

## **Bioplastics, the Environment and Global Agriculture – A White Paper**

Current trends sharply underscore the three dimensional relationship that exists between energy, food supplies and the environment. If there is one single fact that has emerged, it is that there are no easy answers or simple solutions. What is clear, however, is that business-as-usual is increasingly unsustainable.

Managed sensibly, bioplastics can be a part of that solution – not only because they are being made from a renewable resource, not finite resources such as oil, but also because they lower carbon footprint, emit less greenhouse gases, and provide more end-of-use recovery options, making them better for the planet. However, exploring the use of plant-based feedstock and the corresponding impact on food prices around the world is important.

Across the spectrum, in both industrialized and developing countries, there is a clear consensus among experts that today's food situation is a function of many compounding factors, including, among others, (i) the surge in oil prices from \$50/barrel in early 2007 to a peak of \$145/barrel in July 2008; and (ii) increased demand. The compounding factors impact every step of the agricultural chain, from fertilizer and farm equipment to transport, processing and storage. The oil price impact was somewhat mitigated by the drop in crude oil prices from the nearly \$150/barrel high in July 2008 to below \$40/barrel in early 2009, however in recent months prices have reversed upwards into the \$70/barrel range, with forecasted long-term upward pricing trends.

Rising demand for food and animal feed in newly industrializing countries like China, Brazil and India is a persistent challenge. Extreme weather conditions – prolonged drought in some areas, flooding in others – are also a significant factor (one that many scientists associate with global warming, itself caused by fossil fuel emissions). Trade policies and financial speculation are also widely cited.

Most experts also agree that the use of agricultural crops for non-food purposes has played a role, although the extent is unclear. In June 2008, near the peak of oil prices, Agriculture Secretary Ed Schafer and Energy Secretary Samuel Bodman told Congress that ethanol and biodiesel consumption “accounted for approximately 3% to 4% of the overall rise in retail food prices.”

Access to affordable food is a critical human right and an essential challenge today. The lack of simple answers to big questions about energy and agricultural sustainability only reinforces the need for continued innovation to meet the evolving resource challenges of an increasingly crowded world. Plant-based plastics can help reduce oil demand and lower carbon footprint. As the market grows, of course, the bioplastic footprint will expand with it. That is why companies are investing heavily in innovation to transition into cellulosic feedstocks sourced from non-food plants and agricultural wastes.

Leaders in the industry, like Microsoft, Wal-Mart, Sony, Versace, Marks & Spencer, Compass and more are using bio-plastic material today in applications ranging from film overwrap to fresh food packaging to apparel and more because it is a better choice for everyone, everywhere, everyday.

Today's environmental and natural resource challenges demand creativity, commitment and an entirely new level of innovation. The bioplastics industry is working on delivering all three. The market for bioplastics has yet to achieve complete sustainability, however compared to the oil-based incumbent materials that are the norm today, bio-plastics made from renewable resources are demonstrably superior by virtually every environmental measure.

### **The Experts, In Their Own Words:**

**1. Dr. Jeffrey Sachs**, Director of Columbia University Earth Institute and Professor of Sustainable Development, Health Policy and Management (and Special Advisor to UN):

“World demand for food has outstripped world supply. The problem of supply has several different causes. First, productivity is very low still in Africa and some other poor regions. Second, climate shocks in Australia and in Europe and in some other grain producing areas. Also the diversion of food and feed production to biofuels and low inventory levels (the amount of food being stored) has played a part.”

([www.europarl.europa.eu/news/public/story\\_page/028-28263-128-05-19-903-20080505STO28114-2008-07-05-2008/default\\_en.htm](http://www.europarl.europa.eu/news/public/story_page/028-28263-128-05-19-903-20080505STO28114-2008-07-05-2008/default_en.htm))

**2. Walter Falcon**, a professor emeritus of international agricultural policy at Stanford University and co-director of Stanford's Center for Environmental Sciences and Policy:

“Those who say it's all the fault of biofuels are wrong and those that say that none of the fault belongs to biofuels are wrong. There is no doubt biofuels have added to the problem, but biofuels are not causing the demand for meat and soybeans for feed in China ... There are a half a dozen things going on and it's hard to sort out who gets the blame.”

([CNET article by Michael Kanellos 4/15/08](#))

**3. Organization for Economic Cooperation and Development (OECD) and the UN Food and Agriculture Organization**, publisher of the Agricultural Outlook:

“The dramatic increase in prices since 2005/06 is partly the result of adverse weather conditions in major grain-producing regions in the world, with spill-over effects on crops and livestock that compete for the same land. In a context of low global stocks, these developments alone would have triggered strong price reactions . . . On the demand side, changing diets, urbanization, economic growth and expanding populations are driving food and feed demand in developing countries. Globally, and in absolute terms, food and feed remain the largest sources of demand growth in agriculture.”

(<http://www.agri-outlook.org/dataoecd/54/15/40715381.pdf>)

4. The *Economist* magazine weighs in:

“There have been other, exogenous, factors pushing up grain prices. The spectacular rise in oil prices over the same period has led to a significant increase in the cost of grain production, through raising the cost of fertilizers (corn, in particular, and wheat production are very fertilizer-intensive), and leading to a sharp rise in the storage, transport and distribution costs of grain output.”

[\*\(The Economist, 5/23/08\)\*](#)

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