

## Vegetable Industry Development Program

# Gross Margins: Using VegTool



This fact sheet has been designed to explain:

- gross margins and the benefits of gross margin analysis, and
- how to use the 'VegTool' as a method to complete a gross margin analysis for your particular vegetable growing enterprise.

Most agricultural businesses in Australia grow a combination of crops and/or provide services. It is rare that an agricultural business will simply grow one crop on one piece of land forever. There are crop rotations, mixtures of permanent and annual plantings and changing markets and prices that determine which crops and management approaches are most suitable at any particular point in time.

As Australian growers have such a high exposure to 'mixed' farming systems it is important to understand gross margins and how to assess gross margins in order to make profitable business decisions.

## Gross Margins

### What is a gross margin?

A gross margin is simply an estimate or a budget of the income and costs associated with a specific crop or activity in a farming business. Gross margin analysis is used to determine which crops are more profitable than others.

A gross margin is calculated using the following formula:

**Gross Margin for Activity = Gross Income for Activity - Variable Costs for activity**

**Gross Income for Activity:** This represents all the income for growing and marketing a particular crop and is normally the total sales value for a particular crop.

**Variable Costs for Activity:** This represents all the expenses for growing a particular crop and can

## Key Messages

- A Gross Margin calculation is a simple method of calculating the economic benefit of a particular crop by looking at the income and costs associated with each crop.
- Gross Margins help with decisions such as:
  - Which crop to grow?
  - How much of a particular crop to grow?
  - What is the impact of higher costs associated with a crop?
- Gross Margins are useful but there are other considerations such as debt, crop rotations and risk that need to be measured and managed.
- Veg Tool is a custom made, user-friendly piece of software for the vegetable industry to measure and compare gross margins.

include: pumping costs, casual labour, seed, fuel and oil, contractors, harvesting, packing and freight costs. They are called variable costs because they vary with the amount of area planted, therefore if the area of this particular crop was zero, then the variable costs would also be zero.

**Gross Margin:** A gross margin is the amount of cash left over from growing any particular crop. It is not an absolute measure of profit but it will determine the best financial result when a number of different crop alternatives are compared. Gross Margin is usually reported in a \$/ha figure.

The other set of costs that are omitted from a gross margin analysis are the 'overhead' or fixed costs. Overhead costs are those costs which do not change depending on the crop that is grown.



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For example these can include: rates, insurance, leasing costs, finance costs, permanent labour charges and depreciation. The reason that these costs are not included in a gross margin analysis is that they are not directly associated with any crop in particular and they can be easily omitted so that an 'apples with apples' comparison can be made for different crop choices.

## How can gross margins be useful?

Gross margins are useful for decision-making. They are a logical and systematic way of assessing each activity including input costs such as water, fertiliser and labour and yields or market prices. Different scenarios are compared so that a robust decision can be made on which crop to grow, or how much of a particular crop to grow.

Gross margins are also useful for looking at production questions, for example where water is expensive and crop production can be 'dialed up' with the amount of water used, a gross margin analysis will help make the decision as to the optimum level of water use and hence production for a particular crop.

If you end up in the situation where you have a negative gross margin, it can be a case of the larger the area you plant and harvest, the more money you will lose. By using gross margins you can understand the tipping points for your systems and which crops are financially riskier to grow; this knowledge will help in managing risks and making decisions.

## Limitations for gross margin analysis

There are some limitations to gross margin analysis and they need to be considered. For example:

- Labour can be difficult to allocate as most businesses have permanent labour and casual labour. In a gross margin analysis we tend to focus on the casual labour associated with that particular activity such as harvesting or packing labour.
- If your business operates a nursery to establish seedlings for production, it is a good idea to complete a gross margin analysis for the 'nursery business' so that the costs of this operation can be measured and they don't impact on the ordinary crop production activities. If the costs of a 'nursery business' are included in a gross margin analysis they can misrepresent the results.
- Individual gross margins for annual horticultural crops can be misleading as issues such as disease mean that some crops cannot be grown consecutively. If this is the case then it is better to consider a gross margin for 'a rotation' or a series of crops over a

number of years so that the whole rotation can be evaluated and the effect of substituting different break crops in the rotation can be determined.

