

# Organic Knowledge Update

## Energy use and greenhouse gas emissions

February 2011

### Climate impact of organic production in the Netherlands

All agricultural activities have an impact in terms of greenhouse gases and energy use, and organic agriculture is no exception. The Dutch organic sector strives to use sustainable energy and keep its climate impact as low as possible. To facilitate organic farmers, Wageningen UR and Louis Bolk Institute carry out a variety of research aimed specifically at energy use and greenhouse gas emissions.



#### Energy use and climate impact of Dutch organic agriculture

All agricultural activities have an impact in terms of greenhouse gases and energy use. In recent years a number of studies have been carried out to determine the extent of that impact for the Dutch organic sector.

Because of lower yields per hectare and slower growth of particularly animals kept for meat, the organic sector is not necessarily 'cleaner' in terms of greenhouse gases and energy use than conventional agriculture. On the other hand, the lower use of concentrates in animal feed, the ban on artificial fertilizers and the higher carbon sequestration do mean a lower use of energy and emission of greenhouse gases.

#### Current affairs

In recent years, data on energy use and greenhouse gas emissions have been collected for the Dutch organic arable, field and glasshouse vegetable, dairy, pig, apple and egg sectors.

A number of things have become clear. The use of fossil fuels is still one of the biggest contributors to greenhouse gas emissions. Generating solar and wind energy on-farm, or producing bio gas by fermentation of manure or organic waste could significantly reduce emissions in an economically viable way. Arable and dairy farms especially, can take large steps in this regard. Several Dutch organic farms are already forerunners in this area.

### → Aspirations

The Dutch organic sector wants to make a transition to more sustainable energy resources. Ultimately the sector should use only sustainable bio fuels, wind, water and solar energy.

Although the use of bio fuels is growing, the Dutch sector is against the use of food or feed crops for fuel. Organic waste is a much more sustainable source for these fuels. The use of manure for the production of bio energy is only considered as long as it does not compete with sustaining the fertility of the soils.



Carbon sequestration in the soil is another way organic farms can reduce their overall emissions. Again, large steps can be made by arable and dairy farms specifically, because they have large areas of land at

their disposal. Minimal tillage, strip tillage and the additional use of cover crops are potential ways to enhance carbon sequestration in the soil.

## Research projects

- **Climate impact of organic feed and concentrates** This project aims to gain insight into the contribution of concentrates to the carbon footprint of organic meat production. Practical measures to reduce this contribution are to be developed.  
*Contact: Wijnand Sukkel MSc, Wijnand.Sukkel@wur.nl*
- **Farmer & Climate website (www.boerenklimaat.nl)** Implementing, testing and improving measures for reducing fossil energy use and greenhouse-gas emissions in the organic sector. This project aims to raise awareness on the causes, effects and possible measures concerning climate change.  
*Contact: Frank Wijnands MSc, Frank.Wijnands@wur.nl*
- **Truly Overijssel!** This project aims at developing sustainable organic farming systems with regional nutrient cycles and enhanced nature and landscape values in the Dutch province of Overijssel.  
*Contact: Dr Ina Pinxterhuis, Ina.Pinxterhuis@wur.nl*
- **BASIS** Combining controlled traffic systems with minimal tillage has a large potential to improve soil quality, minimise greenhouse gas emissions, carbon sequestration and enhance biodiversity. This project tests and improves these strategies.  
*Contact: Derk van Balen, Derk.vanBalen@wur.nl*



Small-rooted radish is a common cover crop in the Netherlands

## Literature

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- Kool, A., Blonk, H., Ponsioen, T., Sukkel, W., Vermeer, H., Vries, J. de and R.Hoste. 2009. Carbon footprints of conventional and organic pork : assessments of typical production systems in the Netherlands, Denmark, England and Germany.
- Dooren, H.J.C. van, Voort, M.P.J. van der and B.G.H. Timmermans. 2007. Production of renewable energy in organic farming. Dutch report with English summary.

Bioconnect aims to further develop and strengthen the Dutch organic sector by initiating and implementing research projects. Within Bioconnect organic entrepreneurs (from farmers to shop-keepers) work together with research institutes, colleges and universities and consultancy organisations. This leads to demand-driven research that is unique to the Netherlands.

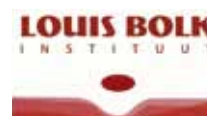


The Ministry of Economic Affairs, Agriculture and Innovation sponsors these research projects.



Ministry of Economic Affairs,  
Agriculture and Innovation

Wageningen University and Research Centre and the Louis Bolk Institute together carry out these research projects. About 140 projects dedicated to organic agriculture are currently under way.



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