

This is a report of our 4th year of production through to processing.

For a reference we are using the Queensland Department of Agriculture (2010) standard for macadamia industry and orchard evaluation.

Yields

Yields vary with location, season, variety and level of management. Bearing commences in about the fourth or fifth year and reaches a peak at maturity in about the twelfth to fifteenth year. For a well-managed orchard with tree spacings of 8 m x 4 m (312 trees per ha), expected peak yields at maturity are approximately 3.5 to 4 tonnes of nut-in-shell (NIS) per hectare (12 to 13 kg per tree) at 10% moisture content. Orchards that are managed very well may do slightly better than this and conversely, poorly-managed orchards or those on poor sites may fail to reach these figures. An indication of yields for a well-managed orchard is shown in Table 1.

Table 1. Expected average yields (measured in kilograms of NIS at 10% moisture content based on 312 trees/ha)

Year	Yield per tree	Yield per hectare*
1	0	0
2	0	0
3	0	0
4	0	0
5	1	300
6	2	600
7	4	1,200
8	6	1,800
9	9	2,400
10	10	3,000
11	11	3,200
12-15	12-13	3,500-4,000

* Figures assume that trees are pruned to maintain machinery access, light penetration and spray penetration. Note that in orchards spaced more closely, yields may reach the peak per hectare figures earlier than indicated. However, yields may then decline without pruning and good management. With good management, yields per hectare for mature trees are generally similar for all spacings.

Prices in Australia

In summary, over the last 10 years the lowest was \$1.50/kg in 2007 and the highest \$3.60 in 2005. An indication of this year's prices is at the end of this report. 2015 prices are set to be high, partly driven by demand but also by the substantially weaker Australian dollar.

Our Orchard

To update our orchard story, at the end of 2005 into 2006 we planted 794 grafted macadamia varieties and 95 Beaumont's as an internal shelter row on our block at Mahurangi East. The first report of our year 5 harvest was published in the NZMS newsletter in 2011. The figures from 2011 to 2014 follow:-

2011

GT varieties 384 A varieties 410 Beaumont 95 Total 889 trees
336 kg delivered 308 kg dry NIS
Sound kernel 56kg
Reject/processing 43kg
Crackout 32%
Sound kernel 56%

2012

GT varieties 384 A varieties 410 Beaumont 95 Total 889 trees
802 kg delivered 729 kg dry NIS
Sound kernel 201 kg
Reject/processing 27 kg
Crackout 31 %
Sound kernel 88%

2013

GT varieties 384 A varieties 410 Beaumont 95 Total 889 trees
1,565 kg delivered 1,387 kg dry NIS
Sound kernel 317 kg
Reject/processing 111 kg
Crackout 30.8%
Sound kernel 74%

2014

GT varieties 384 A varieties 410 (Beaumont 95 not picked extensive GVB damage) Total picked 794 out of 889 trees
1800 kg delivered 1565kg dry NIS (average 13% moisture, even with drying bins)
Sound kernel 354kg
Processing 149kg
Crackout 32%
Sound kernel 70%

Our sound kernel recovery is 23%. This year in Australia from MPC we would receive an exchange rate adjusted NZD \$3.19, by 1565kg equals NZD \$4992, with no further costs nor penalties for unsound kernel.

(Note that the model orchard we are benchmarking has NIS at 33% sound kernel recovery, a maximum 3.5% unsound kernel recovery and 10% moisture content.)

Cost evaluation 2014

Processing costs were \$3593 plus GST

The value of the commercial kernel 366kg by \$22.50/kg wholesale equals \$8235.

Macadamia paste net of further processing charges 149kg by \$8 equals \$1192.

Total value of kernel \$9427 less processing charges equals \$5834. This is up 93% the 2013 net return. This was off 95 fewer trees.

To augment our production this year we bought kernel at \$26.50/kg plus GST so the NZ wholesale price should be adjusted up by a further \$1416 to give a net wholesale return (net of processing costs only) of \$7250. Some \$9.10 per tree. It should be noted here that cropping is very uneven between trees.

In comparison to 2013 below, the sound kernel rate was down at 71%. The GVB damage to the Beaumont's appeared to be more than 50% on the two lots of 100 nuts we tested so we decided not pick any of the crop from the 95 trees. As yet we do not spray any insecticides. We have 2 on farm driers to use in rotation. In Australia this year MPC are offering a notional price of AUD\$3.067 for 23% commercial kernel recovery. See full prices at <http://www.mpcgrowers.com.au/2015-pricing-offer/>

Cost evaluation 2013

Processing costs were \$4111.54 plus GST

The value of the kernel is approximately 317 kg by \$22.50/kg wholesale.

This wholesale price is the average of the imported kernel price from Australia, it is perhaps only a starting point as I will discuss later.

\$7132 wholesale value of the kernel less processing charges of \$4111 gives a net return of \$3021

However, the net wholesale price should probably be adjusted upwards. We sell in a farmers market and as our production is well below our sell through we have purchased NZ grown kernel on the open market. The average price we have paid is \$27.50 plus GST for sound kernel and \$15.00 for processing.

Using these figures the wholesale value of the crop this year is \$10,382 + GST. Once again less processing \$4111 and dehusking/drying \$820. Net total \$5451+ GST.

