



EKOLOGISKT LANTBRUK NR 43 • OCTOBER 2005

POSSIBILITIES FOR AND ECONOMIC CONSEQUENCES OF SWITCHING TO LOCAL ECOLOGICAL RECYCLING AGRICULTURE

John Sumelius (ed.)



Baltic Ecological Recycling Agriculture and Society (BERAS) Nr. 3



Centrum för uthålligt lantbruk



Ekologiskt lantbruk – 43

*Possibilities for and Economic Consequences of Switching to Local Ecological
Recycling Agriculture*

Centrum för uthålligt lantbruk

SLU

Box 7047

750 07 Uppsala

Ecological Agriculture – 43

*Possibilities for and Economic Consequences of Switching to Local Ecological
Recycling Agriculture*

Centre for Sustainable Agriculture

Swedish University of Agricultural Sciences

S-750 07 Uppsala

Authors are responsible for the factual contents of the report.

ISSN 1102-6758

ISRN SLU-EKBL-EL--29--SE

ISBN: 91-576-6857-4

Antal sidor: 68

*Ämnesord/Key words: Organic farming, Organic food, Local food, Sustainability,
Resource management, Food systems, Rural development, Costs, Farm management*

INTRODUCTION

*John Sumelius
Department of Economics and
Management, Faculty of
Agriculture and Forestry,
University of Helsinki*

As a concept, ecological recycling agriculture is close to organic farming. Farmers, consumers and society at large are increasingly supporting this type of agriculture for a number of reasons. For all three groups the most notable reason for supporting localised organic production systems is likely to be the reduction of nitrogen and phosphorus loads into the waterways and into the Baltic Sea. The environmental effects of recycling agriculture have been described in another BERAS report and need not be repeated here (Granstedt, Seuri and Thomsson, 2004). This research report takes another perspective. It begins by analysing the economic consequences of switching to local production in combination with ecological methods. This entails not only focus on either organic agriculture or localised production but on a combination of these two requirements. The outcomes depend on which actor one analyses: the farmer, the consumer, the local community or municipality or society at large. Furthermore, the reduction of the aggregated emissions to the Baltic Sea is a matter which needs to be addressed on an international level. The aim is here to cover aspects of all these levels, although we do not try to solve all problems. The aim is rather to illustrate the panorama of views and possibilities based in part on case studies of farms, households and communities.

The report starts out at the production level with an analysis by Reeder (in this volume) of the costs of production of organic milk on a dairy farm in the community of Järna in Sweden. From the farmer's point of view, the production of organic milk is connected with higher costs per unit of milk produced. The environmentally friendly mode of production is likely to lead to lower environmental costs to society at large through lower amounts of nutrient emissions. Yet, on the farm level, the requirements of self-sufficiency in feed, local inputs and recycling may lead to fewer attractive alternatives and therefore to higher costs. While it may not be advisable to draw far-reaching conclusions from one in-depth study, Reeder's results are quite clear. Total production costs are in the range of 0.055-0.066 Euro/kg milk (0.50-0.60 SEK/kg milk) higher than for conventional production. Particularly the fixed costs seem to be much higher for this farm. The higher production costs and the lower milk yield are offset by a 0.055 Euro/kg milk (0.50 SEK/kg milk) higher milk price and a livestock premium of 187 Euro (SEK 1700) per cow.

A production cost survey can give an idea of the costs incurred by individual farmers. However, it does not tell much about the possibilities of changes in the production mix or about the effects of institutional constraints. These issues can be investigated using linear programming models. Bäckman and Krůmalová (in this volume) modelled three organic farms in the municipality of Juva in south-eastern Finland. The

main production lines on these farms are dairy, forage and beef production respectively. The results of the scenarios show the ecological production options that are available to each farmer in order to improve gross margins. The analyses include the opportunity cost (incomes lost) owing to institutional and environmental constraints, for instance the requirement of self-sufficiency in feed. Bäckman and Křůmalová also point out that trade between farmers is an important feature of local markets and generally improves the economy of the farmers. The article raises some important questions concerning the effects of the CAP reform, which will come into effect 2006.

