

Presentation of the Austrian MAB-Project „Changing Agriculture and Landscape: Secondary Grassland in the Mountain Regions of Austria“ Problem Statement, Research Approach, Interdisciplinarity

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Secondary grassland occupies a central position with respect to agriculture and landscape in the mountainous regions of Austria. Grassland constitutes the essential natural resource for dairy farming, the main pillar of agriculture in these regions, as well as a key component of the cultural landscape which attracts millions of people every year into these areas from all over the world. As a result of a long process of continuous economic and political change the alpine cultural landscape brought about a rich biological diversity in close relationship with man's interaction with nature which is widely considered a valuable heritage to be cared for.

Yet, all the processes shaping our lives are continuing, in fact more than that, they are accelerating in speed and depth of impact bringing change on an unprecedented scale. This process is not one-sided: the most important effects on the ecology of secondary grassland certainly result from intensified human intervention, but there are also changes in the grassland ecology which have an impact on the conditions influencing viable economic activities of many sorts. It appears that the intensity of use of grasslands represents a decisive factor in shaping the concrete outcome in ecological and socio-economic terms. Therefore, the project tries to find an answer to the question of what are the optimal intensities of use of secondary grassland in the mountainous regions of Austria that secure the highest level possible of retaining the cultural and social value and at the same time provide an acceptable degree of economic activities which make life sustainable in these areas.

This approach is faced with an enormous degree of complexity which needs to be tackled. The particular history of this project led to the adoption of a more or less heuristic framework which implies a gradual building of models that attempt to analyse and explain these processes from in depth investigations in its constituent parts. Consequently, the project consists of five subprojects which are expected to make significant contributions to the building of these models.

The first one deals with a detailed analysis of the botanical diversity of grassland establishing structural parameters of plants in different types of grassland which will enable to build a model of the ecosystem which interacts with human activity. The second subproject constitutes an important link between the ecological and the socio-economic system by investigating the relationships between plant diversity and production on the farm, concentrating on nutrient cycles and the production results on the farm provided by the quality of feed, etc.

The third subproject concentrates on capturing the cultural value of the grassland landscape in terms of its real geographical structures and factors of change, seen both from the side of the farmer as well as from the side of non-agricultural users.

The fourth subproject focuses on the grazing areas at higher altitudes which are of considerable importance for the sustainability of farms which are located in the lower lying areas as well as from the potentially negative effects on the ecology of the areas and the attractiveness of the entire region due to overgrowing and reforestation.

Last, but not least, the entire socio-economic sphere is being studied in detail and with wide scope. This subproject has to deal with the farms and the farm sector itself as well as all the non-agricultural claims on the grassland which are also controlled by political processes. It is within this subproject that questions of the optimality of intensities of use are most pertinent. All other subprojects are more directly related to the socio-economic system than to any other subproject.

Methodological issues

The overall project started with a pilot project in Upper Styria where the enormous knowledge of the Federal Research Institute for Agriculture in Alpine Regions, its familiarity with the local and regional farming community and the extraordinary logistic support given to the project led to a form of data collection resulting in a unique set of data which permits a direct link between the ecological and socio-economic spheres. Due to very close collaboration with the farmers of the area the project was in a position to collect data in a fairly large number of plots - mostly several on individual farms - both from the botanical side as well as from the production and the farm economy side permitting to establish links to a much wider set of structural data on agriculture and the local and regional economy. A whole series of variables was gathered which could be linked together drawing a complex picture of relationships among them. The analysis of interlinkages between a number of these variables has been carried and led to very interesting insights shaping the investigations in other locations

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The project decided to use this approach in the following and presently studied locations in different regions of Austria which were chosen from the point of view of obtaining a more representative representation of different types of grassland.

With respect to the trade-off between geographical coverage and in depth ana-

lysis the latter was preferred because of its much larger potential for scientific progress.

The great challenge which the project is facing at this stage is to find the appropriate way of building the integrated model which enables to picture the relevant factors determining optimal intensities of use of the secondary grassland

and to identify the concrete interfaces for a more complete incorporation of the all the subprojects.

The path followed here is clearly to build a relevant model from the work done in the project itself. To be able to do that we are keen of learning from your knowledge and experience with changes of secondary grassland.