**Introduction**

Grazing has since ever been a traditional part of grassland and dairy farming in mountainous regions. After a long period of increasing indoor feeding a recurrence of grazing stimulated by both cost pressure and rising demands on animal welfare can be noticed. Continuous grazing on short swards is seen as an intensive system concerning mechanical and ecological stressing of grassland. Austrian farmers cast mayor doubts on a successful implementation of this grazing system.

**Material & Methods**

♦ From 2004 to 2009, experiments with continuous grazing on short swards were conducted at the AREC Raumberg-Gumpenstein, which is located in the Austrian production area “Hochalpen”

♦ The field experiment was carried out on two pastures with dairy cows. The size of the grazing area was adjusted depending on the actual yield growth rate

♦ Yields were estimated using (i) a plate pasture meter, (ii) a yard stick and (iii) simulated grazing plots

♦ Forage was analysed for DOM, energy concentration and crude nutrients, the botanical composition of the pasture was observed by periodically plant surveys

**Results**

► The yield growth curves for six vegetation periods presented in Figure 1 originate from the simulated grazing plots of the experiment which were cut 7 to 9 times year⁻¹

![Figure 1. Yield curves and total yield amount in the short sward grazing experiment at AREC Raumberg-Gumpenstein during six vegetation periods (2004-2009)](image)

◄ The maximum daily growth rate was achieved in 2007 with a maximum of 76 kg DM ha⁻¹ day⁻¹

◄ Total yield varied between 6.95 and 9.3 t DM ha⁻¹ year⁻¹ which can be called sufficient and a normal oscillation in grassland productivity in mountainous regions of Austria

► Forage quality of both systems tested in the project was high with a low content of crude fibre indicating an early date of utilisation (Table 1).

<table>
<thead>
<tr>
<th></th>
<th>% FM</th>
<th>% DM</th>
<th>% kg DM⁻¹</th>
<th>% %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DM</td>
<td>Crude protein</td>
<td>Crude fibre</td>
<td>Crude ash</td>
</tr>
<tr>
<td>Short sward grazing (n = 80)</td>
<td>15.6ᵃ</td>
<td>20.8ᵇ</td>
<td>20.4ᵃ</td>
<td>10.5ᵇ</td>
</tr>
<tr>
<td>Simulated grazing (n = 82)</td>
<td>14.5ᵇ</td>
<td>22.0ᵇ</td>
<td>19.3ᵇ</td>
<td>11.0ᵃ</td>
</tr>
</tbody>
</table>

♦ Digestibility of organic matter reached more than 74% resulting in an energy concentration of about 6.3 MJ NEL kg DM⁻¹ which is an excellent basis for high milk performance

♦ On all tested plots the projective coverage of the vegetation has reached the maximum of 100% at the end of the observation period. The number of different species ranged between 21 and 26 indicating a significant lower floristic diversity compared with extensively used grassland types in Austria

**Conclusions**

• The findings of the presented experiment indicate that even under unfavourable climatic conditions in mountainous areas continuous grazing on short swards can result in high yield amounts and excellent forage quality without any negative botanical impact on the grassland eco-system.

• The data and results obtained from the simulated grazing system were quite consistent with those of the real grazed areas.