

EFFECT OF GROWTH STAGE OF LEGUMES ON SILAGE DIGESTIBILITY

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Abstract. Legumes are known to be difficult to ensile because they are highly buffering, have a low sugar concentration and often a low dry matter concentration. The previous results have shown that fermentation quality can easily be improved by using additives.

The chemical composition, nutritive value and digestibility of silage prepared from the early-maturing red clover (*Trifolium pratense* L. *subvar. praecox* Witte) varieties 'Varte' (4x) and 'Jõgeva 433' (2x); the late-maturing red clover (*Trifolium pratense* L. *subvar. serotinum* Witte) varieties 'Ilte' (4x) and 'Jõgeva 205' (2x); hybrid lucerne (*Medicago varia* Mart) varieties 'Karlu' and 'Jõgeva 118' in different phases of development were studied in 2000 and 2001. For this purpose, test silages were prepared. Legumes were cut at the height of 5 cm, chopped into 2 cm pieces, supplemented with additive AIV 2000 and conserved into jars. In 90 days the jars were opened; the chemical composition of test silages was determined according to the generally accepted methods, and nutritive value was calculated. The dry matter degradability of silages, as well as organic matter digestibility, was determined *in vitro*, using ANKOM analysers.

Comparison of the chemical composition and nutritive value of different varieties of red clover and hybrid lucerne bred in Estonia revealed the following results. At the bud formation stage, the crude protein content of the tetraploid red clover variety 'Varte' was considerably higher (197 g/kg), and that of the crude fiber was lower (208 g/kg), compared with other varieties. Due to the extremely low dry matter content 122 to 130 g/kg at the bud formation and 145 to 148 g/kg at the stage of early flowering, the tetraploid red clovers should be wilted for ensiling.

The metabolizable energy content of silage of the red clover and hybrid lucerne varieties was from 9.1 to 10.1 MJ/kg, respectively, of the stage of growth, and the organic matter digestibility - from 57 to 71 %.

Keywords: legume, red clover, lucerne, silage, digestibility, nutritive value