore, chemical composition of whole sorghum and maize plants were analyzed at different stages of growth. Results revealed that the plant height, leaf number and forage yields were high ($p < 0.05$) after eight weeks of planting for both maize and sorghum. Highest plant height and forage yield were given by both maize and sorghum plants at 12 weeks after planting. According to the chemical composition of whole plants at different growth stages, mean values of DM (21-23 kg/day), CP (15-16%), EE (4-6%) and CF (25%) content at half bloom and dough stages of sorghum shown compatible with the standard nutrient requirement of a dairy cow at mid lactation while those parameters were aligned with the same animal requirement on milk stage of maize. In conclusion, half bloom stage (8 weeks) of fodder sorghum is the best stage to harvest as a cattle feed while maize plants at their milk stage (12 weeks) is the most suitable harvesting stage as a cattle feed with low cost of production with high quality.

Key words: Fodder sorghum, Harvesting time, Growth stage, Stem-diameter, Forage yield