Turkish Journal

of

Agriculture and Forestry

Turkish Journal of Agriculture and Forestry

Effects of nitrogen and harvesting time on chemical composition of biomass of Sudan grass, fodder sorghum, and their hybrid

Dorde GLAMOCLIJA[1], Snezana JANKOVIC[2], Sveto RAKIC[1], Radojka MALETIC[1], Jela IKANOVIC[1], Zeljko LAKIC[3]

[1]Faculty of Agriculture, Nemanjina 6, 11080 Zemun, Belgrade - SERBIA

[2]Institute for Science Application in Agriculture, Bulevar despota Stefana 68b, 11000, Belgrade - SERBIA

[3]Institute of Agriculture, 78000 Banja Luka - BOSNIA AND HERZEGOVINA

Abstract: The subject of this study is 2-year variability research (2007 and 2008) of the chemical composition of naturally dried biomass samples of 3 different sorghum species, which are widely used in the southeast Balkans. Samples of Sudan grass Zora, fodder sorghum NS-Dzin, and their hybrid Siloking were examined based on the quantity of used nitrogen and the harvest time. Plants were grown in the experimental field of Radmilovac (property of the Faculty of Agriculture in Belgrade) in a randomized block, split-split plot design with 3 replications for 2 years. Naturally dried biomass with the highest amount of total proteins was obtained by mowing during the stem elongation phase (plant height, 100-120 cm). By subsequent mowing in the tasseling phase, the amount of total proteins and mineral substances in the biomass decreased, while the amount of carbohydrates and cellulose significantly increased. The content of lipids in the samples tested differed depending on the cultivar, but this variation was not statistically significant. By increasing the intensity of plant nitrogen nutrition, the total protein content in the tested samples was increased. Due to the large amounts of nonprotein nitrogen compounds, the fraction of digestible proteins did not increase. According to the established chemical composition of the silage sorghum hay, the total digestibility of nutritive components of the tested samples was determined to be satisfactory, above 51%. The highest quality biomass was obtained by mowing the hybrid of sorghum and Sudan grass during the stem elongation phase. The most suitable nitrogen dose of 80-120 kg and harvest during the tasseling period were the best for all 3 cultivars.

Key words: Chemical composition, fodder sorghum, harvest period, nitrogen, Sudan grass

---

Turk. J. Agric. For., **35**, (2011), 127-138.
Full text: pdf
Other articles published in the same issue: Turk. J. Agric. For.,vol.35,iss.2.