Session: S26

Strategies to cope with feed scarcity in harsh environments

Lamb meat production in alpine regions

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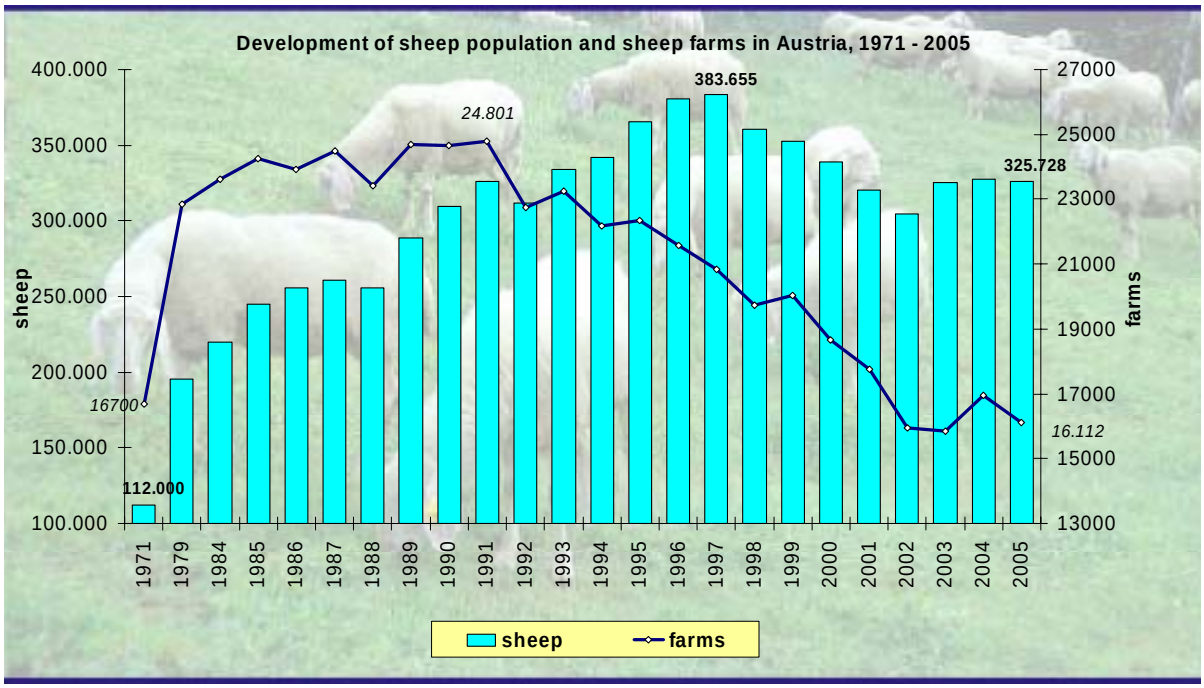
Abstract

In Austria about 330.000 sheep are kept. More than 50 % are kept in alpine regions. In this regions, the sheep stay on pasture during the vegetation period, this is about 6-7 months, from April to October, and about 6-5 months they have to stay in stable. The alpine pastures are in a sea level up to 2000-3000 m. For the wintertime the farmers have to produce feed conserves like hey or grass silage. The main aim of sheep breeding is to produce lambs with high quality. High quality is defined as young lambs (3-5 months), high proportion of meat and less fat. The problem is not feed scarcity, but the harsh environment during summer. This includes cold temperature, sometimes snow, predators like golden eagle, fox or lynx. Most endangered are the lambs, therefore no lambs are born in this time. Due to the steep grassland areas, the maintenance requirement is much higher than on lowland pastures. The daily gains are only 150 to 200 gram. If spring born lambs go to the alpine pastures, they are 6 to 7 months old when they come back. A better production system is to wean the lambs before the ewes go to the alpine pasture and feed the lambs indoor with concentrate and hay until their final body weight.



Graph 1: Development of Austrian sheep population and farms

Introduction

The most important production system in sheep breeding in Austria is lamb meat production. Generally, sheep production is only a small part of animal production. Total sheep population in Austria is about 330.000 sheep. This animals are kept in about 16.000 farms (see graph 1). Therefrom it follows an average flock size of 20 animals. The small flocks, the many different

breeds, the different production systems and the difficult production conditions in alpine regions resulted in different qualities of lambs. That is one disadvantage with sells. An other disadvantage is that during summer time the offer of lambs is low and in autumn, when all the sheep and lambs come back from the alpine pastures it is high.

