

# Maintaining productivity at 'Twisted M' farm

## Key facts

<b>Farm</b>	Twisted M
<b>Owner operator</b>	Bruce Maguire
<b>Location</b>	Kin Kin, Queensland
<b>Size</b>	2779 trees 9.6 ha
<b>Average age</b>	17 years
<b>Spacing</b>	9 × 4 m
<b>Varieties</b>	246, 344, 741, MCT1, Daddow
<b>Yield and quality</b> (avg. 2014–2020)	NIS 4.6 t/ha SK 1.5 t/ha SKR 33.9% RKR 2.1%



Bruce Maguire believes there is nothing special about the way he manages his Kin Kin farm in South East Queensland. With nut-in-shell productivity averaging over 4.6 tonnes per hectare over the last seven years, he must be doing something right.

Bruce purchased his farm in the early 1990s with an existing planting of 344s. Since then he has progressively established new plantings of other varieties including 741, 246, Daddow and MCT1. '344 is my standout variety' Bruce said. 'We're quite lucky to receive good rainfall where we are and I haven't had to invest in irrigation'.



## Approach

Bruce admits that his farm has not always been highly productive. Time limitations while working full time off-farm meant that management was not optimal, and yield suffered as a result. Bruce has seen his yield and nut quality improve over the last five years, which he attributes to having more time to spend on the farm. 'The production jumped up when I began to run the farm properly and get things done on time' said Bruce.

Bruce performs light hedging each season and has not noticed any yield decreases as a result. 'We have removed some lower limbs for access' Bruce said. 'Production has remained fairly consistent regardless of how much pruning I do'.

Like many orchards, Fruit spotting bug is the major pest that Bruce needs to control. 'I noticed in my benchmark report that my insect damage numbers were getting up there, so I upgraded my sprayer,' said Bruce. 'In the three years since I purchased it, I've noticed my insect damage levels have come down'.

'We had serious issues with pigs' said Bruce. 'We fenced the whole property two years ago and it's been fantastic'.

'We've moved away from chemical-based fertilisers and have a pretty simple nutrition program', said Bruce. 'The last few years I've been using a lot of cow manure'. Bruce also applies fish hydrolysate and molasses to his soil three to four times a year. Bruce has soil tests taken each year to stay on top of any nutritional issues affecting the orchard. 'The trees look as good as they've ever been,' said Bruce. 'I keep thinking I should be doing more, but what I'm doing seems to be working'.

With most of the orchard planted on a slope, Bruce has observed significant erosion of the orchard floor in places, particularly in his older blocks where large canopies have minimised ground cover between rows. 'We are thinking about what we need to do to manage our large trees and row removal and a focus on drainage might be the solution' Bruce said. 'I can't fix the orchard floor until I fix the canopy issues'.

## The future

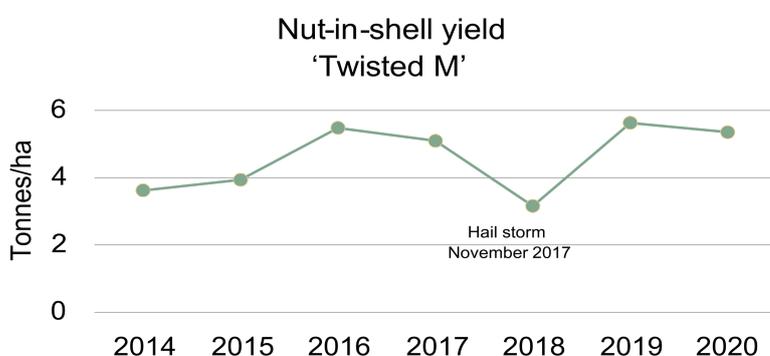
'Over the next eight to ten years I will be removing trees and focusing on drainage,' said Bruce. 'I'm going to visit some other farms that have undertaken row removal to see which strategy is most suitable to my situation'. Bruce is also focusing on improving soil health by incorporating more organic matter into his nutrition program. 'I think there's still a lot of potential production that we're not getting at the moment', said Bruce.

Bruce finished planting the last of his available land in 2019. Without further scope for expansion he is looking to maximise yield from his existing trees. 'If I can make all of my trees productive, with nut set throughout the canopy rather than just the tops, I think production will improve'.

Bruce has plans to take a step back from the orchard in the coming years while his daughter and son-in-law take over managing the farm. 'I'm very happy because I was thinking about selling, so it's great to keep it in the family'. Being a small farm Bruce sees the only way to stay commercially viable is to keep productivity high.

## Benchmarking results

Bruce has participated in benchmarking since 2014. Through his confidential farm benchmark report Bruce realised that his costs were higher than average over the last three seasons, particularly in crop nutrition and contractors. Despite this Bruce's high productivity (Figure 1) means his average costs per tonne of saleable kernel are \$2000 per hectare less than the benchmark average.



**Figure 1** Nut-in-shell yield trend 2014–2020 seasons

This case study has been developed as part of the 'Benchmarking the macadamia industry 2019–2021' project (MC18002), which is funded by Hort Innovation, using the macadamia research and development levy and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture. The Queensland Government has also co-funded the project through the Department of Agriculture and Fisheries.

## Challenges

While 'Twisted M' has had high average productivity over the last seven years, there have been some challenging seasons during that time when weather significantly affected yield. 'In November 2017 a major hailstorm came through and we lost half of the crop', said Bruce. Despite the significant losses that season, Bruce's farm still achieved over 3 tonnes per hectare of nut-in-shell.

Bruce considers a lack of specialised equipment as a limitation to productivity.

'Being a small farm it's hard to justify purchasing expensive machinery that we might use for four weeks of the year. A large proportion of my costs are in contractors because I don't have the gear to do it myself' said Bruce.

'Benchmarking has allowed me to track my kernel quality and highlighted the issue that mine wasn't particularly good' said Bruce. While Bruce is very happy with his productivity, he says that his benchmark report shows that he can do even better and makes him look for areas where the orchard can improve.

'It really gives you something to aspire to, and while we're thinking we're going well here, it shows we could do better' said Bruce.

