

## NOVEMBER 2011 FUTURE ORCHARDS WALK

### **Growing High Quality Fruit at an Internationally Competitive Cost of Production.**

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The goal of the Future Orchards project in 2011~12 is to “Grow High Quality Fruit at an Internationally Competitive Cost of Production (ICCOP). If growers were able to achieve this goal, there is a very good chance their future viability would be assured.

To be able to achieve the goal we must first identify what we mean by “High Quality” and secondly we must be able to calculate an “Internationally Competitive Cost of production (ICCOP)”. High Quality has been defined in Steve Spark’s paper. I will now attempt to define and calculate ICCOP.

#### **What is an “Internationally Competitive Cost of Production” (ICCOP)?**

The first point we must define is the market. Up until recently, the Australian market has been closed to all imported pomefruit; hence Australian producers have not needed to be internationally competitive in the Australian market. As we are all aware, this scenario has changed. Currently Australia exports less than 5% of its fresh apple and pear crop. Therefore the market that is of the highest importance to local growers is the local Australian market. This study will therefore focus on an ICCOP within the Australian market. Local growers are therefore at an immediate advantage in that they don’t need to fund the costs of exporting, which include; shipping, insurance and biosecurity costs.

The two key Cost of Production (COP) index’s are the cost to grow a Gross KG of fruit and secondly a Class 1 KG of fruit. It is important that all readers also understand the point in the supply chain that costs are measured to. In this study the point is delivered to the market (either wholesale or supermarket). It does not include market commissions or promotion.

The first method to try and calculate ICCOP involves reviewing the COP of the business’s that were involved in the two “Orchard Business Analysis” (OBA) carried out in 2008 and in 2010. In both years approximately 20 orchard businesses were monitored. We will use this data to investigate the current cost of doing business in Australia and theorise that the most efficient producers within this dataset will be a good target for everyone to aim for.

Figures 1 and 2 show the range in COP for the 2008 study and Figures 3 and 4 for the 2010 study.

In 2008 the range in COP was \$0.70- \$2.10 per gross kg and \$0.90- \$2.55 per class 1 kg. The Model average was \$1.20/gross kg and \$1.70/class 1 kg. If we assume the most cost effective businesses (i.e. the lower quartile COP) should be the target, this would give us a Target ICCOP of \$1.00/gross kg and \$1.50/class 1 kg based on this dataset (keep in mind that input prices have increased from 2008 to now).



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Figure 1 OBA 2008 Cost of production Range (\$/gross kg)



Figure 2 OBA 2008 Cost of Production Range (\$/Class 1 kg)

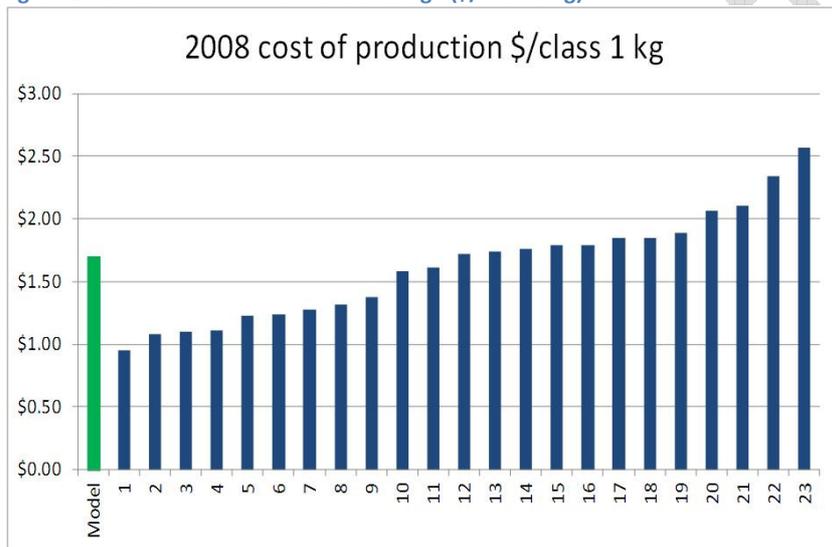
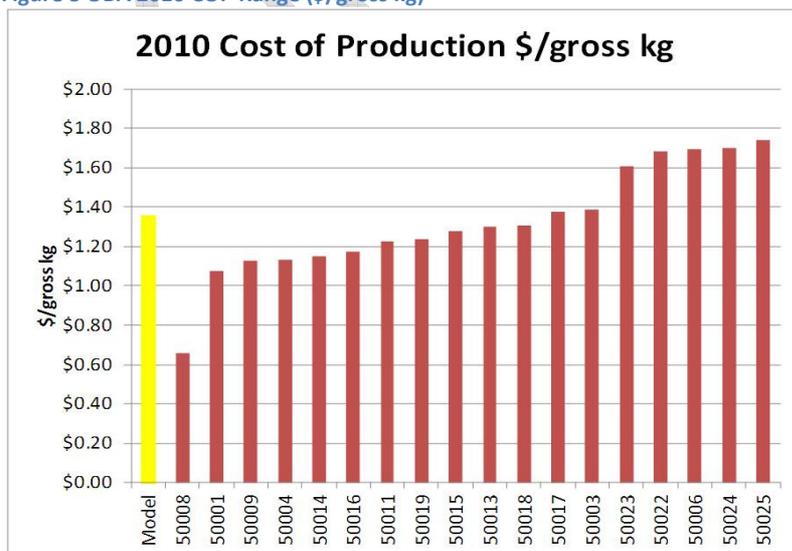


