The Oil Drum: Europe
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

UK Agriculture, Organic Farming and Relocalisation

Posted by Chris Vernon on September 19, 2006 - 11:04am in The Oil Drum: Europe
Topic: Environment/Sustainability
Tags: food, organic, united kingdom [list all tags]

[editor's note, by Chris Vernon] This is a guest post by Louise and Nick Rouse.
Additionally I feel I should apologise for the lack of activity on here recently, I have recently moved house but the disruption will be worth it since I've swapped my 50 mile a day round trip commute for a 20 minute walk there and back. Should cut my personal mileage some 70%! Anyway, on to the article:

Among the recurrent issues surrounding peak-oil is food production.
With the Organic Food Festival visiting my home city of Bristol recently I've been finding out that in the UK there are particular peak-oil related problems that farmers and consumers will need to address if they are to adapt to a change in energy supply.

The two key problems I've found are transportation of the food we eat and the fertilisers used in non-organic food production.

Shorter supply chains are inevitable for the kinds of food we currently receive through air-freight, which is hugely inefficient, requiring between 7 and 9.5 Mega-joules (3.6MJ=1KWh[1]) of energy per tonne-kilometer for long haul flights and a staggering 25 to 40 MJ per tonne-Km for short haul flights.

Current methods of shipping are conceivable into the future, since the carrying capacity to fuel ratio is more efficient (container ships need around 0.15 to 0.2 MJ per tonne-Km)[2] and a revival in old fashioned sailing[3] is a novel way to keep us in kiwi fruits for centuries to come. What is not so well understood are the inefficiencies in using trucks and lorries instead of trains, I have only found figures for diesel trains (electric trains are even more efficient and have renewable energy potentials) but the ratio comparisons are as follows:

- Heavy trucks: 0.7 - 2 MJ / tonne-Km
- Light trucks: 9 - 20 MJ / tonne-Km
- Diesel train: 0.2 - 0.8 MJ / tonne-Km

According to DEFRA studies, in 2004, air tonne-Km contributed only 1% of the total food transportation but accounted for 13% of the CO_2 emissions in all food transport. In studies between 1992 and 2004, the amount of food transported by air tripled[4].

The problem is not as simple as having food from Argentina and New Zealand, its that we are choosing the wrong transportation for the majority of our food. By having food transported by trucks instead of trains we may also deprive investment to improve rail infrastructure. Efficiencies in boat to truck transfer technology could be applied to truck to train or even boat to train transfer technologies to reduce the problem of bottlenecks at goods yards making trains even more attractive.

Food that is produced within the seasonal boundaries of our immediate locale may be most preferable, but food that is transported with the least energy intensity from its point of origin whether that is from Dublin or Buenos Aires is crucial in conserving energy in our food chain.

Secondly, on the production side of the issue, UK non-organic farmers are particularly vulnerable to our domestic energy short fall. UK farmers (outside Kent and Sussex that is[5]) currently do not face the energy leeching problem of irrigation, in the way that Australia[6] does for example, we do, however, face energy insecurity affecting our food chain - we became net importers of natural gas over 18 months ago, from which we synthesise nitrogen fertiliser. According to the Soil Association the UK fossil fuel energy consumption for:

> N fertiliser accounts for 37% of the total energy used by UK agriculture

Further more,

> its price tracks the price of natural gas. UK N fertiliser prices are rising significantly and are the highest they have ever been. Comparative analyses of organic farming show that it requires about half the amount of energy to produce the same quantity of food

UK non-organic farms do not currently have the best infrastructure to help us sustainably reduce the energy consumption in our food chain. The Soil Association considers "preparing for a post peak oil world as an organizational priority" which is a hugely positive step as they are becoming such a well recognised name in UK food shops.

The more than 150,000 visitors attending the Organic Food Festival last weekend was a pleasant surprise with the likes of Yeo Valley, Rachel's, Duchy, Green & Black's selling their wares, and many others giving out information about organic ideals.

Another exciting local news story for Bristol was the launch of Quartier Vert's large capacity restaurant on Bristol's Bordeaux Quay waterfront[7] last week. Advertised on BBC local news, the restaurant, has employed a sustainable developments manager whose responsibilities include maintaining proprietor Barny Houghton's vision of low-energy zero-waste catering, and the groundbreaking declaration that 80% of the food in the restaurant will come from within 50 miles of Bristol, and no food will be air-freighted to the restaurant. Both are extremely positive steps in raising awareness of, and taking action towards using less energy in our food chain, a priority in a post-peak world.

Photos from Bristol Organic Food Festival.
Click to enlarge.

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[1] http://www.gcse.com/energy/kWh2.htm

[2] Shipping Fuel Ratios in a graph

[3] Sailing ships powered by kites
Sailing ships for Japanese fishing

[4] DEFRA Food Transport Indicators 2004

[5] Water shortages in the south east

[6] Australian water problems, DIAMOND, Jared; 2005; Collapse; Penguin Books, p383-5

[7] Quartier-Vert restaurant