

Mallee Biomass for BioFUELS



The aviation industry is looking for alternatives to fossil fuels. One possibility is biofuel produced from mallee biomass — which has the advantage of complementing existing farming practices while providing broad environmental benefits such as salinity reduction, biodiversity conservation and reduced greenhouse gas emissions.



An Australian Government Initiative





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Can mallee biofuel really power the aviation industry?

The use of biofuel in jet aircraft is already technically proven. The global aviation industry has set ambitious targets for reducing its greenhouse gas emissions and has selected biomass as the only option for meeting its sustainability goals. Mallees are a potential source of biomass.

What are biofuels? What is their advantage over fossil fuels?

Biofuels are made from organic matter, such as plants and are inherently renewable. Fossil fuels are made from a finite and therefore non-renewable store of ancient or fossilised plant material.

The main advantages of biofuels over fossil fuels are that they are renewable; they won't run out. Some biofuels have a significantly smaller carbon footprint than fossil fuels, which means less carbon pollution and less global warming.

Wood-based biofuels such as those from mallee biomass extract more carbon dioxide from the atmosphere than biofuels based on oil seeds such as biodiesel made from canola oil.

Do mallees compete with food production?

It is expected that, on a regional scale, mallee plantings will account for a small percentage of farmland and will not significantly reduce food production.

In the long term, integrating mallees into farming systems will likely increase total farm profits by offering an additional income stream through bio-energy production.

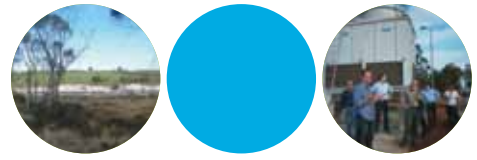
What do mallees do for climate change?

Mallees combat climate change by reducing the amount of carbon pollution that enters the atmosphere. Every mallee-based biofuel plant would prevent 550,000 tonnes of CO₂ from entering the atmosphere each year. This is equivalent to removing 10,000 flights between Perth and Melbourne each year.

What does mallee biofuel mean for farmers?

For farmers, biofuels are the most immediate and likely prospect for joining the rapidly expanding renewable energy market, while also diversifying their income and reducing their production risks. Integrating a mallee enterprise across a farm will diversify income and mean that low prices for grain, meat or wool will have less impact on the farm business. Mallees are extremely drought tolerant so the new income source would be less affected by climatic variability.





How do mallees benefit the environment?

- Mallees help combat salinity by using up rainfall and soaking up groundwater that might otherwise bring the salt that causes dryland salinity nearer to the soil surface.
- Mallees also help reduce saline seepage and run-off, which are serious threats to remnant vegetation, lake systems and wildlife. Field research has shown that mallee belts provide significant additional food and shelter for native fauna, such as honey possums, birds and reptiles living in mature paddock trees or in nearby bush.
- Mallees act as windbreaks, which helps prevent soil erosion.
- Mallees sequester carbon, which helps to offset greenhouse gas emissions — the cause of climate change.

What happens when the trees are removed?

Mallee trees can be harvested every three to five years and will re-grow or 'coppice' vigorously from stores of nutrients in their root systems. Such harvesting can continue for more than 50 years without killing the trees. In fact in New South Wales and Victoria mallee trees have been regularly harvested for more than 100 years and they continue to grow successfully.

Won't harvesting mallees 'undo' their carbon sequestration?

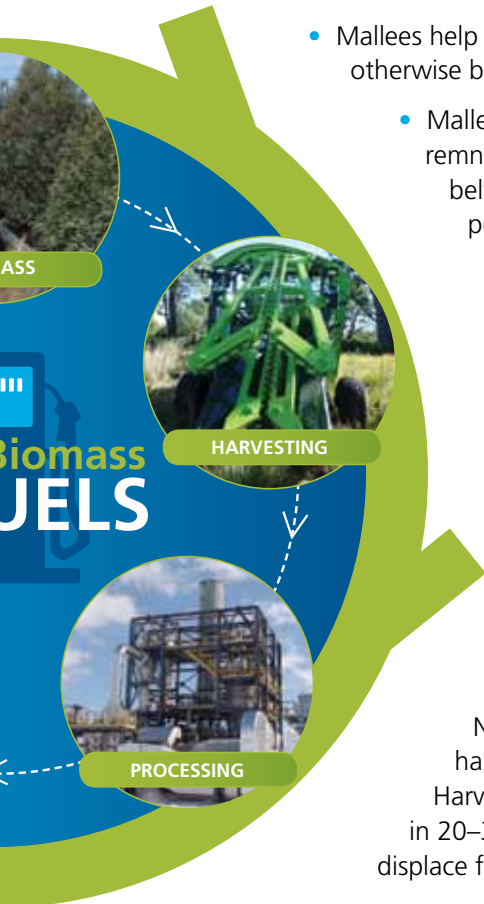
No. One third of mallee carbon is stored underground and is unaffected by harvesting. The trees' leaves and branches store carbon while the trees are growing. Harvesting keeps the trees continuously growing; if they are not harvested they mature in 20–30 years and stop sequestering carbon. In addition, biofuels produced from mallees displace fossil fuels, which further reduces carbon pollution.

This sounds like a lot of work, will mallee biofuels ever be realised?

Yes. The aviation industry represents a huge driver for mallee biofuel development.

The Australian wheatbelt is so vast that planting mallees on just a small proportion of suitable farmland would generate enough biomass to make billions of litres of renewable biofuels every year.

Such an industry will take a number of years to fully develop, but we are moving in that direction.



'Mallee biomass for biofuels' is an exciting initiative with the goal of stimulating new and sustainable industries across regional Australia.

The vision is to integrate multi-purpose mallee trees into farming systems across Australia to mitigate carbon pollution, increase biodiversity and reduce environmental degradation while producing biomass for regionally-based biofuel production plants.

The initiative has attracted the backing of the aviation industry, which is seeking ways to reduce its reliance on fossil fuels and has set itself the target of being carbon neutral by 2020.

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