

**EMBARGO: Sunday 3<sup>rd</sup> June, 9.00 pm.**

## Australia needs to look before it leaps on the biofuel bandwagon

Government intervention to expand crop-based biofuel production in Australia makes little economic or environmental sense unless it is linked to policies to rapidly expand agricultural production in northern Australia.

This is a key conclusion arising from the analysis of Australian and international experts in the latest edition of the Australian Farm Institute's *Farm Policy Journal*.

'Biofuels have been promoted globally and in Australia as a major part of the answer to future energy needs, as well as bringing environmental and regional development benefits' said Mick Keogh, Executive Director of the Australian Farm Institute.

'However, a close examination of global biofuel experiences shows that crop-based biofuels are generally only viable with high levels of government support, and have at best a limited capacity to meet future energy needs.'

'For example, if all Australia's annual wheat and sugar output was diverted to ethanol production, it would only supply around 20% of Australia's current transport fuel use.'

'The belief that biofuels have advantages in reducing greenhouse gas emissions is also questionable.'

An added complication created by government intervention to boost Australian biofuel production arises from the growth in demand for animal protein that is occurring as Asian consumers increase in wealth.

'Australian livestock industries have been very successful in securing high-value markets in developing nations, and growing consumer demand in these countries is fuelling a fundamental reversal in the long-term downward trend in real prices for red meat and dairy products.'

'However, government intervention that results in a large-scale diversion of Australian grain production to biofuels would artificially inflate Australian grain prices relative to global prices, and make Australian livestock industries uncompetitive.'

'If Australian governments are determined to intervene to boost biofuel output for energy security reasons, then grain- and sugar-based ethanol using existing Australian crops seems the least preferred option. The development of an ethanol industry utilising cellulosic feedstocks (crop stubble or plant wastes) and the development of biodiesel production based on new crop species suited to northern Australia are more logical options.'

'In the case of cellulosic ethanol, considerable public investment is urgently required in order to further develop and improve the technology.'

'For biofuels based on an expansion of agricultural industries in northern Australia, governments need to urgently accelerate development plans for new agricultural areas and remove many of the regulatory constraints that currently exist.'

**Further information: Mick Keogh BH (02) 9690 1388 AH 0418 256 066**  
**(Abstracts of Journal Papers Follow)**

## **Global Scenarios for Biofuels: Impacts and Implications**

**Dr Siwa Msangi**, Research Fellow, Environment and Production Technology Division, International Food Policy Research Institute (IFPRI)

**Timothy Sulser**, Research Analyst, Environment and Production Technology Division, IFPRI

**Dr Mark Rosegrant**, Director, Research Analyst, Environment and Production Technology Division, IFPRI

**Rowena Valmonte-Santos**, Research Analyst, Environment and Production Technology Division, IFPRI

In recent years, biofuels have generated increasing interest as a sustainable energy alternative to fossil-based fuels that may help resource-constrained nations cope with rising energy prices, while also providing income to poor farmers and rural communities around the globe. Given the high level of uncertainties for future biofuel supply, demand and technologies, this paper examines three alternative scenarios: a 'conventional' scenario, which focuses on rapid global growth in biofuel production under conventional conversion technologies; a 'second-generation' scenario, which incorporates a 'softening' of demand on food crops due to second-generation, lignocellulosic technologies becoming available; and a 'second-generation plus' scenario, which adds crop productivity improvements to the second-generation scenario and essentially further reduces potentially adverse impacts from expansion of biofuels. Results from the analysis show a potential 'food and water-versus-fuel' trade-off if innovations and technology investments in crop productivity are slow, and if reliance is placed solely on conventional feedstock conversion technologies to meet future requirements for blending, or displacement, of fossil fuels with biofuels.

## **Recent Developments in Biofuels**

**Professor Peter Rogers**, Emeritus Professor of Biotechnology, University of New South Wales

Global interest in biofuels has increased dramatically over the past few years due to the high price of oil; positive environmental benefits; the security advantages of greater domestic fuel production; and the increased economic opportunities for regional development. Large-scale ethanol production in Brazil and the United States currently uses sugarcane and corn respectively as raw materials; however, much of the future lies in the development of second-generation technology using non-food based energy crops (biomass), as well as agricultural and forestry residues. With strong support from the agricultural sector, some state governments have now mandated the future use in Australia of some ethanol/petrol blends. The challenge is now to identify potential sources of raw materials to meet these mandates; to provide the investment climate for industry to build the necessary production facilities; and to develop effective research and development programs in Australia.

