

BIO-DEGRADABLE PLASTICS – ANOTHER FOLLY EXPOSED

May 2008

The worldwide effort by supermarkets and industry to replace conventional oil-based plastic with eco-friendly "bioplastics" made from plants is causing environmental problems and consumer confusion, according to a Guardian study.

The substitutes can increase emissions of greenhouse gases on landfill sites, some need high temperatures to decompose and others cannot be recycled in Britain.

Many of the bioplastics are also contributing to the global food crisis by taking over large areas of land previously used to grow crops for human consumption.

The market for bioplastics, which are made from maize, sugarcane, wheat and other crops, is growing by 20-30% a year.

The industry, which uses words such as "sustainable", "biodegradable", "compostable" and "recyclable" to describe its products, says bioplastics make carbon savings of 30-80% compared with conventional oil-based plastics and can extend the shelf-life of food.

Concern centres on corn-based packaging made with polylactic acid (PLA). Made from GM crops, it looks identical to conventional polyethylene terephthalate (PET) plastic and is produced by US company NatureWorks. The company is jointly owned by Cargill, the world's second largest biofuel producer, and Teijin, one of the world's largest plastic manufacturers.

PLA is used by some of the biggest supermarkets and food companies, including Wal-Mart, McDonald's and Del Monte. It is used by Marks & Spencer to package organic foods, salads, snacks, desserts, and fruit and vegetables.

It is also used to bottle Belu mineral water, which is endorsed by environmentalists because the brand's owners invest all profits in water projects in poor countries. Wal-Mart has said it plans to use 114m PLA containers over the course of a year.

While PLA is said to offer more disposal options, the Guardian has found that it will barely break down on landfill sites, and can only be composted in the handful of anaerobic digesters which exist in Britain, but which do not take any packaging. In addition, if PLA is sent to UK recycling works in large quantities, it can contaminate the waste stream, reportedly making other recycled plastics unsaleable.

Last year Innocent drinks stopped using PLA because commercial composting was "not yet a mainstream option" in the UK.

Anson, one of Britain's largest suppliers of plastic food packaging, switched back to conventional plastic after testing PLA

in sandwich packs. Sainsbury's has decided not to use it, saying PLA is made with GM corn. "No local authority is collecting compostable packaging at the moment. Composters do not want it," a spokesman said.

Britain's supermarkets compete to claim the greatest commitment to the environment with plant-based products. The bioplastics industry expects rising oil prices to help it compete with conventional plastics, with Europe using about 50,000 tonnes of bioplastics a year.

Concern is mounting because the new generation of biodegradable plastics ends up on landfill sites, where they degrade without oxygen, releasing methane, a greenhouse gas 23 times more powerful than carbon dioxide. This week the US national oceanic and atmospheric administration reported a sharp increase in global methane emissions last year.

"It is just not possible to capture all the methane from landfill sites," said Michael Warhurt, resources campaigner at Friends of the Earth. "A significant percentage leaks to the atmosphere."

"Just because it's biodegradable does not mean it's good. If it goes to landfill it breaks down to methane. Only a percentage is captured," said Peter Skelton of Wrap, the UK government-funded Waste and Resources Action Programme. "In theory bioplastics are good. But in practice there are lots of barriers."

Recycling companies said they would have to invest in expensive new equipment to extract bioplastic from waste for recycling. "If we could identify them the only option would be to landfill them," said one recycler who asked to remain anonymous. "They are not wanted by UK recycling companies or local authorities who refuse to handle them. Councils are saying they do not want plastics near food collection. If these biodegradable [products] get into the recycling stream they contaminate it."

"It will get worse because the government is encouraging more recycling. There will be much more bioplastic around."

Problems arise because some bioplastics are "home" compostable and recyclable. "It's so confusing that a Pla bottle looks exactly the same as a standard Pet bottle," Skelton said. "The consumer is not a polymer expert. Not nearly enough consideration has gone into what they are meant to do with them. Everything is just put in the recycling bin."

Yesterday NatureWorks accepted that its products would not fully break down on landfill sites. "The recycling industry in the UK has not caught up with other countries" said Snehal Desai, chief marketing officer for NatureWorks. "We need alternatives to oil. UK industry should not resist change. We should be designing for the future and not the past. In central Europe, Taiwan and elsewhere, NatureWorks polymer is widely accepted as a compostable material."

Other users said it was too soon to judge the new technology. "It's very early days," said Reed Paget, managing director of Belu. "The UK packaging industry does not want competition. It's shortsighted and is blocking eco-innovation." Belu collects its bottles and now sends them to mainland Europe.

"People think that biodegradable is good and non-biodegradable is bad. That's all they see," said Chris Goodall, environmental analyst and author of *How to Live a Low-carbon Lifestyle*. "I have been trying to compost bags that are billed as 'biodegradable' and 'home compostable' but I have completely failed. They rely on the compost heap really heating up but we still find the residues."

Bioplastics compete for land with biofuels and food crops. About 200,000 tonnes of bioplastics were produced last year, requiring 250,000-350,000 tonnes of crops. The industry is forecast to need several million acres of farmland within four years.

There is also concern over the growing use by supermarkets of "oxy-degradable" plastic bags, billed as sustainable. They are made of conventional oil-based plastic, with an additive that enables the plastic to break down. The companies promoting it claim it reduces litter and causes no methane or harmful residues. They are used by Wal-Mart, Pizza Hut and KFC in the US, and Tesco and the Co-op in the UK for "degradable" plastic carrier bags.

Some environmentalists say the terminology confuses the public. "The consumer is baffled," a Wrap briefing paper said. "It considers these products degradable but ... they will not degrade effectively in [the closed environment of] a landfill site."

A spokesman for Symphony Plastics disputed that. "Oxy-bioplastic can be re-used and recycled, but will degrade and disappear in a short timescale", he said.