

Statistical Overview of Alpine Grassland in Austria

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Abstract

The report describes the first step of the project of the Federal Institute of Agriculture in the frame-work of the MAB-project "Alpine Grassland". It gives a statistical overview of the grassland and its development in Austria focussing on the alpine grassland. The difficult natural resources of the alpine regions are presented also the different land use patterns against the socio-economic and demographic background. One aim of the project is to find the different types of grassland and grassland farming in the alpine region to make it possible to react in a correct way to the very different developments of grassland and its use in the Alps.

The different maps shown in the lecture at the EUROMAB-Symposium are available only in German and will be published in a special edition by the Austrian MAB-Project.

1. Project of the Federal Institute of Agriculture

The project carried out by the Federal Institute of Agriculture is operating on two levels. On the regional level we try to identify different types of grassland regions (also different alpine grassland regions). The grassland areas are determined not only by the natural condition, but also by agricultural structures, subsidies, tourism, and the other sectors of the regional economy and consequently by settlement and demographic developments. We want to somewhat to clarify this net of factors of influence on the grassland with a focus on alpine. We do this for Austria as a whole on the level of agricultural production zones.

On the local level in the project area of the Enns Valley our work is to find out more about the relevance of the alpine grassland within an environmental and social context primarily at a microeconomic level.

2. Natural Resources

I will give a brief overview of the natural resources Austrian agriculture and specifically grassland farming is endowed with. Some years ago, it was my task at our Institute to delimitate agricultural production zones. We identified eight main production zones. Three of them - covering 60 per cent of the country's area - include areas of the Alps with very difficult production conditions for agriculture. When we take a look at one of the valleys, we may see relatively small areas of more or less intensive grassland at the bottom of the valley, and higher up we find in most cases large areas of extensively used alpine pastures in different manifestations, like pure grassland, grassland mixed with rocks, gravel, snow, trees or shrub-vegetation or forest. In the border zones of the Alps in the North, East and South we can find greater shares of forest and arable land.

Ten per cent of Austria's area are taken up by the so-called "Forest and Mill Quarters" (a type of highland) with less extreme conditions regarding altitude and slope gradient, but more extreme with respect to climate and soil. There we may find portions of arable land, forests, and intensively used grassland.

We may consider the difficult situation and the restricted possibilities for agriculture by taking a look at the average slope gradient and the average altitude of the agricultural areas. For example, the average altitude in the production zone of the High Alps is around 1,200 m and the average slope gradient is 30 per cent. Only 30 per cent of the area of Austria constitute regions with favourable and very favourable natural conditions for agriculture, with a higher share of grassland in the West and more intensive arable land in the East.

3. Land Use

45 per cent of total farmland in Austria are agricultural areas and 43 per cent

forest areas. 57 per cent of agricultural areas are grassland. In the main production zone of the High Alps nearly the entire agricultural area consists of grassland, and in the two alpine border zones (number 2 and 3) as well as in the highlands the shares of grassland are above 70 per cent.

There are highly intensively used grassland regions outside the alpine regions, and in the border zones of the alps. In all of Austria there are 930,000 hectares of intensively used grassland. But nearly the same area - 860,000 hectares - are alpine pastures. Another 150,000 hectares are extensively used grassland areas (e.g., rough pastures, meadows which are mown only once a year). In the High Alps two thirds and more of the grassland are alpine grassland. In some alpine regions there are also considerable portions of grassland which lay fallow (e.g., in Eastern Tyrol).

4. Development of the Land Use

In a long-term perspective and for Austria as a whole the ratios between the different kinds of land use are remaining relatively constant. Since 1930, there is a shift from arable land (-5%) to forestry (+7%), grassland has decreased by 2%. But when we look at the different types of grassland we may see the share of intensive grassland (meadows mown two or more times; intensively used pasture land) increasing from 31 per cent to 43 per cent and the share of extensively used grassland decreasing from 31 per cent to 13 per cent; the alpine grassland remaining relatively stable (disregarding some changes in statistical definitions and problems, especially for alpine grassland). Arable land is and will be further concentrated in the favoured zones in the North East and the South East of Austria. The grassland area decreased in intensively used agricultural areas. This trend is only stopped, by subsidies like the environmental program for

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agriculture, the ÖPUL. Since 1995, we may observe a slight increase in grassland areas in the north eastern region.

