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# Ecosystem services within agricultural landscapes – trade-offs and synergies

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## Abstract

In the last decade, the issue of ecosystem services has become a very important topic worldwide. The massive population expansion especially in South and East Asia and South America brings up a question how to secure a sufficient food supply, face poverty and mitigate the global change. In other words, what is the best way to ensure human well-being in the most efficient but also a sustainable way without depleting ecosystems and natural resources. Agriculture is the greatest direct driver of change in terrestrial ecosystems, mainly through a change of land use (conversion to cropland) and an application of new technologies enhancing yield. In our research, we focused on a provision of four ecosystem services (food provision, carbon sequestration, biological control and pollination) in agricultural landscape, their mutual relationships and how these were affected by various agricultural technologies. We collected biophysical values of provision of the mentioned ecosystem services within particular agricultural practices from previously carried out studies and found out that the practices favouring carbon sequestration, biological control and pollination were especially organic agriculture, absence of synthetic fertilisers and herbicides, application of organic fertilisers and cover crops, and establishment of landscape features. Carbon sequestration was also enhanced by the absence of tillage. Yields were higher within conventional agriculture with a use of synthetic fertilisers and herbicides. The effects of zero tillage and use of cover crops on food provision were quite heterogenous and in some cases, an application of these two practices might boost the performance of all the ecosystem services analysed.

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