

# Right down sustainability alley

SARAH JOHNSON

## Eyre Peninsula farmers collecting carbon in trees

Eyre Peninsula farmers Mike and Tessa Wake have invested in the sustainability of their continuous cropping operation near Buckleboo by planting strips of mallee trees.

Four years ago, belts of mallee, a Eucalypt, were planted on almost six per cent of two of the Wake's properties as part of a commercial agreement.

"It's about sustainability of the farm and improving our farming practices," said Mike Wake. "We've got some responsibility while we're here to take the best care of our land that we can. I'm committed to doing something in my backyard for future generations.

"Another reason we've done this is to chase carbon credits in the future. They're not available in Australia at the moment, but in the future we might be able to take our carbon credits to world markets. In the interim the trees are taking carbon from the air, providing a natural habitat for native wildlife and sheltering our young crops. We're also earning a healthy rent from leasing the land to a carbon company."

The practice involves planting trees – two species of Eucalypts in Mike and Tessa's case – in 10-metre-wide belts across paddocks to create tree farms that store – sequester – carbon.

This carbon sequestration is achieved through the trees' natural processes, which use carbon dioxide ( $\text{CO}_2$ ) from the air as they grow. The carbon from the  $\text{CO}_2$  is stored in the tissues of the trees. It is thought that trees are one of the best ways of sequestering carbon to help reduce the amount of  $\text{CO}_2$  contributing to climate change.

Mike came across the concept through his involvement as a director on the board of Free Eyre, a venture incorporated in 2007 to invest in the profitability and sustainability of the Eyre Peninsula region.

Free Eyre, a co-operative of 500 shareholders – farmers and entrepreneurs from Eyre Peninsula – investigated mallee tree farms in Western Australia before



EYRE PENINSULA FARMERS MIKE AND TESSA WAKE ARE ALLEY FARMING BETWEEN BELTS OF MALLEE.

trialling the practice at Minnipa Agricultural Centre and on farming land near Kimba and south of Rudall.

With lessons learnt from these trials, which were established seven years ago, and after investigating the WA tree farms first hand, Mike decided to pursue the practice commercially on his 3,076 ha Wattle Grove property and 1,164 ha Rockview farm near Buckleboo in 2008.

He chose to contract establishment and management of his tree farms to a third

party, leasing 224 ha of land to Elementree Group Limited, a WA company that specialises in carbon and renewable biomass plantations.

Elementree designs, establishes and manages trees over the full term of a 30-year lease. The management program includes periodic deep ripping either side of each belt of trees to minimise root competition with adjoining crops and spraying for insect pests and weeds.

"The rent we receive on those hectares is three times the rate we would receive if it

was leased to a farmer," said Mike. "The rent is also adjusted each year according to the consumer price index." Elementree sources investments in the plantations from major corporations and investors looking for a long-term supply of carbon credits at a discount to the market.

The process of establishing the Wakes' tree farms started with the removal of fences, reducing the number of paddocks from 23 to three, each approximately 1,500 ha in area. A surveyor designed the layout of the paddocks, which have 108-metre-wide cropping alleys between the tree belts. The 108-metre width of the cropping areas was chosen to best match the width of the Wakes' farm machinery, which includes a 36 m self-propelled boom sprayer, 21 m seeder bar and 13 m header.

"Indirectly we've gone track farming, because we've planted the trees belts 108-metres apart, to give us three widths of the boom spray, five widths of the air seeder and eight widths of the header," said Mike. "It's not true track farming because with that you're supposed to stay on the same tracks, but our boom sprayer goes through cropping areas most often and that always stays on the same tracks."

The mallee belts stop short of the fences and have several breaks across each paddock to enable convenient movement of traffic such as chaser bins and trucks during harvest time.

After the paddock redesign, Elementree hired local contractors to rip the areas to



MIKE'S UNCLE LAURIE WAKE AND A BACKPACKER WITH MALLEE SEEDLINGS READY FOR PLANTING.

be planted to trees to facilitate deep root growth and spray the areas for weeds.

"Ripping enhances the establishment of the trees because the roots go straight down," said Mike.

