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ABSTRACT

Multifunctional agriculture: *Is food security compatible with resource efficiency and biodiversity conservation?*

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Multifunctional agriculture: Is food security compatible with resource efficiency and biodiversity conservation?

Swiss agricultural policy has been promoting a continued increase of agricultural production based on food security arguments. However, boosting production under normal conditions may not necessarily enhance food security in the event of a crisis. The question as to which production portfolio is needed under normal conditions in order to secure sufficient food supplies during a crisis has not been examined so far. The objective of the present modelling study is to shed light on this issue. The analysis shows that food security does not rely on a maximal production under normal conditions but on the maintenance of the factors of production needed to adapt production to the special requirements of a crisis. Based on the present calculations, a sufficient production potential could be met with about 150 000 hectares of field crops for human consumption and with a significantly reduced meat and dairy production. The remaining 250 000 hectares of cropland are needed to substitute imports during a crises but an increased production intensity on these lands under normal conditions does not enhance food security. On the contrary, high production intensity based on imported inputs may undermine food security through land degradation. The findings suggest that the widely assumed conflict between food security and further objectives of agricultural policy regarding environmental and landscape management does not stand up to scrutiny; food security in Switzerland appears to be fully compatible with more sustainable forms of production and also with the existing legal targets for agriculture and the environment. Global food security concerns may not require higher production, either, since the resource efficiency of any additional production in Switzerland would likely be lower than elsewhere. Additional research is needed to confirm these results and to investigate their policy implications, notably regarding the annual CHF 1.1 billion of direct payments for food security. Based on the present results, these payments should be reviewed, since they are not sufficiently targeted and may even undermine food security in the long term.

Key words: Agriculture; biodiversity conservation; food security; resource efficiency; Switzerland.

Full text (only in German):

Multifunktionale Landwirtschaft: Lässt sich Versorgungssicherheit mit Ressourceneffizienz und dem Schutz der Biodiversität vereinbaren?

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