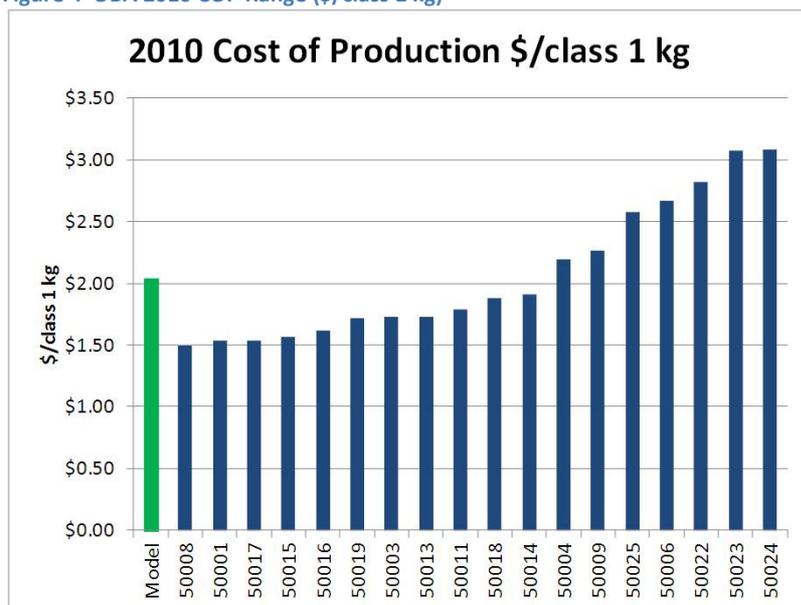
Figure 3 OBA 2010 COP Range (\$/gross kg)



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Figure 4 OBA 2010 COP Range (\$/class 1 kg)



In 2010, the average cost of production increased. This was due to some input cost increases and also the lower average yield in 2010 (31.3t/ha) vs. 2008 (36.3t/ha). The range in COP in 2010 was \$0.66- \$1.74 per gross kg and \$1.50- \$3.08 per class 1 kg. The model average was \$1.36/gross kg and \$2.04/C1 KG. If again we assume the lower quartile should be the target, this would give us a target ICCOP of \$1.20/gross kg and \$1.70/class 1 kg.

The next dataset we have analysed is those growers that are currently using OrchardNet to track costs and profitability by block (remember the OBA data is by orchard). In this dataset the costs of production are higher than both sets of OBA's discussed above. Here the average COP is \$1.45 per gross kg and \$2.26 per Class 1 kg. This seems very high but can be explained due to the large number of young blocks on this dataset. The OrchardNet data would suggest a target ICCOP of \$1.25 per gross kg and \$1.80 per class 1 kg.