The strongest intensification of grassland (in relative shares) has taken place in the High Alps. For intensive grassland the index is 130 since 1980 and for extensive grassland only 71 (100 meaning stability). There, primarily in the central regions, the share of grassland remained stable. The situation is different in the western part of the High Alps. There, grassland, and intensive grassland, are decreasing. We also may observe an unfavourable situation for agriculture there as revealed by structural data on farms. In these areas agriculture definitely is a shrinking sector.

5. Agricultural Structures

Highly differentiated agricultural structures had developed from the given natural conditions and now express themselves in land use patterns controlled, governed, and guided by agricultural policy and its subsidies. About half of all farms in Austria (in all 260,000 farms) are located in the mountain areas, the majority of them being combined forage growing farms with a small portion of forest. In the mountain regions up to 95 per cent of farmers are part-time farmers (their share still increasing!) and many of them own shares of alpine common pastures. The largest shares of full-time farmers are found in the intensive agricultural regions of the eastern part of Austria. The portion of owners older than 65 years is somewhat higher in the alpine regions than in other regions of Austria.

The cultivable area per farm in the alpine regions is often larger than the Austrian average (between 20 hectares and 30 hectares), but most of the area being extensive alpine pastures. Only three per cent of the farms keeping cows own more than 20 cows. We may differentiate between alpine regions with extensive alpine pastures per farm and large areas of intensive grassland too, most of them in the central alpine region, and farms owning vast alpine pasture areas, but owning only small portions of intensive grassland, e.g., in the western alpine regions.

When we look at the farm size per standard gross margins, we may obtain a

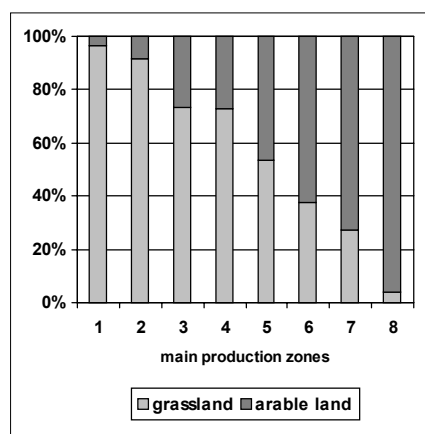


Figure 1: Utilisation of the total agricultural area in Austria, 1995

better imagination of the economic situation. The share of farms with more than 600,000 ATS standard gross margins are not to be found in the alpine regions, and even the share of farms with more than 300,000 ATS is very small (all in all 9 per cent in the High Alps). This is an extreme situation in the international context.

6. Animal Husbandry

In Austria, 62 per cent of farms are keeping animals: 44 per cent are endowed with cattle, 13 per cent with sheep, and 6 per cent with horses. The highest portion of cattle keeping farms are located in the High Alps where one also finds the highest portion of farms with milk cows and suckler cows. But there the average herd size is very small (below 20 animals and often below 10 animals per farm). In all of Austria the number of cattle keeping farms as well as the numbers of cattle are decreasing, but relatively stable in the High Alps, because of lack of other agricultural possibilities. A slight shift from cattle keeping to sheep raising is to be found in some alpine regions.

Calculating the (standardized) grassland area per every head of animal the availability of grassland amounts to 1.5 hectares, in the alpine regions this indicator is between 2 hectares and 4 hectares, although the area of alpine grassland is evaluated fairly conservatively by this indicator the portion of alpine pastures lies between 25 per cent and 75 per cent. This gives some idea about the importance of alpine pastures in many regions of Austria.

