

LIQUID GOLD PRODUCED ON-FARM



A sprayer applying chemicals to oilseed rape could now be fuelled by it, with equipment available for farmers to produce biodiesel from their crops.

If poor commodity prices and high fuel bills are getting you down, then producing biodiesel for on-farm use and sale could offer an alternative.

Growing industrial crops on contract is likely to become a saving grace for many businesses, offering a guaranteed market and price for the end product.

Biodiesel is a key product, despite small duty allowances in the UK, and with powerful farm machinery running up substantial fuel bills, it may be worth considering 'cutting out the middle man' and making your own.

Methyl Ester Biodiesel fuel is manufactured via transesterification from raw oil produced by crushing oil-bearing

seeds or supplied as used vegetable oil.

Processing machinery specialist Alvan Blanch has now developed a small-scale oil press suitable for on farm use and capable of crushing a tonne of rapeseed in eight hours on a continuous basis.

Seed is crushed in the screw shaft before oil is filtered into a reservoir and pumped into a settling tank. A rapeseed cake is produced as a by-product, and can be re-processed for further extraction, used as cattle feed or sold for conversion to biogas.

Alvan Blanch's XP100 oil screw press

can be fed from a 1.0 tonne overhead bin, reducing labour needs, and produces sufficient oil to make 300 litres of biodiesel per day.

"The system is straightforward to set up and run," explains Alvan Blanch's Simon Shaw, "and we offer a day's training at installation, plus a helpline."

Once the oil has settled out, leaving a sludge, which again can be sold on, it is transferred via a pipeline to the transesterification system, manufactured by Greenfuels.

The process involves heating the oil, and blending it with methanol, caustic soda and water, before further filtration to biodiesel, which can be used neat or mixed with mineral diesel to make 'Bioblend'.

Greenfuels claims that its customers are already producing 5.0 million litres of

biodiesel per annum, mainly from waste vegetable oil, but rapeseed oil is likely to become more significant as farm-scale processing equipment becomes available.

Managing director James Hygate says: "To prove the point that you can have a truly locally produced fuel, we are running a Citroen C2 Hdi on 100 per cent Gloucestershire produced rapeseed biodiesel – this shows that the fuel can be used in even the most complicated common rail engines without modification and with no detrimental effects."

Simon Shaw adds: "This is an ideal opportunity for farmers and contractors to produce their own fuel or generate a product which can be marketed to neighbours."

"There are already more than 100 transesterification plants working in the UK processing used vegetable oil, but with oilseed rape prices as low as they are,

this is an ideal opportunity to make profits of £30-40 tonne against the cost of buying in diesel."

The oil screw press is priced at £5695 with the processing system adding £12,670.

Kent Bio-Fuels believes that processing waste vegetable oil may be a more viable option for many, and manufactures the Biodiesel Generator. The product is being marketed by Master Farm Services, which recommends biodiesel as a source of fuel for its grain dryers.

Designed as a modular system, the Biodiesel Generator consists of a transesterification tank which is used to mix the waste oil with methanol and sodium hydroxide and produce the chemical reaction which makes biodiesel.

The material is then fed into settling tanks before being transferred to a washer for three days, which removes any remaining contaminants.

Three transesterification tank capacities are available, producing 150, 300 and 500 litres of biodiesel in each 90min cycle, which can then be purified in bulk in the washing tank.

Overall production costs vary depending on the cost of sourcing the waste oil – it is often possible to charge for collection of the oil from catering premises, which offsets transport costs, but is put at around 20p/litre including the chemicals required for processing.

Start up costs are from £1750 for the transesterification plant and £650 for the washing tank. ●



A transesterification system takes waste vegetable oil or rapeseed oil, blending the raw material with methanol and sodium hydroxide before allowing the end product to settle prior to final refining.

Biodiesel and duty

Fuel duty on biodiesel currently stands at 27.1p/litre (due to increase to 28.32p/litre on 1st September), compared with 47.1p (48.32p) for white diesel.

Anyone producing biodiesel for motor use, whether for sale or for their own use is obliged to pay fuel duty to HM Revenue and Customs (HMRC - formerly HM Customs and Excise).

Producers need to register with HMRC, and agree to keep records of all biodiesel produced and sold, issue detailed delivery notes for each sale, and forward a monthly return with payment of the appropriate duty to HMRC. Where biodiesel is used in place of rebated heavy oil (red diesel) for off road use, a claim may be made for the difference in duty between the two fuels – HMRC can visit the farm premises to ensure that claimants are entitled to a rebate.



Alvan Blanch has developed its first farm scale oil screw press to crush oilseed rape ready for processing.

For more information:
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Also see www.green-fuels.co.uk and
www.customs.hmrc.gov.uk