Table 1 Internationally Competitive Cost of Production

Country Data	kg/ha	Class 1 %	Cost per gross kg				Cost per Class 1 kg				Wholesale equi import price (CIE)	AU grower COP Target \$/C1 kg	AU grower COP target \$/gross kg
			Post harvest	On Orchard	Int/Dep	Total	Post harvest	On Orchard	Int/Dep	Total			
<b>Australia</b>													
2008 AU Model	36300	69%	\$0.52	\$0.55	\$0.11	\$1.18	\$0.75	\$0.80	\$0.15	\$1.70		<\$1.50	<\$1.00
2010 AU Model	31300	67%	\$0.53	\$0.68	\$0.15	\$1.36	\$0.80	\$1.01	\$0.23	\$2.04		<\$1.70	<\$1.20
OrchardNet	35300	69%				\$1.45				\$2.26		<\$1.80	<\$1.25
<b>Export Countries</b>													
NZ	50940	61%					\$0.45	\$0.51	\$0.12	\$1.08	\$1.56	<\$1.60	\$1.10
USA							\$0.47	\$0.46		\$0.93	\$1.82	<\$1.80	\$1.25
China							\$0.25	\$0.20		\$0.45	\$1.47	<\$1.50	\$1.00
<b>Internationally Competitive COP in the Australian Market ~ TARGET</b>											<\$1.60	<\$1.10	

Table 1 above summarises the data collected through the three Australian studies. It also includes the likely wholesale price of exporting countries based on the analysis carried out by CIE (Centre for International Economics, 2010). The export countries data is not a true COP as CIE used historical free on board values achieved by each country and then added the estimated costs of shipping and the costs of the Australian bio-security protocols<sup>1</sup>. It does however give local growers a very good appreciation of the COP targets they need to aim for.

<sup>1</sup> The "Low Estimate" rather than the "Most Likely" has been used for NZ as AgFirst believe it is more likely with the high biosecurity protocol costs.



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Interestingly all pieces of research result in a reasonably narrow ICCOP Target band of \$1.50 to \$1.80 per Class 1 kg. **Our conclusion is that the ICCOP for Australia is \$1.60 per Class 1 kg and \$1.10/gross kg. If Australian growers are able to reach this target, they can be confident that they will be cost competitive in the Australian market.**

## How can you measure Cost of Production.

The costs of production include all costs to be able to calculate true profit, therefore they include; Orchard Working Expenses, Post Harvest Costs, Interest and Depreciation. To be able to calculate the overall business cost per kg, simply divide your total costs (from your financial records) by the total Gross and Class 1 volume (kgs). Some financial recording programs give you the option of being able to enter crop volumes as well as the financial records, and therefore will do the calculation automatically for you. Cash Manager™ and GrowData™ are examples of this.

The Orchard Business Analysis (OBA) that has been carried out through the Future Orchards project is another option that allows the participant to not only calculate their own COP but also benchmark their costs against a “like” group of businesses. This is very useful method to identify which costs may be causing any issues and allow the grower to focus and solve specific problems.

This season the Future Orchards business development program, is making OrchardNet™ available to a greater number of Australian growers. This online orchard database was used last year primarily to monitor fruit growth rates. OrchardNet includes numerous functions, one of which is to track COP by block. For those growers who are interested, please come along to the Business Development Sessions to register and find out how.

## How can you achieve the ICCOP?

So now that we have identified the ICCOP, how can we achieve it?

The Centre for International Economics (CIE) report included a very good graphic that summarises the key drivers of orchard profitability including the cost of production (COP). Figure 5 below shows the key factors that influence COP are:

