Agricultural and Food Science - abstract

Vol. 15 (2006), No. 1, p. 23-34

KUUSELA, EEVA,

Annual and seasonal changes in mineral contents (Ca, Mg, P, K and Na) of grazed clover-grass mixtures in organic farming

Keywords organic farming, dairy cows, pastures, Trifolium repens, Trifolium pratense, Trifolium hybridum, herbage mineral concentrations, calcium, magnesium, phosphorus, potassium, sodium,

Abstract

A grazed field experiment was established in 1995 to evaluate alsike clover (Trifoliun hybridum L.), red clover (Trifolium pratense L.) and white clover (Trifolium repens L.) in clover-grass mixtures under organic farming practices. In this study the effect of seed mixture (alsike clover, red clover, white clover, white and alsike clover or grass mixture), year (1997, 1998) and grazing period (5 per grazing season) on the herbage calcium (Ca), magnesium (Mg), potassium (K) phosphorous (P) and sodium (Na) contents was assessed and the relationships between botanical proportions and herbage mineral contents were studied. Herbage Ca and Na contents varied between the seed mixtures, Ca, Mg, P and Na contents between the years and all measured minerals, except Na, between the grazing periods. The white clover mixture resulted in higher Ca and Na contents. The contents of Ca and Mg were positively related with the proportions of clovers and weeds and were higher in 1997. The contents of P and K were higher in the rainy summer of 1998. The seed mixtures resulted in similar mean K/(Ca + Mg) equivalent ratios, but the Ca/P ratio was higher for the white clover mixture. Mineral rations varied between and within grazing seasons. Under organic practices the supply of minerals in the pasture herbage varied temporally and according to the botanical contents and was unable to meet fully the requirements of dairy cows. Additional mineral feeding is recommended for organic farming systems to balance the dietary mineral contents for grazing cows.

Contact eeva.kuusela@joensuu.fi

[Full text] (PDF 247 kt)

Update 10.5.2006.

Source: MTT's Publications database Afsf