

SPRING BARLEY OVER-GROUND BIOMASS DIGESTIBILITY *IN VITRO*

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Abstract. Spring barley over-ground biomass digestibility *in vitro* trials were established at Experimental station and *Tempus* laboratory of Lithuanian University of Agriculture. Spring barley *Hordeum vulgare* L. was harvested at stem elongation, heading early milk, milk, late milk-early dough, dough and hard stages of maturity. Digestibility *in vitro* of spring barley organic matter in the dry matter depended on spring barley stage of maturity. The highest digestibility *in vitro* was established at growth stage of stem elongation 73–78% (except 1998) while at later growth stages it decreased. Digestibility of spring barley whole-plant biomass at stem elongation was fewer just compared with barley grain digestibility at dough and hard stages of maturity. The highest digestibility *in vitro* (till 89%) was established of grains at hard stage of spring barley maturity. Digestibility *in vitro* of spring barley insufficiently matured grains of dough stage was lower by 2.1-6.4% compared with hard one (except 1999). Spring barley metabolizable energy (MJ kg⁻¹ DM) directly depended on barley growth stages and fodder organic matter digestibility *in vitro*. Correlation coefficients were $r = 0.995-0.998$ at $P < 0.0001$. Metabolizable energy in spring barley biomass at different growth and maturity stages can be sufficiently exactly determined according regression equations based on digestibility *in vitro* as correlation coefficients are nearer to one. The change of spring barley over-ground biomass digestibility *in vitro* by 1% induced change of metabolizable energy by 0.19-0.21 MJ kg⁻¹ DM.

Keywords: spring barley, over-ground biomass, growth stages, digestibility *in vitro*.