



Assessing the costs associated with vegetable production



National Vegetable
Extension Network

VICTORIA - NORTHERN,
WESTERN & SOUTH EASTERN

Cost of production in vegetable farming

Determining the Cost of Production (CoP) is vital to understanding the economic viability of a farming system. The CoP is defined as being the total cost to produce a unit of a given product. This information provides the basis to understanding the overall profitability of a farm and where changes need to be made to increase it. Profitability is calculated by determining all costs related with production and then deducting them from the price received.

CoP can be broken up into two main categories:

1. Direct costs

- **Variable costs** are determined as costs that vary with the size of an enterprise. These variables usually relate to inputs such as fertiliser, fuel and labour.

2. Non-direct costs

- **Overhead costs** are costs that are semi variable such as rates, interest, taxes, maintenance and utility costs.
- **Capital costs** are costs that are fixed such as depreciation, land purchase and construction.

To ensure correct calculation of profitability, all costs, cash and non-cash (e.g. depreciation) must be factored into CoP.



If non-cash costs are not calculated this may result in a short-term cash surplus, but no overall profit. The success of a business will depend on using this information to monitor the margin between CoP and the price received for the product.

Key messages

- **Cost of Production (CoP) is determined as the cost of variable, overhead and capital costs used to produce a unit of product**
- **CoP can be calculated with a tool that enables growers to compare their results across industry**
- **Trends within the industry show an increase in scale, productivity and overhead costs, resulting in an increased cost price squeeze.**
- **Case studies have identified several characteristics that improved cost competitiveness throughout the industry, including:**
 - Learning from others
 - Developing strong customer / supply chain relationships
 - Focussing on continuous improvement
 - Monitoring cost of production
 - Being prepared to change
 - Taking considered risks
 - Implementing succession
 - Knowing own strengths and weaknesses
 - Having a future focus
 - Considering alternatives / insurance
 - Building a good team

Calculating the cost of production

Calculation of CoP can be done in a number of ways, these calculations have been previously outlined in a case study by Hort Innovation that indicates what should be included in CoP calculations and how to use them for decision making tasks on farm¹. As well as this, a cost of production calculator and self-assessment tool is available to aid growers in understanding the cost of producing a range of vegetable products². The calculator enables growers to compare their costs across industry benchmarks so as to see where their costs lie in comparison with other businesses. It also provides benchmark information on the bottom 25%, middle 50% and top 25% of producers around the country for all variable, overhead and capital costs. This enables growers to see where outlying costs may be and address them accordingly.

Trends within the industry

Information gathered from previous reports investigating the cost associated with the production, sale and distribution of vegetables (VG12086) analysed how CoP was influenced over time, by performance, scale, commodity, and state. This information provided an insight into why there are significant differences in CoP within the industry, as well as highlighting areas for future development.

Data collected from vegetable growers, as well as data from ABARES concluded that average total costs had increased on farm, more specifically growing costs, plant and equipment, and labour. This increase was largely attributable to increased scale, productivity and overhead costs. Although the increase in scale and productivity has enabled the industry to stay competitive, the increase in overhead costs is a concern as it is out of the farmer's control. Although the increase in scale and productivity has been significant, it has not been enough to offset the cost price squeeze. Further investigation on the efficiency of different vegetable growers revealed that there was a significant difference in overhead costs in the industry. This ranged from \$476 per tonne for the bottom 25% to \$186 per tonne for the top 25%, with operator and family imputed labour being the largest contributor to the difference. The scale of farms also had a significant effect on the CoP, with larger scale growers, although receiving less per tonne for product being more profitable.

¹ <https://ausveg.com.au/app/data/technical-insights/docs/case-study-using-cost-of-production-for-decision-making.pdf>

² <https://horticulture.com.au/cost-of-production-calculator-for-vegetable-growers/>

CoP within the vegetable industry differs significantly due to a variation in input costs associated with labour, seed, fertiliser and chemicals. It was found that there was a relationship between CoP and price received with growers having a high CoP also receiving a higher price for their product, whilst those with a lower CoP receiving a lower price. This suggested that variation comes from how well a product is produced, not what is produced.

It was also determined that there is no direct relationship between State and level of profit, although CoP varies significantly within states. States with a higher CoP also received a higher price for their product and states with a lower CoP received a lower price.

