

Week 10 – biofuels

20 September

A rush of enthusiasm and interest in biofuels (ethanol and biodiesel) has followed the promotion of their environmental and health benefits, especially with high oil prices. But what is understood about the possibilities and potential for biofuels and where does more research need to focus? This week, BCG asked three Wimmera Mallee farmers the following question:

What do you know about the possibility of grains being used for fuels?



Peter Niewand – Areegra

Peter and Chris Niewand have a 2000ha mixed property at Minyip. Their soils vary from black to river flats. Forty percent of their land is sown to cereals, 40 percent to legumes, ten percent to oilseeds and ten percent is grazed. Peter is the Chairman of the Central Wimmera Community Enterprise, a group trying to establish a community owned biodiesel outlet in the Wimmera.

Biofuels: “All grains can be used to produce fuel, either ethanol or biodiesel. Grain growers now have the ability to become the next generation of oil producers!

If your crops can be used to produce fuel, why not take it to the next level. Grain growers can enjoy some of the profits after the grain leaves the farm gate by being involved in value-adding industries.

This industry could be located in your own region, with your local community being involved with and benefiting from a fuel processing plant.”



Garry Bibby – Berriwillock

Garry and Kate Bibby farm 6km south of Berriwillock. They run cattle and grow wheat on one third of their cropped ground, barley on a third, and legumes and canola on the remaining area.

Biofuels: “Renewable energy sources reduce our dependence on now very expensive fossil fuel imports. The main products to benefit farmers are ethanol production from grains and biodiesel from oilseeds.

The ethanol plant being built in Swan Hill will use 50 percent wheat and barley and 50 percent corn. The by-product produced is called distillers grain that will be a valuable feed source for a new local feedlot industry. Employment will increase, creating benefits for communities.

New feed varieties will create greater opportunities for the grain industry.

E10 (10 percent ethanol blend) reduces exhaust emissions by 25 percent and greenhouse gas emissions by 20 percent. E85 blends can be produced for around \$0.60/L.

Production of ethanol has been very successful in other countries such as USA, EU and Brazil.”



Trevor Stevenson – School of Applied Sciences, RMIT University

Trevor Stevenson is based at RMIT University where he is currently Associate Professor of Plant Biotechnology and Head of Food and Consumer Sciences. He has a background in plant molecular biology with a particular focus on the application of these technologies to agricultural biotechnology and the potential use of broadacre crops as sustainable biofactories. He is a Director of Biomass Conversion Technologies (BCT) a start up company that is exploring the development of technologies for the utilisation of lignocellulose for fuel ethanol production.

Biofuels: “Current ethanol production relies largely on grain/starch or sugar for fermentation. However, as the fuel ethanol industry expands, sole reliance on these feedstocks is unsustainable due to the competing demands for grains and starch as animal feed, human foods and other industrial uses.

One large-scale, renewable resource that can help meet the demand for fermentation feedstock is crop residue, especially from grain crops such as wheat, barley and sorghum. However, currently this is constrained by the costs of enzymatic pre-digestion prior to fermentation and the large scale availability of the enzymes required for these processes to occur on an industrial scale.

In order for Australian grain farmers to participate in the inevitable expansion of the Australian and global biofuels industry there is an urgent need for the development of technologies that will enable economically competitive ethanol production from crop residues. This may include the development of new crop varieties. The application of these technologies will create for grain farmers a new and sustainable market for crop wastes that will complement the current use of starch/grain and sugar industry-based feedstocks for the fuel ethanol industry.”