## **The 'New' Link Between Energy and Agriculture**

**Dr Amani Elobeid**, International Sugar and Ethanol Analyst, Center for Agricultural and Rural Development (CARD), Iowa State University

**Dr Simla Tokgöz**, International Grain and Ethanol Analyst, CARD, Iowa State University

This paper details a study that investigated the impact of the emerging biofuels on international agricultural markets. The study analysed the impact of a US\$10 per barrel crude oil price shock on input and output markets critical to ethanol. These markets included grains, oilseeds, sugar and livestock. The study found that the higher crude oil price led to the expansion of the ethanol sector as the demand for ethanol increased to substitute for gasoline use. Given that agricultural commodities such as corn and sugarcane are feedstock in ethanol production, the increased demand for their use resulted in an increase in their respective prices. The increase in crude oil price indirectly reallocated the use of crops between fuel, feed and food. Crop use for fuel increased, whereas feed and food use generally declined. The study concluded that, through the production of ethanol, there is a 'new' link between agricultural markets and energy markets.

## **Expanding Biofuel Production in Australia: Opportunities Beyond the Horizon**

**Dr Inakwu Odeh**, Sesqui Snr Lecturer Rural Spatial Information Systems, University of Sydney

**Dr Daniel Tan**, Lecturer in Agronomy, University of Sydney

The search for alternative energy in Australia (and indeed the rest of the world) has emerged as one of the greatest challenges of the 21st century. While it has generally been predicted that the national target of 350 million litres biofuel production by 2010 will easily be met, expansion above this target has some economic and environmental implications, among which is competition with food and cash crops grown on existing arable lands. This necessitates opportunities outside current arable lands, especially in marginal agricultural regions, which potentially are amenable

to the production of some exotic biofuel crops, namely: pongam, physic nut and Indian mustard. A preliminary assessment of the marginal regions in mainland Australia indicates that 20–30 million hectares are potentially suitable for the production of each of these exotic crops. It is envisaged that production up to a small fraction of the estimated area will provide enough feedstocks to supply up to 50% of national diesel needs.

### **The Impact of Government Support for Ethanol on the Australian Lot Feeding Industry**

**Helen Murray**, Executive Director, Australian Lot Feeders' Association (ALFA)

The ethanol 'debate' has been notable for the lack of analysis of the flow-on impacts of ongoing government support mechanisms in the wider economy and community. This paper examines the flip side of government support for domestic grain-derived ethanol production. Over the past two years, the Australian Lot Feeders' Association has initiated a series of independent studies to examine the impacts of such support mechanisms on the livestock sector – a major supplier for the human food chain. The research shows that negative flow-on impacts would result for grain-fed cattle producers and that price adjustments would flow-on to the detriment of extensive or pasture-fed cattle producers.

### **Biofuels and Prospects for the Australian Grains Industry**

**Matt Kealley**, Business Development Manager, Single Visions Grains Australia

**Selwyn Snell**, Chief Executive Officer, Single Visions Grains Australia

Biofuels are creating a great deal of interest, yet an analysis of global literature and thinking reveals a significant diversity of opinion on the role of biofuels, particularly in Australia. This paper explores whether Australia has a biofuels future and how the grains industry should position itself to become a supplier of biofuel inputs. Key drivers such as climate change, water and fuel security lie at the heart of the case for an Australian biofuels industry; and with Australia currently enjoying one of the lowest costs of petrol globally, it is important that Australia plans for better energy security to underpin its future. The environmental benefits of first-generation biofuels, along with the advent of more sustainable second-generation technologies, indicate that the Australian grains industry and agricultural value chains will shift to create a new 'bioeconomy'. For this to occur, and for the grains industry to remain profitable and sustainable, the grains industry needs to take a leadership role in the alternative energy debate and to focus on a biofuels 'roadmap'.

### **Biofuels: Energy and Environmental Issues**

**Professor David Pimentel**, Professor of Ecology and Agriculture, College of Agriculture and Life Sciences, Cornell University

The United States desperately needs a liquid fuel replacement for oil in the near future, but producing ethanol or biodiesel from crops or plant biomass makes little sense, because more energy is expended to produce these fuels than can be generated from their combustion. This paper examines the most recent scientific data arising from research into the energy inputs associated with ethanol production using corn, switchgrass and wood biomass; as well as for biodiesel production using soybeans. It also outlines costs to consumers associated with biofuel production and use, including Federal and state subsidies, and costs associated with environmental pollution and/or degradation.