The Austrian mountain sheep

The most suitable breed for the harsh conditions in mountain areas is the mountain sheep. This breed is also well suitable for lamb production all over the year. The mountain sheep is very fertile, has a short lambing interval (180 to 220 days) and it is possible to get lambs every month of the year. The typical trait are the long hanging ears. With this breed a continue production of lambs all over the year is possible. An analysing of lambing shows that in summer the results of fertility are not so high than in the rest of the year (see table 1). To improve the fattening and slaughter performance the mountain sheep should be mated with rams of a meat breed like Suffolk, Texel or Black head sheep.

Production system

Basically there are two systems:

1. Early weaning

Lambs are weaned with an age of 6-8 weeks. During rearing concentrate is offered ad libitum and therefore weaning is no problem. After weaning the lambs are fattened with concentrate and hay for free intake. The lambs are kept indoor until slaughtering. This system is practised during winter time and in lowland paddock systems. In Alpine regions during vegetation period only ewes without lambs are moved to the alpine pastures.

Advantage: young lambs
high daily gains
high quality carcass
ewes get earlier pregnant
less risk

Disadvantage: more work
higher costs for concentrate

2. Weaning and slaughter

In most farms, particular in the small farms, lambs and ewes are kept together until the lambs get their final body weight. Also in summer, ewes and their lambs are moved to the alpine pastures.

Advantage: less work
low costs for concentrate
natural method

Disadvantage: older lambs
lower daily gains
more total feed consumption
more risk for lamb losses
high offer of lambs in autumn

3. Farmer‘s cooperative

In alpine regions lamb fattening with concentrate is a problem. Late weaning is also a problem. A solution is, to bring the lambs to a farmer‘s cooperativ. The lambs should have a body weight up to 25 kg. We can say this is a mixture of the 2 systems before. Every 2 weeks the farmer can bring the lambs to the stable of the cooperative. The lambs are all feed with concentrate and hay. The quality of lambs is better and uniform. The offer is lager and commercialization is easier.

Harsh environments in alpine regions

In alpine regions feed scarcity is not a major problem. On the contrary, biodiversity of plants is very high. Due to the large area the sheep have, they can select the best plants. The stocking rate is very low.

For lambs there are many possibilities for losses. There are some beasts of prey like golden eagle, fox or lynx. Another harsh condition can be the weather. It is possible that it is snowing in summer above 1800 m of sea level. The difficult terrain can also be a danger for lambs specially for new born lambs. Therefore most farmers take out the ram of the flock from January to April, that there is no lambing during summer, when the ewes are on the alpine pastures.

Feeding during winter time

In alpine regions half of the year the sheep and all other livestocks have to be kept in stables. For feeding in this time conserves like hay or grass silage has to be produced. The quality of this feedstuffs has a significant effect on the performance of sheep and lambs (see graph 2). Lower quality of forage resulted in lower milk yield.

For producing hay or grass silage in high quality it is necessary to harvest the grass in a early growing stage. The older the grass, the lower the protein content (see graph 3) and also the energy content.

Quality of lambs

High quality lambs are young (about 4 months), have a high portion of muscle and low fat content. For producing young lambs (4 month old) the ration should be of high concentration. In table 2 there are some results of fattening and slaughter traits of mountain sheep (Bergschaf), cross bred with suffolk (B x Suf) and merino lambs. If the lambs get no concentrate, the average daily gains are very low, 130 to 180 g.

Summary

Lamb meat production in alpine regions is characterized in difficult production conditions. It makes no different what production system is used, important is the quality of lambs and meat.

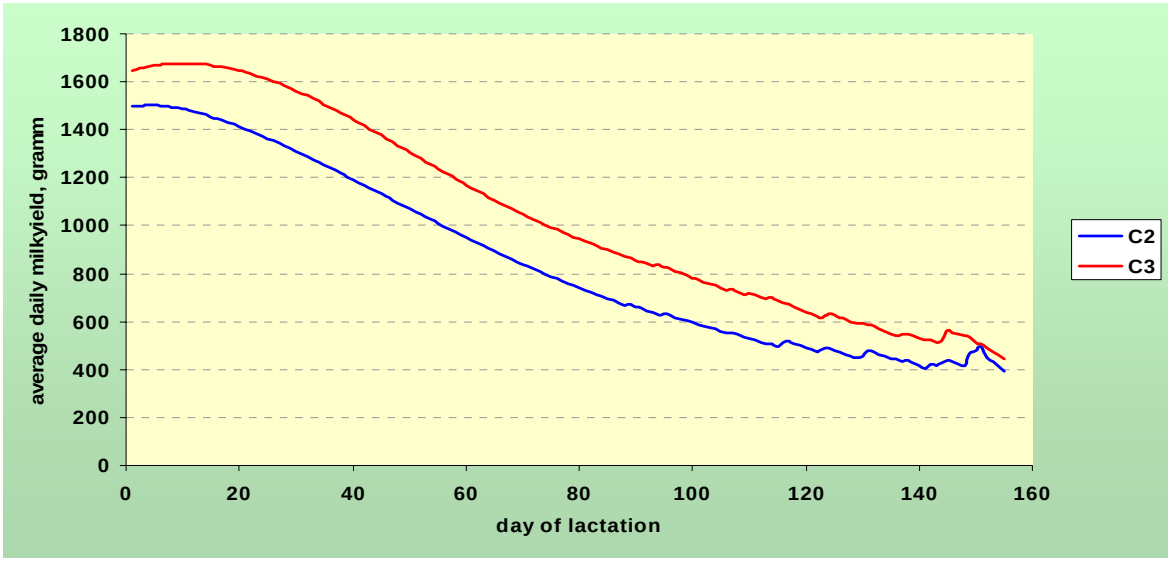
And quality is, when the consumer come back – and not the product!

