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Titel

Abandoned agricultural lands in Central and Eastern Europe: biomass production as a sustainable future land management option, and its socio-economic and environmental implications

Abstract

Following the collapse of the 'Eastern Bloc' in 1989, a large area of agricultural land was abandoned in Central and Eastern Europe. This was not only due to the biophysical marginality of the lands but also as a result of comprehensive political, institutional and socio-economic changes during the post-socialist transitions. Since the mid-2000's the re-cultivation for food crops has already started on some of these lands in Central and Eastern Europe, which indicates potential sustainability challenges. In this context, one of the possible sustainable land management options for abandoned agricultural land is the introduction of a low intensive crop production system such as perennial biomass crops. In a large number of global studies, the use of abandoned agricultural land for biomass production had been suggested to prevent further land use change (LUC) effects due to the expansion of energy crop production worldwide (1)(2). Perennial biomass crops, in particular, are also expected to remedy a number of natural resource management problems such as soil acidification, soil erosion and water quality degradation and to enhance biodiversity in the arable landscape (3). In addition, the production of biomass crops on abandoned agricultural land has potential to create new opportunities for the economically marginal rural regions in Central and Eastern Europe, which are facing serious agricultural decline and the resulting socio-economic challenges. In our research we focused on four countries in Central and Eastern Europe – Ukraine, Romania, Poland and Latvia - to analyse the drivers for land abandonment and the environmental implications, and derived possible land management options for abandoned agricultural land from a literature review. We then suggested the potential land management scenarios of biomass production on these lands using a case study in north-eastern Poland considering the potential trade-offs between socio-economic and environmental effects of the biomass production scenarios.

Literatur

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