

## Final report

# Dynamics of Danish Agricultural Landscapes and the Role of Organic Farming

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### Background

During the last decades a considerable conversion to organic farming took place in the Danish countryside. Currently organic farmed land makes up over 6% of all arable land in Denmark. In the political and societal sphere there exists a general expectation that this conversion to organic farming positively affects the quality and quantity of natural and semi-natural landscape elements. Further, a number of investigations at both Danish and European level support this expectation of a positive relation between organic farming and nature content in rural landscapes. Yet, methods and inadequate temporal and spatial study scales limit the validity of the findings from these investigations. A central issue that remains to be clarified is whether spatial and temporal variations in the rural landscape are related to differences in farm types, biophysical conditions and socio-economic structures, rather than to organic farming strategies alone.

### Objective

Based on the above, the aim of this project is to investigate organic farming in Denmark as a driving force for pattern and structure of the rural landscape. Focus is directed towards natural and semi-natural landscape elements (e.g. hedges, field boundaries, remnant biotopes). The investigation is performed for 3 case areas (~30 km<sup>2</sup> each) representing typical Danish landscape types and being characterised by a relatively large density of organic farms. Within these case areas, landscape dynamics over the last app 50 years are registered on basis of aerial photos. With the use of a geographic information system (GIS) landscape dynamics are spatially related to farm specific information from agricultural statistics and spatial data on biophysical conditions in order to illuminate key factors and processes that determine content of natural and semi-natural landscape elements.

### Progress – 2006

The Ph.D. report was delivered in July 2006. The dissertation was successfully defended on the 12<sup>th</sup> of October 2006.

### Publications

Levin, Gregor (2006) [Relationships between Danish organic farming and landscape composition. Agriculture, Ecosystems and Environment.](#)\*

Levin, Gregor (2006) [Farm size and landscape composition in relation to landscape changes in Denmark. Danish Journal of Geography.](#)\*

Levin, Gregor (2006) [Dynamics of Danish Agricultural Landscapes and the Roles of Organic Farming](#). Ph.D. thesis, Department of Policy Analysis, National Environmental Research Institute. National Environmental Research Institute, Ministry of the Environment.\*

Levin, Gregor; Langer, Vibeke and Frederiksen, Pia (2006) [Structural development in Danish agriculture and its implications for farmland nature](#), in Langeveld, Hans and Röling, Niels, Eds. *Changing European farming systems for a better future: New visions for rural areas*, chapter 5, page pp. 424-429. Wageningen Academic Publishers.\*

Levin, Gregor (2004) [Studying the effect of organic farming on rural landscapes: Issues of methodology and scale](#). Published in Cristov o, Artur, Eds. *Proceedings of the Sixth European IFSA Symposium, European Farming and Society In Search of a New Social Contract - Learning to Manage Change*. Vol. 2, pp. 325-334. UTAD, Portugal.

Levin, Gregor (2003) [A methodological framework for analysing landscape dynamics in relation to organic farming](#). [oral] Presentation at *Crossing the boundary between natural and social sciences.*, University of Copenhagen, Department of Geography, August 18-20, 2003.

Levin, Gregor and Frederiksen, Pia (2003) [Beschreibung und Differenzierung der d nischen Agrarlandschaft anhand von r umlichen Strukturindexen](#). Poster presented at IALE Struktur Workshop Landschaftsstruktur Analysieren, Verstehen, Modellieren, Salzburg, Austria, 16-17 April 2003.