Table 1: The effect of month on frequency of lambing and on birth weight of lambs

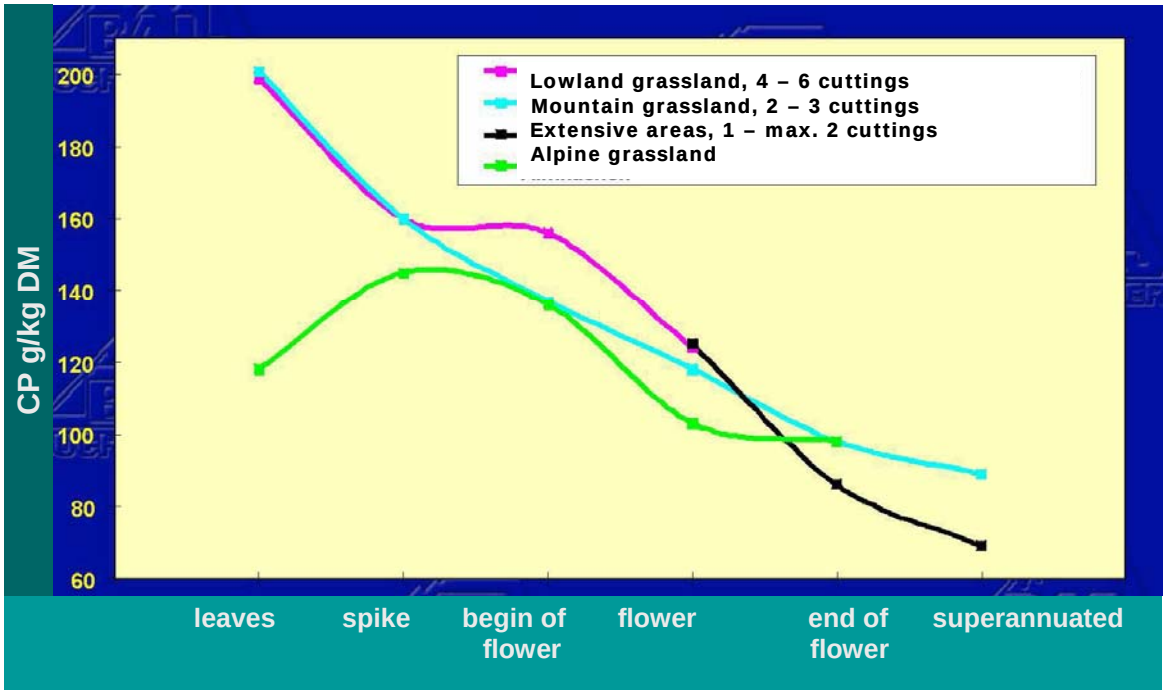
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Frequency of lambing,%	12.3	7.3	7.1	11.7	9.0	5.8	5.8	4.9	10.0	8.9	7.5	9.8
Birth weight, kg	3.65	3.69	3.64	3.74	3.59	3.73	3.86	3.73	3.82	3.61	3.65	3.54

Table 2: Some fattening and slaughter characteristics of lambs kept on alpine pastures

	Bergschaf	B x Suf	Merino
BW at begin, kg	26,0	28,4	27,4
Final BW, kg	38,9	42,4	41,6
Days	101	79	90
ADG, g	132	182	161
Warm carcass, kg	16,1	17,8	17,3
dressing percentage, %	46,1	45,8	45,6



Graph 2: Effect of forage quality on milk performance of mountain sheep (C2=hay with low quality, C3=hay with high quality)



Graph 3: Effect of plants biodiversity, frequency and time of cutting on CP content (Buchgraber, 2003)