

## COMPARISON OF PRODUCTIVITY AND FORAGE QUALITY OF COCSFOOT (*Dactylis glomerata* L.), TALL FESCUE (*Festuca arundinacea* Schreb.) AND RED CANARY GRASS (*Phalaris arundinacea* L.)

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**Summary.** The study was designed to assess and compare the productivity and nutritional quality of *Dactylis glomerata* (DG), *Festuca arundinacea* (FA) and *Phalaris arundinacea* (PA). According to the dry matter (DM) yield per plant averaged over two years, PA was significantly ( $P < 0.05$ ) more productive (163.3 g) than FA (151.8 g) and insignificantly ( $P > 0.05$ ) more productive than DG (158.9 g). The highest content (165 g kg<sup>-1</sup>) of water soluble carbohydrates (WSC) was established for FA, while the lowest content (84 g kg<sup>-1</sup>) was measured in PA biomass dry matter, and the highest crude protein (CP) concentration was determined for DG and PA (137 and 134 g kg<sup>-1</sup> DM, respectively), and the lowest concentration was recorded for FA (118 g kg<sup>-1</sup> DM). According to the average neutral detergent fibre (NDF) content in biomass DM, the studied species ranked in the following order: PA > DG > FA. The data averaged over two years indicated that the biomass of FA plants at early heading stage had the lowest concentrations of NDF (606 g kg<sup>-1</sup> DM) and hemicelluloses (269 g kg<sup>-1</sup> DM), and that of DG contained the lowest concentration of lignin (26 g kg<sup>-1</sup> DM). In this respect, the quality of PA biomass was the poorest since the values of all components negatively correlating with digestibility were the highest: NDF - 663 g kg<sup>-1</sup> DM, lignin - 33 g kg<sup>-1</sup> DM, cellulose - 324 g kg<sup>-1</sup> DM. The digestibility of DG plants characterised by the highest leafiness was the best (684 g kg<sup>-1</sup> OM), while that of PA characterised by the lowest leafiness was the worst (608 g kg<sup>-1</sup> OM). The biomass of later maturity grasses had a higher dry matter content, fibre fractions and lignin, lower content of proteins and mineral matter substances. From beginning of plant heading to flowering the least changes in lignin concentration occurred in FA variety 'Navas DS' biomass (30.8 and 56.8 g kg<sup>-1</sup> DM, respectively), values of carbon/nitrogen ratio in the biomass of DG 'Aukštuolė', FA 'Navas DS' ir PA 'Palaton' varieties increased from 50 % to 83 %. According to many quality components, the most rapid deterioration of biomass nutritive quality occurred in DG 'Aukštuolė'.

**Keywords:** perennial grasses, dry matter yield, nutritive quality, fibre composition.