Last year I wrote, 'In comparison to last year we have improved our percentage of sound kernel recovery markedly. From 56% to 88%.' This year the sound kernel recovery was 74%.

So, though we now reject all nuts under 19mm and remove all floaters we had an increased reject rate due to GVB damage and immature nuts.

In 2012 most growers indicated a lower level of GVB damage, as we did. For us 2013 saw an increase in GVB damage.

2014 How does this compare to Australia? Going back to the Qld Agriculture Dept chart we can compare our yields with the expected average yields. I am doing this on the reduced tree numbers of 794. (The QLD model orchard is based on NIS at 10%; our NIS was at 13%). The 'Year' is the age of the tree.

	Year	Yield per tree kg	Yield per hectare
Model orchard	5	1	300 (312 trees 8x4)
Mahurangi Macs	5	.45	187 (416 trees 6x4)
Model orchard	6	2	600
Mahurangi Macs	6	.9	382
Model orchard	7	4	1200
Mahurangi Macs	7	1.76	733
Model orchard	8	6	1800
Mahurangi Macs	8	2.3	950

What can we say in 2014?

Even allowing for reduced tree numbers production has slipped. There was loss due to wind drop, no nuts on the orchard floor picked up and processed. This would have reduced yield. Production growth per hectare has slipped to 79% of the model orchard at a trailing year behind. In 2013 it was 90% trailing a year behind. This is the case even with our higher density planting.

We have a labour input of approximately one full day per week. The fertiliser programme is haphazard. The same management regime is in place for 2015, and with the very wet spring nut set looks down for the 2015 season though nut size seems to be up.

We have put in place a perimeter rat baiting program on top of the Mahurangi residents' long established rodent control operation. There was very minimal evidence of rat damage.

We intend to spend more time on the orchard from 2016 on and this we are sure will lead to an increase in production through better management. We would hope that the actual production figure for our orchard would then continue to track the model orchard. Of interest is the comparison of GT and A varieties on our orchard in 2014.

GT's 384 trees mix of 205, 288, 207 and 201 produced 1029kg NIS with a recovery of 178 kg commercial kernel and 118kg processing grade.

A's 410 trees mix of 29, 38, 268,104 produced 771kg NIS with a recovery of 189 kg commercial kernel and 31kg processing.

These figures show that the total NIS yields were higher for the GT varieties, 2.68 kg/tree as against 1.9kg/tree for the A's. The GT were far more susceptible to GVB in 2014. The net result being both produced similar percentages of commercial kernel in 2014.

What are they paying for NIS in Australia, the following is from MPC, Macadamia Processing Co. one of the larger processors.

Our 2013 Notional Price is:

- **Conventional NIS – \$2.90/kg at 33% Premium Kernel Recovery**
- **Organic-in-Conversion – \$3.85/kg at 33% Premium Kernel Recovery**
- **Organic – \$5.20/kg at 33% Premium Kernel Recovery**

All prices are at the Industry Standard 33% Sound Kernel Recovery (Premium + Commercial), 3% Reject kernel recovery, and 10% NIS moisture.

MPC 2014 Season Notional prices*

Conventional NIS	\$3.50/kg
Organic NIS	\$5.20/kg
Organic-In-Conversion NIS	\$4.00/kg
The final price in 2014 was increased by 0.15/kg	

This year the following is from MPC.

2015 Pricing Offer to Growers

Another harvest is upon us and the outlook for the 2015 season is good with growers in all regions reporting reasonable crops. The fall in the Australian dollar, the strong demand in kernel markets and the ongoing demand for NIS from China are combining to deliver outstanding prices to growers.

The demand for all tree nuts across the globe is extremely strong. A shortage of supply and strong market demand has seen the prices of all nuts increase with little or no impact on consumer demand. The work carried out by Macadamia Marketing International (MMI) since its inception in 2011 has seen significant changes in the dynamics of the macadamia kernel market. The MMI team are now applying their supply chain management skills to the nut-in-shell market and are building relationships with customers who share in our ideology of sustainable markets and value chains.

MPC has, and always will, continue to support the kernel market. We believe it is critical to ensure we have a strong and vibrant kernel market. While demand and prices offered for NIS in China are high, past experience has shown that a balanced spread of markets is critical to ensure long term stability in the industry. We will be supplying some NIS to the Chinese market but will balance this with our strong commitment to the kernel market.

I'm pleased to announce that MPC's 2015 Notional prices are:

- Standard NIS \$4.40/kg
- Organic NIS \$5.80/kg
- Organic-In-Conversion NIS \$4.90/kg

All at 33% SKR and 10% NIS moisture content.

Our 2015 offer includes:

- Commercial grade at Premium prices
- No Reject penalties
- Free dehusking and sorting for deliveries with up to 10% NIH
- A radius based freight subsidy
- \$2.20/kg upfront payment, 2 weeks from the week of delivery
- Anticipated final payment to the notional price by Christmas (cashflow allowing)

We have removed the whole kernel adjustment factor from our payment system this season. When the whole kernel adjustment was introduced it reflected the significant difference in prices between whole kernel and other styles. Currently that difference has reduced in kernel markets and wholes and halves receive the same price in the NIS market.

The 2015 season is nearly upon us, GT 207 are ready and begin to drop in April on our block, closely followed by the A 29s. We are looking forward to see what this season will show.