Effect of agronomic management on feeding value of Festulolium hybrids for winter pasture

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Introduction *Festulolium spp. are* considered to combine the distinctive winterhardiness of *Festuca* species with the high forage quality of *Lolium* species. Such cultivars may be particularly appropriate for winter pastures, but knowledge about quality aspects during winter under central European conditions is not available. The objective of this research was to determine forage quality of four *Festulolium* cultivars (*festucoid* type or *loloid* type*)* during winter under varying agronomic treatments.

Materials and methods The experiment was established on the Research Station near Giessen (160 m above sea level), central Germany. Pure stands of the cultivars Felina *(festucoid*), Lofa (*loloid*) and Hycor (*festucoid*), of *Festulolium pabulare*, Perun (*loloid*), of *Festulolium braunii*, and Kora, of *Festuca arundinacea* (as "standard"), were observed over two years. Treatments examined the influence of pre-utilisation (accumulation since June or July) and date of winter harvest (Dec. or Jan.). Energy concentration, estimated as metabolisable energy (ME) using formula 16e of Menke & Steingass (1984) is presented. Dry matter (DM) yield and ergosterol concentration (Schwadorf & Müller, 1989) were also determined. All results were examined by analysis of variance with $P < 0.05$ as the level of significance and least-significance differences (= LSD) were calculated.

Results

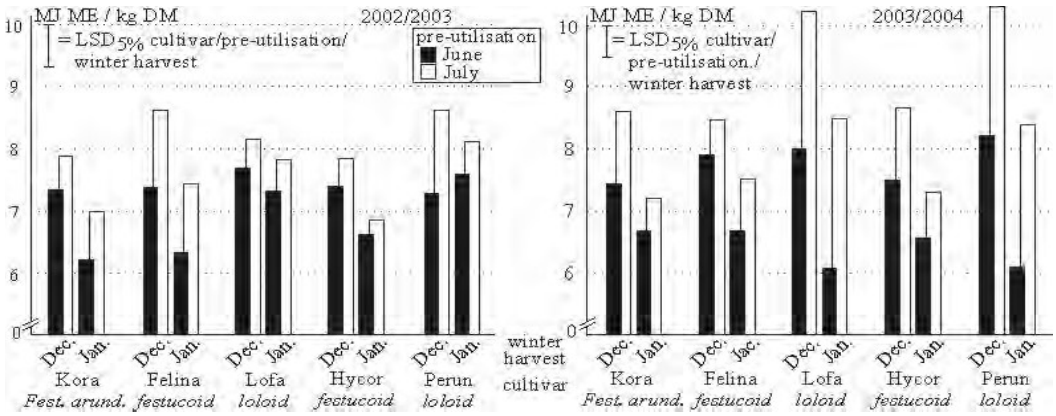

Figure 1 Effect of cultivar, pre-utilisation and winter harvest date on ME observed over two years

The *Festulolium* cultivars with *festucoid* character, Felina and Hycor and the *Festuca arundinacea* cultivar Kora had the highest yields during both winters. Yields of the *loloid* cultivars Lofa and Perun were clearly lower. Energy concentrations during winter were mainly influenced by the period of accumulation since summer (Figure 1) with the growths pre-utilised in July, frequently having higher values than those saved since June. This difference was particularly marked for the *loloid* cultivars. In the milder winter of 2003/2004, with generally higher growth rates before winter, energy values decreased from December to January. The effect of species is evident in both years, with values being higher for the *loloid* varieties. The higher yields of the *festucoid* cultivars (and *Festuca arundinacea)* are associated with more advanced maturity resulting in lower energy concentrations. Furthermore, the ergosterol-concentrations of the *loloid* cultivars indicate a lower durability to fungal infections.

Conclusions These results demonstrate that the *festucoid* cultivars of *Festulolium* are better adapted to utilisation as saved herbage during winter grazing. However, regarding yield productivity and feeding value the hybrids did not surpass the *Festuca arundinacea*-cultivar.

References

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