

Growth performance of crossbred steers on unfertilised mountain pastures at low stocking rates

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Introduction As a consequence of increasing economic pressure on Swiss agriculture, marginal areas are threatened by abandonment, especially in the mountainous regions. Using these areas for extensive beef production might preserve an open landscape and favour biodiversity. A grazing experiment was conducted with steers on an unfertilised mountain pasture to study the effects of a reduction of stocking rate on the growth of the animals and on changes in the vegetation.

Materials and methods The grazing experiment took place on a mountain pasture in the Swiss Jura that had not been fertilized since 1987 (Les Verrières, 1126 m asl, mean total precipitation from May to September: 675 mm, mean July temperature: 14.6 °C, vegetation dominated by *Festuca rubra* L. and *Agrostis capillaris* L.). No supplementary food was offered with the exception of minerals. Crossbred steers (Limousin x Red Pied) that weighed approximately 400 kg were used. The steers had no access to housing. The experimental area was divided into 3 sections grazed at fixed stocking rates (SR) of 1.8, 1.2 and 0.6 AU/ha (1 AU = 600 kg live weight). Each section was subdivided into 3 paddocks which were grazed in rotation. The steers were blocked by live weight at turnout and randomly assigned to the SR treatments.

Results The average cumulative liveweight gains (LWG) per animal and the corresponding average daily gains (ADG) per rotation are presented in Figure 1. The initial ADG were generally higher than 1.0 kg/day for all SR. This indicates adequate quality and quantity of feed. Nevertheless, growth rates decreased drastically in summer. With decreasing SR from 1.8 to 0.6 AU/ha, the grazing period could be extended by 43 % and 69 % in 2001 and 2002, respectively. As a consequence, and combined with higher ADG, the cumulative LWG per animal realised on the unfertilised mountain pasture was more than doubled in both years at 0.6 compared to 1.8 AU/ha. The LWG per ha was not affected by a reduction of SR from 1.8 to 1.2 AU/ha. At the lowest SR, higher ADG combined with longer grazing period could not compensate for the low stocking rate, leading thus to the lowest LWG per hectare.

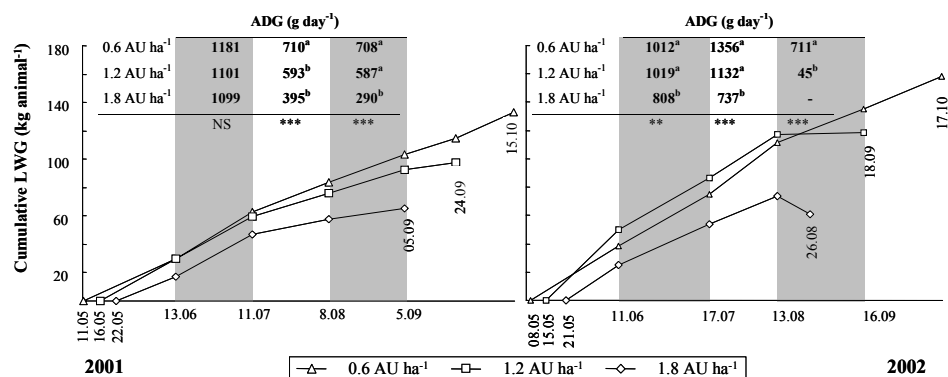


Figure 1 Cumulative mean liveweight gain (LWG) per animal and average daily gain (ADG) per rotation at three stocking rates during the grazing period in Les Verrières (1126 m a.s.l.). Means within one rotation with a same letter are not statistically different ($P=0.05$).

Conclusion This study shows that a reduction of the SR on mountain pastures in Switzerland and their use to fatten crossbred steers can be an alternative to abandoning these areas for grazing.