

Integrating ecological and economic aspects in land use concepts for agricultural landscapes

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Abstract

Especially in environmentally sensitive agricultural landscapes, agriculture cannot define its aims by itself - it has to account for a number of demands of different groups of society. For example, agriculture is expected to produce food and at the same time contribute to the protection of cultural landscapes and to further ecological services. Land use concepts for ecologically particularly sensitive agricultural landscapes are often focussed on the attainment of specific environmental objectives in specific areas, neglecting both socio-economic effects, in particular income effects, and the farmers' income-driven production responses outside these areas.

The presentation illustrates, (1) that the farmers' objectives and production responses need to be integrated in land use concepts for agricultural landscapes because of their potentially counterproductive effects on the attainment of environmental objectives, and (2) how multi-criteria decision analysis (MCDA) can be used to transform a primarily ecology-oriented concept for an ecologically very sensitive agricultural landscape into a more comprehensive one that makes due allowance for the farmers' responses and society's socio-economic objectives. The authors show that the integration of socio-economic objectives can contribute to the maintenance of incomes and employment without overly harming the attainment of ecological goals.

The *Bayerisches Donauried*, a riparian landscape along the Danube river located in Southern Germany, serves as an example. In this region a land-use concept has been developed which advocates improving the ecological value of this region by converting arable land into

grassland and reducing the intensity of the grassland cultivation. Most probably the *Donauried* farmers' production response to the conservation-oriented measures would be to expand the cultivation of maize on the remaining arable land. On the basis of an MCDA, however, the socially "optimal" response would consist in the expansion of the cultivation of clover grass.

Finally, the presentation discusses policy implications resulting from the implementation of land use concepts for agricultural landscapes and raises some practical issues that come up if policy makers apply MCDA more widely in the design of such concepts. In particular, the question arises as to the desirability of a general regionalisation of agri-environmental policy, including the agri-environmental programmes of the federal states. In the case of the *Bayerisches Donauried*, where an ecologically very valuable and at the same time highly sensitive agricultural landscape is concerned, it seems evident that the regional land use concept requires the concrete agri-environmental measures to be tailored to the needs of the region, including the surrounding land that is occupied by the same farms.

Key words

agricultural landscapes, land-use concepts, multi-criteria analysis

Literature

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