1. Yield
2. Packout
3. Efficiency of Input use
4. Input prices

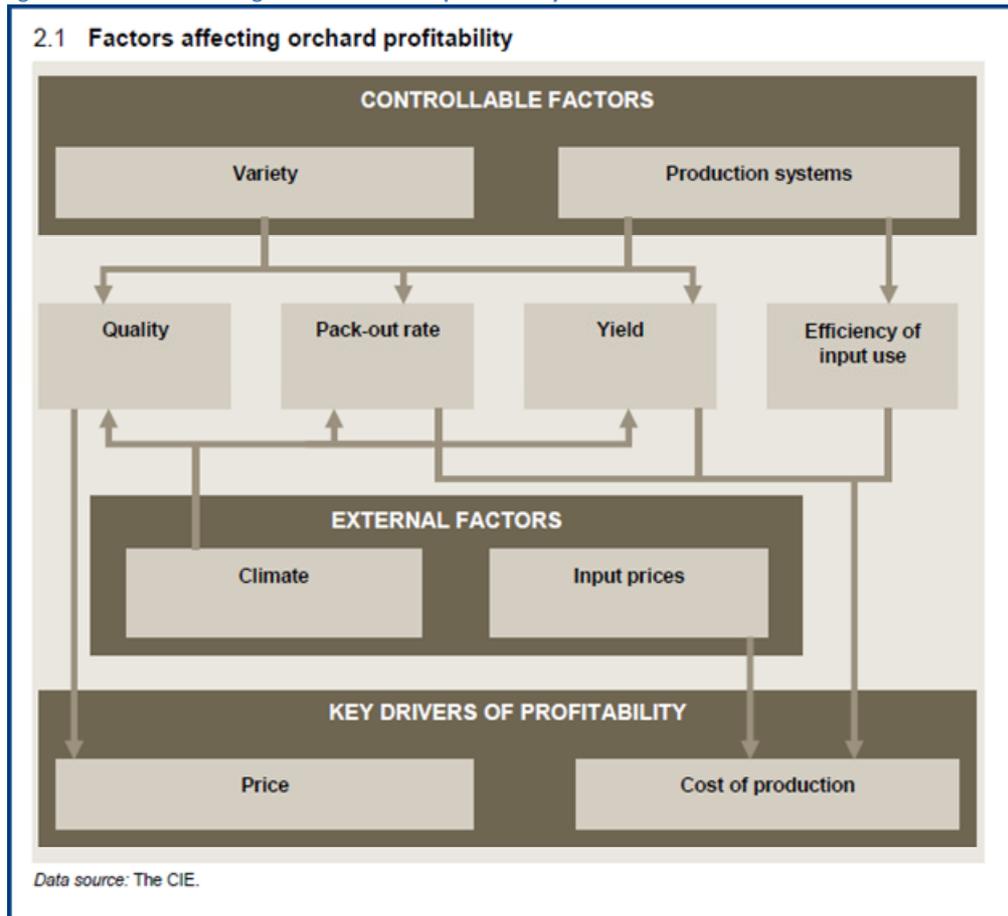
The CIE report went on to say” the interactions between controllable and external factors affect profitability of apple growers at the orchard level”.



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Figure 5 Factors affecting orchard COP and profitability



Having an ICCOP is not about spending less money. In fact in most cases, the very opposite is true. Yield and Packout are the two most influential factors on COP. The Upper Quartile growers, as shown in Figures 6 and 7 below actually spent more money per ha but their higher yield and packout resulted in better profitability. In 2008 (Figure 6), the upper quartile growers spent \$47,192/ha (\$25,876+\$21,316) compared to the average at \$38,780/ha. Although they spent nearly \$10,000 per ha more, their average COP was similar to the average, \$1.05/kg vs. \$1.07/kg.

In 2010 (Figure 7) the upper Quartile spent \$37,610 compared to the average at \$34,698/ha. In this year the upper quartile COP was significantly cheaper per gross kg (\$1.17 vs. \$1.28/kg). This is due to the Upper Quartile growers having higher gross yield and packout. The impact on the COP of Class 1 would be even stronger as illustrated in Figures 8 and 9.



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Figure 6: 2008 OBA

	Avg \$ per ha	UQ \$ per ha	Avg \$ per gross kg	UQ \$ per gross kg
Total revenue	52,825	82,900	1.46	1.91
Less Orchard gate costs	20,028	25,876	0.55	0.54
Less Post-harvest costs	18,752	21,316	0.52	0.51
= Cash operating surplus	14,045	35,708	0.39	0.86

Yield and PO

Avg 36.3t/ha @ 69% class 1

UQ 45.6 t/ha @ 81% class 1

Figure 7 2010 OBA

	Avg \$ per ha	UQ \$ per ha	Avg \$ per gross kg	UQ \$ per gross kg
Total revenue	40,979	57,337	1.49	1.78
Less Orchard gate costs	20,014	20,945	0.75	0.64
Less Post-harvest costs	14,684	16,665	0.54	0.53
= Cash operating surplus	6,281	19,727	0.20	0.61

Yield and PO

Average 31.3 t/ha @ 67% class 1

UQ 35.4 t/ha @ 82% class 1

The impact of Yield and Packout on COP can also be illustrated by looking at the COP of all the businesses involved in the 2010 OBA. In this year there was a very strong relationship with COP decreasing with both increasing yield and increasing packout as seen in Figures 8 and 9 below.

