

The productivity of coastal meadows in Finland

R. Nevalainen, A. Huuskonen, S. Jaakola, J. Kiljala and E. Joki-Tokola

MTT Agrifood Research Finland, North Ostrobothnia Research Station, Tutkimusasemantie 15, FIN-92400

Ruukki, Finland, Email: sari.jaakola@mtt.fi

Keywords: coastal meadows, forage quality, dry matter yield

Introduction The coastal meadows of Finland have gained a new interest as a summer pasture for cattle. These habitats have great historical, aesthetic and biological value (Pessa & Anttila, 2000). Typical features of the coastal meadows are the varying vegetation zones and wet, sometimes waterlogged, soils. The meadows are important nesting and feeding habitats for many water birds. When grazing ceases, reeds, trees and shrubs take over and the area loses its openness. Lately the amount of grasslands and pastures has drastically declined all over Europe. In Finland, the area of semi-natural biotopes has decreased to 1% of what it had been at the beginning of the twentieth century (Pitkänen & Tiainen, 2001). The goal of this study was to determine the yield and nutritional value of grass herbage in the meadows.

Materials and methods The data was collected from four meadows located on the shore of the Baltic Sea. Each meadow was 60-250 ha and 20-120 cows with their calves grazed the areas for 70-120 days per year. There were two fenced areas unavailable to cows on each meadow of which the vegetation was cut every five weeks in 2003 and 2004 from 25 cm x 50 cm areas. Eight grass samples were taken from each meadow. Samples were collected weekly from the beginning of June to the middle of July. The regrowth samples were taken from vegetation cut a month previously. The soil samples were taken in 2003 from each sample area at the beginning of the growing season.

Results The soil samples showed that the soil was low in nutrients. The pH varied between 4.4 and 5.5 and the phosphorus content was 45 mg/kg. The plant samples indicated a low level (121 g/kg dry matter (DM)) of crude protein, which decreased as the summer progressed (103 g/kg DM in the regrowth sample). Mean *in vitro* DM digestibility of the herbage was 0.69 (0.64 in the regrowth sample). Neutral-detergent fibre concentrations slightly increased towards the end of the summer being 557 g/kg DM and 641 g/kg DM in the regrowth sample. The DM content of the plants was high (325 g/kg). The development of DM (Figure 1) increased with time but drastically decreased in the regrowth sample. Concentrations of Cu, K, P and Ca in herbage were low overall. Fe, Na and Mn concentrations in herbage were remarkably high.

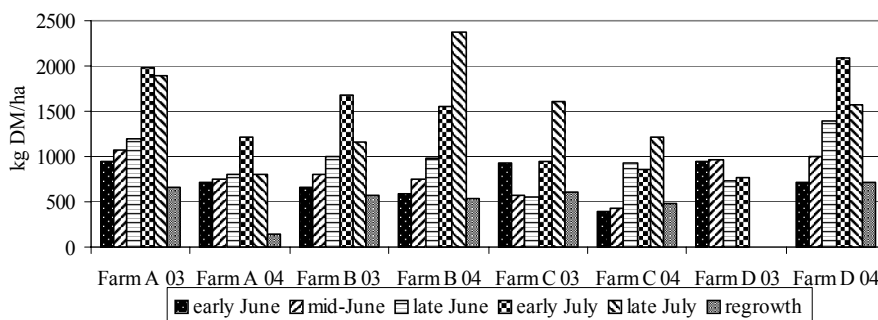


Figure 1 Changes in dry matter content in 2003 (03) and 2004 (04)

Conclusions Coastal meadows are a scarce habitat for vegetation in Finland. The plant species have low crude protein and high Fe and Na concentrations. The production of DM is generally less than half that of cultivated pasture. The quality of herbage decreases after early summer. Forage quantity and quality in late summer do not necessarily meet the feed requirements of growing calves. Nevertheless, the importance of these meadows remains high. The species diversity of vegetation is high, especially in meadows which have a long history of grazing or mowing. There is a need to continue the traditional husbandry practices to manage the landscape.

References

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