- There is inherent risk in agricultural production, such as pricing in markets, crop failure and variable input costs. If a gross margin analysis showed that there was a single crop that was far more valuable than others, this does not mean that it is the best decision to plant only that particular crop; rather an assessment needs to be made so that the risks can be managed. The result may be that some less profitable crops may be grown alongside the more profitable crop in order for the business to manage risk.
- Gross Margins do not take into account overhead costs. Some businesses have high debt loads or high overhead costs or both. If this is the case then a gross margin analysis may show a good result for one particular crop; however after all the overhead costs are included such as in a 'cash flow budget' or a 'profit and loss budget' the business may still make a loss. A gross margin analysis is an excellent tool, but it needs to be used in conjunction with other financial management tools.

## VegTool

The Vegetable Industry's Information and Technology Advisory Group identified an industry requirement for a Gross Margin Tool. As a result this simple to use, computer based, free software is now available to the vegetable industry to assist in gross margin analysis for growers.

### How to use VegTool

Vegtool can be downloaded from the Ausveg website:

See: <http://ausveg.businesscatalyst.com/Default.aspx?PageID=3667793&A>

Once you have downloaded the file from the web, you will need to install it on your computer.

Veg Tool operates on the Microsoft Windows platform using Microsoft Access 2007. If you don't have Microsoft Access then the web site (above) has a link to download additional free software to run the Veg Tool software.

Up to five different scenarios (gross margins) can be viewed side-by-side and then printed.

VegTool comes with a comprehensive 31-page user manual to answer any questions that you might have as you use the software.

VegTool has been created to be very user friendly and it really is as simple as A, B, C!



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## Step A: Enter information on the crop, yield and prices

In the first instance of using VegTool you will be required to create a new scenario (gross margin). This is where you can select the type of crop and production parameters. One really good feature is that the harvest units are flexible so that you can record in boxes, bins, acres, bags, punnets etc. This screen (Figure 1) is where the prices and yields are entered – forming the income section of the gross margin calculation.

❖ Details appear in the summary on the right as you enter data on the left.

❖ Watch the comments here. They offer hints or explanations as you move to each white box.

Gross Margin Comparison Tool for Vegetables Manual 2009

Figure 1: Create a scenario and enter yields and prices

## Step B: Enter information on the costs associated with the crop

This is the second data input screen (Figure 2), and it allows methodical allocation of all the normal costs associated with the production of a crop to be entered using a dollar per hectare basis. For any of the items that you are unsure of the exact \$/ha cost, hit the arrow next to the category and be taken to a screen (Figure 3) that allows you to enter the data in a different format.