Figure 8

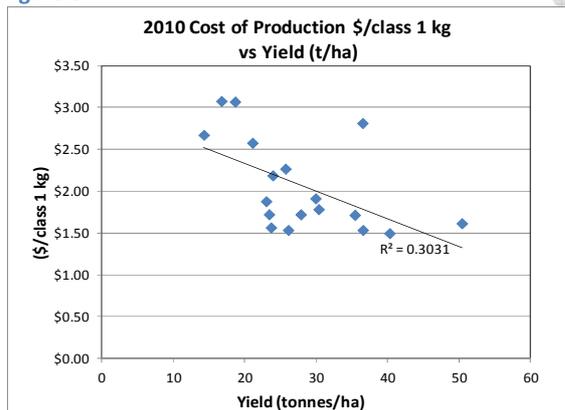
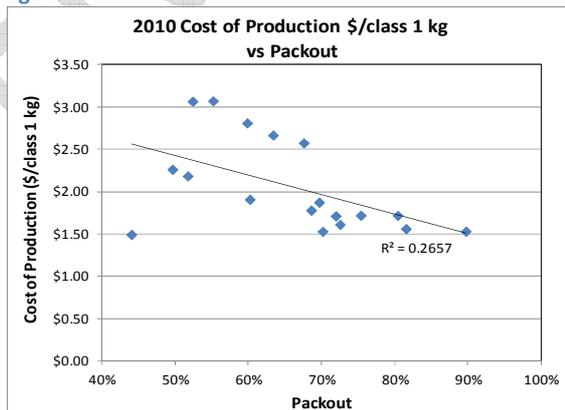


Figure 9



Efficiency of input use is also critical to ensure you are able to achieve an ICCOP. The largest expense on the orchard and in the packhouse is labour. Labour costs per hour are high in Australia compared to other pomefruit growing countries; hence the efficient use of that labour becomes even more critical. The first part of the labour efficiency jigsaw is to make sure the production system employed is efficient for labour. One of the key reasons to move to more intensive plantings of smaller trees is make labour more efficient. Very progressive orchards in the USA are currently developing 2D canopies that one day may be able to be pruned and picked by robots. However no matter what your production system is, the way you motivate, manage and employ staff will have a huge bearing on your COP and your competitiveness.

Another big ticket item is machinery. The capital costs, running and repairs and maintenance costs can be large and need to be managed appropriately for each business. Depending on scale of operation, you must make decisions about when to upgrade, and whether to buy, lease or hire, to name just a few. I admire many of my grower clients who have mechanical/engineering skills that



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give them a real competitive advantage, not only giving them good production tools but also saving significant expenditure.

Input Prices are shown as an External Factor in Figure 5 and are described by CIE as Uncontrollable. We believe that even Input Prices can be influenced to some degree, with scale, good negotiation and the ability to track down a good deal. Chemical and machinery purchases are two great examples. I meet a client the other day that had purchased two good-second hand 75 hp tractors at a closing down auction for \$10K each. I can't find them for less than \$30K each. Now that's what I call managing your input costs.

## Reality Check

This paper has addressed the topic of achieving an ICCOP. We have defined what it is likely to be for Australia and given some guidelines how to monitor and manage COP. Many presentations of Future Orchards have stressed the importance of maximising the revenue line rather than managing COP. This has not changed, in fact we have illustrated that to achieve an ICCOP you must have yield and packout. To achieve good yield and packouts requires the right level of investment into inputs.

### Our key drivers therefore remain the same

- **Maximise the 3 P's (Production, Packout and Price),**
- **Spend more time analysing and improving revenue than focusing on costs.**
- **But be aware and manage your cost structure**

## Works Cited

Centre for International Economics. (2010, December). <http://www.apal.org.au/information-news.cfm?id=3917&t=/final-cie-economic-impact-statement/>. Retrieved October 2011, from [www.apal.org.au](http://www.apal.org.au).



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