

Extract from Crop Protection Monthly April 2006 by Bruce Knight

BIOPOLYMERS AND AGRICULTURE

A workshop organised by the National Non-Food Crops Centre in York, UK on 5 April brought together agricultural and industry specialists to explore the options for developing a UK based biopolymers industry. The first presentations at this conference were somewhat discouraging. Dr Richard Murphy, Imperial College, London outlined examples of life cycle analyses and made the point that use of crop derived renewable feedstock was in itself not enough. The energy expenditure in sourcing the renewable feedstock may be at a disadvantage compared with conventional plastics.

Dr Mercia Gick, British Plastics Federation, opened her presentation with the statement that she was “not against biopolymers.” However, she then went on to explain how biopolymers did not fit easily into recycling programmes and may in fact not be readily biodegradable under current composting regimes. David Egglestone, Linpac, indicated that of 15 million tonnes of plastics used for packaging in the EU in 2005, biopolymers only accounted for between 40,000 to 100,000 tonnes. The power of the retailers, he said, was an important barrier to wider acceptance and they had responded negatively to the price premium over conventional packaging material and to certain visual and tactile features. More recently corn starch derived biopolymers have been associated with the GM issue and this has been a further barrier for their adoption for food packaging.

The most stimulating presentation was given by Erwin Vink, Natureworks (www.natureworkslc.com). The company, initially formed through a joint venture between Dow and Cargill, is now wholly owned by Cargill. It manufactures polylactide (PLA) plastics through a fermentation process based on corn starch. The production facility in Nebraska is able to produce 180,000 tonnes per year and came on stream in 2002. While PLA is not easily biodegradable it does match PET in terms of price and functionality. The company has dedicated considerable resources to identifying waste management methods for PLA including recycling, composting and anaerobic digestion. Mr Vink said his company has been trying to gain acceptance of PLA in Europe particularly for food packaging. The GM issue has been addressed by certification schemes that demonstrate that no modified DNA gets through to the plastic. PLA derived from identity preserved GM free corn can also be offered but at a premium. Working closely with leading retailers, Natureworks have recently made a breakthrough with Marks & Spencer who have agreed to buy 60 million PLA packs. With a large plant in the US still to reach capacity, Mr Vink declined to comment on when or where production in Europe would be considered or whether there is any scope for use of wheat or potato starch.

The workshop concluded by stressing the importance of establishing a reliable supply chain from the grower through to the end customer and of involving the plant breeding industry to ensure that crops can be designed to meet specific market needs.

.... And more developments

Bioplastics were hitting the headlines in the UK in May. “The Independent” gave over its front page on May 29 to a story headlined: “**The bottle that heralds a plastic revolution**”

With subheadings reading:

- First ‘green’ container goes on sale in British stores
- Leading firms opt for biodegradable packaging
- Development could help cut nation’s waste mountain

This particular story is based on the launch plans announced by the bottled water company, **belu**. The bottles will be made from corn derived PLA supplied by Natureworks.

The article referred to Tesco’s plans to introduce biodegradable carrier bags later this year.

