

Farming dirty:

toward greater sustainability



"We call it dirty farming, it might look messy but it's the only way to preserve the soil and ensure a healthy crop at the end of the day," says Vaughan Lascelles, area and agricultural manager at the MTO Group as he gestures toward a macadamia orchard teeming with a variety of grasses and forbs.

Although the MTO Group's primary focus is forestry, the Group started farming macadamia nuts in 2017 when it acquired macadamia trees on a number of farms in the White River district.

Now, seven years later, the MTO Group owns and manages 350 ha of macadamia nut orchards, situated in the lush mist belt of White River which boasts an average annual rainfall of 1,300 mm.

Although macadamia nut farming is not new to the area, the MTO Group's approach to farming this lucrative, albeit fickle crop, is:

"At the end of the day, we are not macadamia farmers. We are not eucalyptus farmers. We are not cash crop farmers or anything like that. We farm the soil, and if you don't look after the soil and you don't regenerate your soil, at the end of the day, you're not going to have anything!"

It is this attitude to farming macadamia nuts, which informs and underpins the MTO Group's approach to testing and ultimately implementing sustainable farming practices. One such strategy is the use and application of cover crops.

COVER CROPS

"I used to be a forester - so I like to see everything, including plantations and orchards - clean, neat and tidy and in straight lines, but those days are gone," says Lascelles gesturing to a row of macadamia trees each nestled in a blanket of mulch, peeking out from a sea of cover crops.

"You know, to put in irrigation on this farm would be somewhere around R40 million. So, we had to figure out how to do this as a dryland venture, and the only way to do it dry land is to build up your mulch on your soil. And I think that's where we are really trying to push the boundaries."

By using a variety of up to 11 cover crops, Lascelles and his team are able to manage both the ambient temperature and the water retention rate of the soil. "These trees were only watered upon planting, and that was three years ago," says Lascelles, pointing to the 105 ha of dryland orchard.

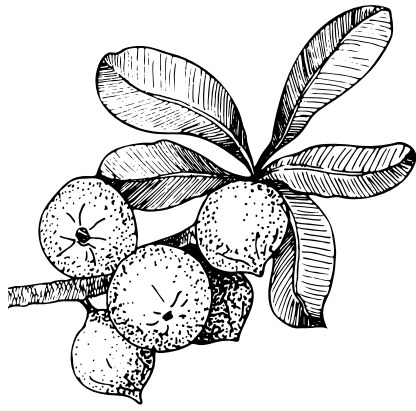
"When we started using cover crops instead of mowing the inter-rows of the orchards, I had my apprehensions. Locally nobody else I knew was doing this," Lascelles admits. But now, three years later, he says that the application of cover crops has accelerated the growth of the macadamia trees and contributed to their overall health and resilience.

Composting and the use of natural fertilizers is another way in which the MTO Group macadamia orchards are being managed to reduce costs and bolster the quality of the soil. This by creating their own compost, on-site. "All our trees get composted every single year, and we have really seen remarkable success with this approach."

Although composting does not make up 100% of their fertilization regime at the moment, Lascelles says that they are working hard toward reducing their reliance on chemical fertilizers. "We've managed to reduce our use of chemical fertilizers to 60% with the rest being compost."

In addition to relying on compost and cover crops to rejuvenate and protect the soil, Lascelles and his team have introduced another novel way of managing their orchards while keeping costs down.





GRAZING AS ORCHARD MANAGEMENT

"We only mow the inter-rows of the orchards once a year, just before harvest, the rest of the season we use cattle to do the job."

By forcing up to a 130 head of cattle into a small fenced off area of the orchard, Lascelles and his team allow the cattle to strip graze between the macadamia trees. "We would have had to buy an extra two or three tractors by now if we didn't have the cattle doing the mowing for us. It reduces our fuel expenses, our carbon footprint and saves us time by freeing-up staff to tend to other issues. It really has saved us a lot of money."

Not only do the cattle fulfill a very necessary role with regard to keeping the lines between the trees mowed, they also play an important part in fertilizing the soil and cover crops through both their urine and dung. In an attempt to promote greater biodiversity, Lascelles and his team have also been working to create an environment which is conducive to bees and other pollinators.



RAPTOR PERCHES AND PEST CONTROL

"When we started we really had difficulty in managing the damage rodents would do to the young trees. The gnaw at the stems taking off the bark which causes extreme damage to the young trees and places our initial investment in jeopardy."

In keeping with the MTO Group approach and ethos to macadamia nut farming, Lascelles and his team opted for a non-chemical approach to keeping pests like rodents at bay.

"All we did was to put up raptor perches, really it was as simple as that," he says gesturing to an upright pole halfway through the orchard of three-year-old trees.

Now, without the use of poisons and chemicals, the owls, jackal buzzards, black shouldered kite and a number of other indigenous raptors and birds of prey are doing the work for Lascelles and his team.

"The problem has virtually been solved, all by using what nature already had at its disposal."

According to Lascelles this is but the beginning of a long-term process of investing in, and working toward greater sustainability in their farming practice. Although the approach followed by MTO macadamia nut orchards differs in many respects from other more established and traditional macadamia nut farming practices, Lascelles says that manageability of their systems remains a central tenet of their approach to greater sustainability in their farming practices.

"In our day-to-day farming activities, we really try to give back as much as we can. Few things excite me as much as when I see the inter-rows of the orchards teeming with insect and bird life. We have seen such rapid success with the systems we have implemented so far, so I really think that once you make the mindset shift, I think this way of farming becomes the only option to secure a sustainable future for your farm and business."



BEES AND POLLINATION

"If we don't have bees, in future we won't have anything! So everything we do here is aimed at attracting and keeping bees in the area all year round," says Lascelles gesturing to one of more than 200 permanent hives that are scattered across the 350 ha of orchards.

By planting a very specific combination of plants like chicory (*Cichorium intybus*), wild basil (*Climacodrum vulgare*) and indigenous trees like the boerboom (*Scaevola brachyptera*) to name a few, Lascelles and his team have been able to create a refuge for bees.

"We have also been working hard at rehabilitating and managing our drainage lines as places to cultivate trees and plants that are good for bees." In addition to creating an environment which is conducive to bees and other pollinators, Lascelles and his team have employed novel ways of reducing and managing the threats posed by pests to especially the younger macadamia trees.