A team of up to 14 backpackers were hired to plant the mallee seedlings by hand in July. The planting, of more than 350,000 trees at a density of 1,600/ha, took two weeks to complete, with about 30,000 trees planted each day.

graded nine. Soil type affects the growth rate of the trees. The faster they grow, the more carbon they use, which means that as the land owner, you earn a more generous rent. If our soil was graded a five, Elementree might not have chosen to lease the land."

Tree farms can provide benefits for the farming operation and environment, including lowering water levels to minimise the risk of salinity and providing vegetation corridors for native fauna. "The trees are a natural habitat for native animals and birds," said Mike. "There are big blocks of trees on Eyre Peninsula that haven't been cleared and the tree belts on our property provide a corridor that link up with blocks of residual bush."

"They also provide shelter for our young crops by preventing the wind from sucking moisture out of the soil when the crops are germinating."

"At Buckleboo we don't have salinity issues but we certainly have vicious north winds and westerlies. Although we haven't measured it, visually we have noticed improved crop establishment. The trees are at a stage where they're starting to form wind breaks."

Mike chose to run the tree belts in a north-south direction to protect his crops from westerly winds.



A BACKPACKER HARD AT WORK PLANTING MALLEE SEEDLINGS.

**"Normally mechanical planters are used, but we found that with people planting the trees, there was a 97% survival rate."**

The trees, which were 12 months old at planting, were produced by a nursery in WA. Two species were used, *Eucalyptus polybractea*, or blue mallee, covering 108 ha and *Eucalyptus loxophleba*, commonly known as York gum, across 115 ha. The *polybractea* is expected to reach 10 metres in height at maturity, while the *loxophleba* will reach seven metres.

Mike said his land was prime country for establishing trees, with Elementree testing the soil for quality, depth and salinity. "On a scale of one to 10, our soil was

"There are two schools of thought about the best direction to run tree belts," said Mike. "Some people say their crops get better light by being exposed to the northern sun. You also get better shelter from the westerly winds if you plant them north-south because that's where a lot of our big winds come from."

"Other people say that it's better to run them east to west, due to the hot northerly winds that come in the summer time."

"We went north-south, because I like the idea of having more of the country exposed to the sun, but also sheltered from the westerly winds when the crops are young."

Planting trees throughout paddocks influences the way the land is farmed, affecting spraying and the use of stock. While the Rockview and Wattle Grove properties are mostly used for cropping,

no stock was allowed on them for three years following planting, to allow the trees to become established. "The trees have to grow to a stage where the sheep can't hurt them," said Mike. Mike's workmen also have to be careful when spraying for weeds, to avoid spray drift affecting the young trees.

Another issue Mike considered carefully before committing to the project was the potential of tree roots to rob his crops of moisture. He spent time on headers with WA farmers that have had tree farms for up to 30 years to investigate the concern first hand. "What I found was that if you rip alongside the trees nice and deep, there isn't an issue with the roots robbing moisture," he said. In the leasing contract, Elementree has committed to rip down each side of the belts every five years on the Wake property.



THE MALLEE TREE BELTS ARE DEVELOPING WELL ON MIKE AND TESSA'S PROPERTIES.



AFTER FOUR YEARS IN THE GROUND THE TREES ARE LARGE ENOUGH TO BEGIN HAVING A WIND-BREAK EFFECT.

Mike expects to extend his tree farming to another property at Yeltanna on Eyre Peninsula. He has completed the soil testing and survey work but has delayed the project at this stage. "Elementree is a fledgling public company and they had some issues after they planted our trees," said Mike. "They used local contractors, which was good, but I think it took them a long time to pay some of those people."

"They had teething problems getting established, but have raised additional capital and now they're in the process of finalising the company's ownership structure."

"They've weathered the storm and they're back on track. They've paid their rent to me and maintained the trees, including spraying out the weeds and the bugs. They've been good about that and have employed an arborist from Perth to oversee tree management."

"But I think it's important to show that when you're taking risks in new initiatives, things are not always plain sailing."

"Tyranny of distance is also an issue and Elementree is keen to get a critical mass before they do more plantings on Eyre Peninsula."