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Date: Friday - April 1, 2005 12:39 PM
Subject: Whole article fyi

Village-level ethanol production?

Technology - April 2005

Small-scale manufacturing plants for producing ethanol on-farm from raw material such as maize, cassava and molasses are now commercially available in SA. This comes at a time when local maize stocks are outstripping demand and maize prices are low (see page 56). The technology is based on American research done into biomass and ethanol manufacturing during the energy crisis of the late 1970s. At that time SA businessman Orlando Mostert obtained the research results, including the entire design drawings and operating conditions of ethanol plants, with a view to setting up farm-scale plants in Africa for rural upliftment. However, interest in alternative fuel production waned when international oil prices fell after 1986. Before the 2002 World Summit on Sustainable Development, Mostert received a grant from the US Agency for International Development to build and test this farm scale ethanol production unit to show that village-scale ethanol production was feasible. Subsequently Mostert tried to interest the SA government in launching a national renewable fuels programme based on 5% ethanol addition to the national fuel supply made from village-scale plants. There was no interest and he dropped the project. As the maize price has fallen drastically in recent months, ethanol from maize can now be produced cheaply - at prices competitive with paraffin and ethanol from other sources. Mostert says he can supply a plant capable of producing one million litres of ethanol, which costs under R2m, takes up 500 sq metres and can be operated by two workers. One ton of maize can make 400 litres of ethanol, and 300kg of high-protein animal feed by-product. He claims pure ethanol, produced on-farm, can be used as motor vehicle fuel but engine modification would be required. However, most vehicles can run on E10 (a blend of 10% ethanol and petrol) without adaption, while E85 (a blend of 85% percent ethanol and 15% unleaded petrol) is becoming increasingly popular abroad and many makes of cars, called flexible fuel vehicles (FFVs), can run on this combination. Any production of ethanol locally as a motor vehicle fuel would attract a duty and VAT charges. However, Mostert recommends the production of ethanol gel, a thick paste made from ethanol and thickening chemicals that can be used in paraffin stoves instead of paraffin. As ethanol gel does not run like paraffin, its use minimises the danger of burns from spilt paraffin. Ethanol gel also burns hotter and longer than paraffin. Mostert says one litre of ethanol gel is made from 75% ethanol and 25% water, with chemicals added. A litre can be produced for less than R3.50 (\$0.58), packaging included. Gel fuel stoves are already on the market and some paraffin stoves can easily be adapted to