



Oil mallee industry prepares to reap rewards

By Laureta Wallace
Kondinin Group

ABOVE: Suitable harvesting technology could see the oil mallee industry surge into full-scale production.

The Future Farm Industries Cooperative Research Centre (FFI CRC) is firing up the nation's oil mallee industry – driving the development of the specialised technology needed to harvest the oddly-shaped trees.

Australia oil mallee industry is ready to take off and capitalise on new market opportunities once the necessary technology is engineered.

The FFI CRC has embarked on a project to put together the technology needed to cost-effectively harvest Australia's growing number of oil mallees. The completion of the project will see a new industry open up for Australian farmers, many who are struggling with decreased rainfall and the resulting reduced production in traditional rural commodities such as grain and livestock.

FFI CRC Commercial Director, Mark Stickells, said the ability to economically harvest oil mallees would provide farmers with a new set of options.

key points

- New and developing markets for oil mallee oil and biomass include renewable energy, oil feedstock and fibreboard
- An efficient and economic harvesting system is key to the success of the alternate crop and the FFI CRC is coordinating the engineering of an oil mallee harvester
- The project has recently received a commitment of \$1.5 million of funding from the WA Government dependent on additional public and private sector funding.

"The oil mallee was first planted for environmental purposes – to manage water and combat salinity in the Western Australian wheatbelt," Mark said.

"However, the oil mallee is proving to be a versatile plant with a number of promising market options such as activated carbon, oil feedstock and as a component in Medium Density Fibreboard (MDF).

"There also has been research into using oil mallees as a renewable energy source – many people think of renewable energy as sun, wind and water but oil mallees present a very practical source of energy."

Supporting change

Mark said essentially the FFI CRC is preparing farmers for the uncertainties of climate change and the impact that would have on their businesses.

"Oil mallees are well placed to provide farmers, particularly those in marginal areas, with another weapon in their armoury," Mark said.

"It is not too far-fetched to expect that oil mallees could soon become an important part of farm business in the not too distant future.

"They could also play a role in a carbon trading scheme."

Mark said there also needs to be significantly more oil mallees planted, and on a larger scale, to ensure the viability of an Australian oil mallee industry.

The harvest challenge

There are about 12,000 hectares of oil mallees in WA's wheatbelt. Crops of the native tree are also becoming increasingly popular in central New South Wales, Victoria and South Australia.

The form and size of the oil mallee requires a unique harvester design – one that is more robust than existing forage harvesters, but also lighter and more efficient than conventional forestry equipment when applied to small trees.

During the late 1990s, WA Department of Environment Conservation (DEC) engineers tackled the problem drawing on the sugarcane harvester for inspiration. The sugarcane harvester was modified to travel continually while harvesting and having the ability to convert whole trees directly into bulk whole-tree biomass in a single operation.

Along with DEC, the Oil Mallee Association and WA's Verve Energy invested in the initial engineering process. During 2005 Verve Energy proved that mallee biomass could commercially generate electricity while producing carbon and eucalyptus oil. The company remains committed to investing in a commercial-scale oil mallee processing plant.

The harvesting system was, in theory, correct, but the modified machine needed significant engineering to make the process commercially viable. It was determined that a machine needed to be capable of harvesting at least 20 tonnes of oil mallee biomass per hour to be cost-effective. It was estimated the project would cost about \$5 million.

FFI CRC involvement

As part of its initial project commitments, the FFI CRC had a first-year target to finalise a commercial business plan for the engineering of a viable oil mallee harvester – based on the principles developed using the modified sugar cane machinery.

The CRC realised the potential for oil mallees to provide farmers with another stream of income while delivering land sustainability benefits. The CRC was interested in oil

mallee research from the point of view of genetic development, biomass production and the development of possible end markets. But the State's cultivated mallee population was growing and the FFI CRC realised the urgent need to find a way to economically harvest the native trees.

"In a sense we want to reward the farmers, who have invested in oil mallees for their environmental commitment, with additional options for economic returns," Mark said.

"The benefit of a body like the CRC driving this project is that we can work with the Commonwealth and State Governments, as well as industry partners to solve the oil mallee harvesting challenge.

"It's about industry, government, scientists and engineers working together."

Team effort pays off

As a result of industry and government collaboration the WA State Government recently put \$1.5 million towards the oil mallee harvester project. The funding is through the Government's Low Emission Energy Development (LEED) initiative and is dependent on the CRC attracting private sector funding.

"The money will be used for the design, fabrication, commissioning and field testing of a new prototype harvester," Mark said.

"The necessary private sector funds could come from people looking to invest in an exciting new industry, as well as those with a vested interest such as potential processors, end users and even farmers."

A phase one (P1) prototype of the harvester is planned to be ready for a field trial in Narrogin during December 2009. By December 2010, designs and specifications for the final harvester, P2, are expected to be ready for commercialisation.

"By the end of the project, the FFI CRC aims to have an operational harvester capable of reliably harvesting mallee trees at a high rate," Mark said.

"The most efficient rate of production is anticipated to exceed 50t per hour. However, the rate will be determined after further systems analysis has been carried out including an analysis of the nature of the chipped biomass.

"The final outcome will be a machine that can be commercially viable for a harvest contractor – perhaps an operator already engaged in the harvesting of similar crops." ↴

More information

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ABOVE: A visiting delegation at Verve Energy's Narrogin Integrated Wood Processing Plant during 2005 to see the trial processing of harvested oil mallees.

WA moves forward with industry development plan

Another positive sign the oil mallee industry development is maturing was the announcement by the Western Australian Government of the Oil Mallee Industry Plan in November.

Announced by the new WA Forestry Minister, Terry Redman, the Industry Development Plan (IDP) provides an outline of WA Government's favoured strategy to launch the industry's expansion into the State's emerging carbon and renewable energy markets.

In the plan, FFI CRC is acknowledged as a leading stakeholder and makes specific reference to the CRC's responsibility in overseeing the design and commercialisation of an oil mallee harvester – viewed as a critical milestone.

Central to the IDP is the identification of the roles the WA Forestry Commission, other government agencies, the private sector, research institutions, natural resource management groups, industry bodies, landholders and rural communities will play

in the development of the industry. The importance of the need to develop and locate specific industries best suited to regional biophysical characteristics and available infrastructure is also emphasised.

It is anticipated the WA Oil Mallee Industry will continue to gain momentum through the current interest shown by resource and energy-intensive industries in planting tree crops to offset carbon emissions.

The IDP is a joint project between the WA Forest Commission and the Oil Mallee Industry of WA with funding from the National Action Plan for Salinity and Water Quality. The 106-page strategy can be downloaded from the WA Forestry Products Commission website: www.fpc.wa.gov.au ↴

More information

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