Overall, the average total cost of vegetable production is increasing, primarily due to the increase in scale, productivity and overhead costs. Low profit levels within the industry is a direct result of high overhead costs, primarily due to operator and family imputed labour. Growers who are producing on a larger scale are more likely to be better performers due to lower costs per tonne. No information suggests there is a state or commodity advantage.



Case studies

A total of 19 case studies for vegetable businesses throughout Australia were developed to gain a further understanding of variation of CoP within the vegetable industry and how farmers use their knowledge of CoP to their benefit. These case studies reinforced the notion that there is a significant relationship between scale, productivity, diversity and cost competitiveness.

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Analysis outlined eleven characteristics that enabled growers to implement strategies to improve cost competitiveness. The characteristics of these growers were:

1. Learn from others
2. Strong customer / supply chain relationships
3. Focus on continuous improvement
4. Monitor cost of production
5. Are prepared to change
6. Take considered risks
7. Implement succession
8. Know own strengths and weaknesses
9. Have a future focus
10. Consider alternatives / insurance
11. Build a good team.

Two of these case studies are highlighted in more detail below.

‘Only grow what you can comfortably sell at margin’

A large vegetable growing business based in East Gippsland currently farming around 900ha of vegetable commodities experienced an increase in profitability due to a change in business approach. As a result, the business has become a fully integrated vegetable producing, processing and logistics operation. This change has primarily focussed on increasing scale, leading to a more efficient use of resources. One of the farm owner/operators believes the increase in scale has been one of the main factors in increasing the success of the business. The ability to increase scale has largely come as a result of building relationships with customers and delivering on commitments. Through the acquisition of nearby farms and development of land, they have managed to achieve an economy of scale by spreading overhead costs and lowering costs per unit. As well as this, the increase in scale has allowed them to diversify commodities produced, resulting in an increase in market access.

A high attention to detail from the ground up has also been a key factor to success. A heavy focus on crop rotations has enabled them to produce high quality, high yielding crops in a sustainable manner, whilst reducing crop husbandry costs and improving soil health. Long

term investment in infrastructure has also helped to improve competitiveness. The completion of two large dams has become an important resource for the business, with prolonged droughts in previous years significantly affecting the profitability of the farm.

The integration of a processing plant has enabled the business to value add whilst also reducing costs associated with transporting goods to an external processor. Whilst the business did incur substantial capital costs through investing in the new technology required to process and pack, this has allowed them, once again, to increase their market access.

As a result of these changes, the business now has the ability to produce a range of different vegetable commodities to meet demand, process them on site and have secure access to water through drier periods.



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'Focus on low volume high value products'

A family owned and operated business, based south east of Melbourne's CBD, has diversified focussing on a range of new vegetable lines to create market advantage, as well as integrating into the supply chain, processing or part-processing many of their product lines.

In the past 10 years there have been a number of different strategies undertaken to grow the business, reduce CoP, and in turn improve cost competitiveness. Maintaining long-term relationships with customers has been instrumental in growing market share and building market knowledge. This has helped to identify customer needs as well as potential market opportunities.

The business has historically focussed on traditional vegetable lines including celery, celeriac, cos lettuce, leeks, salad onions, and silver beet. Through increased market knowledge and awareness, there has been a recent shift to producing new vegetable lines including Tuscan cabbage and kale, as well as value adding, either through trimming, bunching and/or packing product for direct supply to consumers.

This diversification and integration has enabled the business to grow, reduce cost of production and in turn, improve cost competitiveness. It has also enabled them to build their market share and capitalise on opportunities for new product development or to value-add existing product lines.



Reference and further resources

- **Using Cost of Production for Decision Making.** Horticulture Australia Limited <https://ausveg.com.au/app/data/technical-insights/docs/case-study-using-cost-of-production-for-decision-making.pdf>
- **Cost of Production: Self-assessment tool.** Horticulture Innovation Australia <https://horticulture.com.au/cost-of-production-calculator-for-vegetable-growers/>
- **Cost of Production for Australian Vegetable Growers.** AUSVEG <https://ausveg.com.au/app/uploads/2017/05/Costs-of-production-for-Australian-vegetable-growers-1.pdf>