

THE GREEN MASS AND SILAGE QUALITY OF REED CANARY GRASS, *PHALARIS ARUNDINACEA* UNDER THE CONDITIONS OF MOLDOVA

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Abstract

Reed canary grass *Phalaris arundinacea* is a cool-season, long-lived with good frost and drought tolerance, high-yielding C₃ grass species. The objective of this research was to evaluate the quality of green mass and prepared silage from reed canary grass, *Phalaris arundinacea*, cv. *Premier* grown under the conditions of the Republic of Moldova. In the third growing season, reed canary grass was characterized by high growth rate and regenerative capacity after being cut. Results revealed that harvested green mass first cut content 25.6% dry matter, but green mass second cut - 38.7% dry matter. The dry matter of the whole plant contained 109-139 g/kg CP, 74-98 g/kg ash, 368-411g/kg ADF, 616-685 g/kg NDF, 36-38 g/kg ADL, 330-375g/kg Cel and 248-274 g/kg HC. The nutritive value of natural fodder: 56.9-60.2% digestible dry matter, 11.32-11.91 MJ/kg digestible energy, 9.29-9.78 MJ/kg metabolizable energy and 5.31-5.79 MJ/kg net energy for lactation. The prepared silages were characterized by agreeable colour with pleasant smell and pH 3.98 - 4.10, it contained 30.8- 43.9 g/kg DM lactic acid, 5.8-7.2 g/kg DM acetic acid, 900-902 g/kg organic matter, 127-129 g/kg CP, 411-427 g/kg ADF, 683-704 g/kg NDF, 27-28 g/kg ADL with nutritive value: 55.6-56.9% dry matter digestibility, 11.09-11.32 MJ/kg digestible energy, 9.11-9.28 MJ/kg metabolizable energy and 5.07- 5.31 MJ/kg net energy for lactation. We found that the *Phalaris arundinacea* substrates for anaerobic digestion, have optimal C/N ratio, amount of lignin and hemicellulose. It has been established that the biomethane potential of the *Phalaris arundinacea* substrates varied from 335 to 362 l/kg ODM. Reed canary grass *Phalaris arundinacea* cv. *Premier* have good nutrient content, can be used as as natural fodder and silage for husbandry animals, also and feedstock for anaerobic digestion in biogas reactors and renewable energy production.

Key words: biochemical composition, biomethane potential, green mass, nutritive value, *Phalaris arundinacea*.