



What goes round comes round...

A farming family near Gainsborough are creating fuel from crops grown on land fertilised by composted local waste

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Photographs: Land Network (Gainsborough) and Judy Theobald

Below: Oilseed rape can be converted into diesel and animal feed

For several years farming brothers Philip and Michael Bates have been processing West Lindsey's compostable waste to use on their fields. They are now taking this process even further by starting up the county's first plant to produce biodiesel using oilseed rape grown on their own and other farmers' land.

This means that in time, the lorries which transport the waste could be running on fuel grown and on the land improved by the same compostable materials they are carrying.

The Bates family have been farming at Grange Farm, Willingham, since 1955 when Ralph Bates, father to Philip and Michael, bought 101 acres of land. At seventy-two he still retains an active interest in the farm which has expanded to just over 700 acres on three sites – Willingham, Stow and Upton. It is at Upton that the composting is carried out on the site

of the old airfield under the company name Land Network (Gainsborough) Ltd. Materials which can be composted range from garden and vegetable waste to cardboard and chipboard. Surprisingly, MDF is especially suitable as it contains forty-percent urea, ideal for the land. The farm takes waste from the kerbside 'green bin' collections, community disposal sites, other farms, skip companies and 'anyone who has biodegradable waste and will pay us to take it away' said Michael. Everything is mechanically shredded into small, even-sized pieces, and then put into piles to turn into compost. However it's not a passive process – the clamps must be constantly monitored and the temperature taken every other day to ensure it is above 55 degrees in order to kill weed seeds. After three months the finished product is suitable for spreading on the land, improving its structure and drainage and adding vital



nutrients to the soil. "This means we don't need to buy mineral fertilisers which takes out four tonnes of Co2 for every one tonne we produce," said Michael.

One of the crops to benefit from this is the oil seed rape which will eventually be turned into biodiesel. The farm currently grows 100 acres and with one acre producing 500 litres of fuel, they have the potential to produce 50,000 litres from their land alone. However, even if it is just operated for eight hours a day, the plant can produce 500,000 litres a year so they will be looking to buy rape from other farmers. "Quite a few farmers have already voiced an interest in growing extra rape," said Philip.

During the twelve-hour process, the raw oil is heated and then mixed with chemicals to produce fuel which can be used in any diesel engine - no adaptation is necessary. As an added local bonus, the company which produces the equipment, Bio-pod Ltd, is based in North Somercotes, near Louth, making this a totally Lincolnshire project.

The bi-product from this process is rape meal which can be used as animal feed. Grange Farm also has 250 cattle which includes a dairy herd of 100, so some of the rape meal will be included in their diets - the rest will be sold.

In addition to the cattle and rape crops, the farm produces wheat for Warburton's bread and barley and grass to feed the cattle. The Bates family are running a commercially successful business but at the same time, aim to do as much as they can to protect the environment. The weigh-bridge and lighting at the composting site are run on solar and wind energy. Spare heat from the refrigeration units which cool the milk is used to produce hot water for cleaning the dairy and washing clothes.

But as well as benefiting the environment, they are also helping themselves. "We find that the 'greener' we become the more money we save," said Philip. One of their ambitions is to make the farm totally self-sufficient for power and water.

Not all the changes they have made are directly or indirectly linked to profit. As members of the Countryside Stewardship Scheme they have encouraged wildlife back onto their land. Barn owls now nest near the composting site and sparrowhawks hover over the fields.

However, it is their overall approach to farming which will ensure that not just their environment is protected and enhanced for decades to come but the wider society, as more and more people start using locally produced fuel.

Not a traditional view of farming but all this waste will be turned into valuable compost



Philip (left) and Michael Bates with some of the compost at the Upton site

