GREEN MASS AND DRY MATTER YIELD, AND NUTRITIONAL VALUE OF FORAGE SORGHUM AND AMARANTH AT DIFFERENT GROWTH STAGES

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SUMMARY

Characteristics of amaranth such as its rapid growth, efficient water utilization and high protein content of its green mass make it a suitable crop for animal nutrition. Investigations (Pond and Lehmann, 1989; Jamriska, 1994; Stordahl et al., 1999) have shown the high nutritional value of amaranth in animal nutrition.

The objective of investigations carried out on the experimental field of the Faculty of Agriculture, Zagreb, in 2002, 2003 and 2004 was to compare green mass and dry matter yields of forage sorghum and amaranth, and to assess and compare the nutritional value of these two crops at three growth stages: 1) sorghum - 100 cm high; amaranth cultivar 1008 - 50 cm high, cultivar Koniz - inflorescence appearance, 2) sorghum - 150 cm; amaranth cultivar 1008 – inflorescence appearance, cultivar Koniz - flowering, and 3) sorghum – tasselling; amaranth cultivars 1008 and Koniz - flowering. Investigations were done on two amaranth cultivars: 1008 (Amaranthus hypochondriacus L.) and Koniz (Amaranthus hypochondriacus L. x Amaranthus hybridus L.), and on forage sorghum, hybrid Grazer N (Sorghum bicolor x S. sudanense).

At the tasselling stage, forage sorghum gave a significantly higher yield of green mass and dry matter compared to both amaranth cultivars at flowering. Decline of forage quality of sorghum and of both amaranth cultivars was observed at later growth and development stages due to a decrease in the content of crude and digestible proteins and an increase in NDF and ADF contents. High quality of amaranth plant mass was determined. At all three growth stages, higher contents of crude and digestible proteins were found in amaranth aboveground mass compared to forage sorghum while sorghum had a higher NDF content.

BIBLIOGRAPHY