From society's point of view the effects of nutrient emissions lead to eutrophication of waterways and the Baltic Sea and are therefore a social cost (Larsson, in this volume). The argument in favour of rapid action is that prevention is less expensive than cleaning up after environmental degradation has already taken place. Larsson cites two studies by Gren (1997, 2001) according to which the cost of a 50% reduction of total nitrogen emissions to the Baltic Sea is estimated to be 1.32 billion Euros (SEK 12 billion) per year if the most efficient solutions are applied. This estimate requires countries to cooperate since cleaning costs may be less expensive in one country than in another. Citing Söderqvist, Larsson reports that the combined willingness-to-pay of the population around the Baltic Sea has been estimated to be 3.4 billion Euros (SEK 31 billion) per year. Larsson proposes some economic and administrative instruments for achieving sustainable agriculture, and he suggests some dietary options for consumers.

From the local community's point of view, an increase in demand for local foodstuffs is likely to have a positive effect on the regional economy in terms of increased employment and increased tax returns. Decreased transports may lead to a decrease in energy consumption. Vihma (2004) has estimated these effects the so-called ReGae input-output model. This model was used to estimate the effects of a 5% exogenous increase in demand for local foodstuffs in the province of southern Savolax, a region in south-eastern Finland with a rather important food sector. The increased demand would lead to a 0.34% increase in employment in the regional economy of at least 200 persons. The increase would be the strongest in the food sector with an increase of 7.45% in employment. Output would grow by 0.31 % and imports would decrease by 0.52%.

The consumers buy partly conventional and partly organic food. Thomsson (in this volume) followed the food expenditures of 15 environmentally conscious households in Järna, Sweden. He then compared these food expenditures with the average expenditures for Swedish households. While the environmentally conscious household had substantially higher food expenditures, the variation within households was large. Households consuming large amounts of animal products usually had higher expenditure than those consuming large amounts of plant products.

Citing Statistics Finland, Hannula (in this volume, results are preliminary) notes that the average Finnish household spends 1580 Euro/person/year on food. She studied ten household in the municipality of Juva in south-eastern Finland and found per capita expenditures in the same range as the Finnish average. However, individual differences between households were large.

Taken as a whole, the publication sheds additional light on the possibilities, constraints and strengths of local organic agriculture.

References

- Reeder, H. Production cost of organic milk. A case study of a dairy farm in Sweden. In this volume.
- Bäckman, S. and Křůmalová, V. Local food options- a linear programming perspective on three organic farms in South Savolax, Finland. In this volume.
- Gren, I-M. 1997. Cost-effective Nutrient Reduction to the Baltic Sea. *Environmental and Resource Economics* 10:341-362.
- Gren, I-M. 2001. International Versus National Actions Against nitrogen Pollution of the Baltic Sea. *Environmental and Resource Economics* 20:41-59.
- Hannula, A. Some Juva households' food expenditures. In this volume.
- Larsson, M. How agricultural reforms can revitalize the Baltic Sea – Cost efficient measures to curb eutrophication. In this volume.
- Thomsson, O. Household food expenditures in Järna, Sweden. In this volume.
- Vihma, A. Measuring the Effects of Local Food on a Regional Economy Regional Agro-Economic Model (RegAE) - An extended Input-Output approach. In this volume.

Centrum för uthålligt lantbruk – CUL är ett samarbetsforum för forskare och andra med intresse för ekologiskt lantbruk och lantbrukets uthållighetsfrågor. CUL arbetar med utveckling av tvärvetenskapliga forskningsmetoder och för samverkan och sam-

planering av insatser för:

- forskning
 - utvecklingsarbete
 - utbildning
 - informationsspridning
- inom det ekologiska lantbruket.



Centrum för uthålligt lantbruk

Box 7047
750 07 Uppsala
www.cul.slu.se



Baltic Ecological Recycling Agriculture and Society (BERAS) Nr. 3