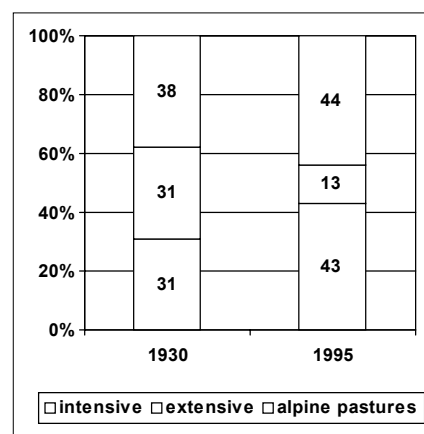


Figure 2: Development of the grassland types in Austria

7. Alpine Grassland

In all of Austria 44 per cent of the grassland are alpine pastures; 73 per cent of the grassland are found in the High Alps. Around 14,000 farms are endowed with alpine pastures with an average area of around 60 hectares. The alpine grassland area is relatively stable, but the area actually used is decreasing. 17 per cent of cattle in Austria are kept on alpine pastures during a short period of the year. In the High Alps this portion is around 70 per cent. The trend in alpine grassland farming points into the direction of extensification, shifting the use of alpine pastures from milk cows towards cattle raising without workers. There are subsidies like the environmental programme which try to steer against this trend with relatively good success.

Factors besides agriculture and the natural conditions which would influence alpine farming were investigated into too. The progressively diminishing agriculturally orientated population in the rural areas has to adapt their interests to urban immigrants, to employers and employees of other sectors, to tourism, environmental concerns, and world wide competition. Problems arise from the relatively high population densities in the Alps when we look at the area which can actually be used for settlement. The population in the Alps is increasing (in regional centres and in tourist regions) and there are problems evident in finding space for infra-structure, articulated especially in the conflicts with good agricultural land at the lower levels of the valleys.

On the other hand, there are regions with a deteriorating economy, a decre-

asing and overaged population, and a lack of new work places. This vicious circle has its effects on agriculture and the potential farm successors. There, part-time farming is becoming increasingly unviable, thus threatening alpine farming.

8. Types of Grassland Farming

From all the different indicators recent work on this project is attempting to extract some characteristic types of grassland farming regions in order to make it possible to react in a correct way to the wide variety of challenges to the development in the grassland regions. With work still in progress, up to now we were able to identify *three types of regions*:

- The first type we call *traditional alpine grassland farming* with a large proportion of alpine pastures, high average altitudes and slope gradients, and only a few areas of intensive grassland,

substantial subsidies, and also some degree of tourism on the farms. We find this type of region in the central regions of the Austrian Alps.

- The second type we call *intensive grassland farming* with bigger forage growing farms, more areas of intensive grassland per farm, and small areas of arable land, a strong concentration of cattle keeping farms, and a low rate of direct marketing. We can find this type of region adjacent to the central alpine regions and in the northern alpine border zone.
- The third type of region is showing *extreme proportions of small farms, of retired farmers, part-time farmers, overaged and with a low level of education*. This type can be found in the western, southern, and eastern part of the Alps.

We also carried out a multivariate classification, especially for alpine grassland where again three types can be identified:

❶ At the centre of the Austrian Alps we find very extensive alpine grassland regions with vast alpine pastures, higher shares of goats, sheep, and horses, large areas per livestock unit, and high proportions of unproductive areas.

❷ In the far western part of Austria, and in the northern and eastern part too, we find more of alpine cattle raising at lower alpine areas which are run from the farms without extra workers living at the alpine pastures and also a higher proportion of forest in farm land.

❸ The third type represents traditional alpine dairy farming with a high proportion of milk cows and a big quota of cattle on alpine pastures too.

This typology and the objective identify the consequences of it for grassland management is still under work as are attempts to conduct a microeconomic analysis of the importance of alpine pastures for individual farms in the project area of the Enns Valley.