	1 Pallet 0.25 Hectares		1 Pallet 0.25 Hectares		1 Pallet 0.25 Hectares		1 Pallet 0.25 Hectares		1 Pallet 0.02 Hectares	
Harvest Unit	Carton (600 kg)		Carton (600 kg)		Carton (600 kg)		Tonne		Bunch (600 kg)	
<b>Yield</b>	8,000.00 Cartons 560,000 Cartons/Hectare 17,920 Tonnes/Hectare		8,000.00 Cartons 560,000 Cartons/Hectare 17,920 Tonnes/Hectare		8,000.00 Cartons 560,000 Cartons/Hectare 17,920 Tonnes/Hectare		100.00 Tonnes 16,000 Tonnes/Hectare 16,000 Tonnes/Hectare		5,000.00 Bunches 50,000.00 Bunches 8,000.00 Tonnes	
<b>Average Price</b>	\$0.00 per Carton \$0.90 per kilogram \$14.50 per Carton		\$0.00 per Carton \$0.90 per kilogram \$14.50 per Carton		\$29.81 per Tonne \$0.54 per kilogram \$9.72 per Carton		\$16.00 per Tonne \$0.15 per kilogram		\$5,700.00 per Tonne \$5.70 per kilogram \$0.95 per Bunch	
<b>Gross Income</b>	\$/Area Unit 85,600.00	\$/Hectare 13,856.00	\$/Area Unit 67,000.00	\$/Hectare C,720.00	\$/Area Unit 58,200.00	\$/Hectare 9,232.00	\$/Area Unit 1,600.00	\$/Hectare 2,860.00	\$/Area Unit 2,310.00	
<b>Operating Costs</b>										
Seeds & Plants	3,000.00	90.00	3,000.00	90.00	3,000.00	90.00	1,200.00	180.00	270.00	
Fertilizer	2,156.00	344.96	2,156.00	344.96	2,156.00	344.96	1,800.00	240.00	40.00	
Fuel	850.00	206.00	1,950.00	256.00	1,950.00	256.00	520.00	80.20	28.00	
Chemicals	1,591.00	281.24	1,591.00	281.24	1,591.00	281.24	1,000.00	180.00	38.00	
Water	3,000.00	1,440.00	10,000.00	1,800.00	5,000.00	1,440.00	7,500.00	1,200.00	150.00	
Labour	33,000.00	5,280.00	33,000.00	5,280.00	33,000.00	5,280.00	2,000.00	2,000.00	800.00	
Electricity	1,500.00	240.00	1,500.00	240.00	1,500.00	240.00	150.00	24.00	14.00	
Freight	1,500.00	240.00	1,500.00	240.00	1,500.00	240.00	0.00	0.00	540.00	
Other	8,000.00	800.00	8,000.00	800.00	8,000.00	800.00	800.00	150.00	250.00	
<b>Total Costs</b>	49,000.00	840.00	3,000.00	90.00	3,000.00	90.00	1,200.00	180.00	250.00	
<b>Gross Margin</b>	36,600.00	10,172.20	64,000.00	C,261.00	55,200.00	10,092.00	15,870.00	2,680.00	2,060.00	2,060.00
Harvesting Interval	10 Weeks		14 Weeks		14 Weeks		14 Weeks		10 Weeks	

Gross Margin Comparison Tool for Vegetables Manual 2009

Figure 2: Enter the variable costs for your scenario



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**Labour Cost Calculator**

**Guidelines**

Simple ways to estimate the cost of labour in a crop scenario include:

**METHOD 1:** Use recent Profit & Loss (tax) statements or quarterly accounts and estimate the portion of labour costs that would be spent on growing a similar crop on the unit of area you have chosen.

**METHOD 2:** Calculate costs based on the time that will need to be spent on each activity and current rates of pay.

It is optional whether you include or don't include a portion of the manager's salary in operating costs.

(Manager's salary/fees not to be included as an operating cost for gross margin analysis. It is generally considered to be an overhead cost.)

Click here to return to the Enter Operating Costs page without using this worksheet.

**Method 1: Use accounts** (records or tax statements (Profit & Loss)) to estimate your labour costs.

Total cost in annual accounts: \$0.00  
 Number of hectares that shared this cost: 0.00  
 Total cost per Hectare: \$0.00 per hectare, based on average of historical costs  
 Total cost per Area Unit: \$0.00

Your Area Unit for this scenario is equivalent to 6,258 hectares.  
 It takes 6,160 of your Area Units to make up 1 hectare.

**Method 2: Calculate** your costs based on time and rates of pay in your chosen unit of area.

Manager	Annual Salary	Number of hectares that shared this cost	Proportion of manager's time (%) spent on operational work	Cost per your Area Unit
(optional)	Shared by	hectares	=	\$0.00

**Employees Paid Hourly**

Activity	Hours	Rate per hour	Cost per your Area Unit
Tractor (spraying etc)	hours	x per hour	= \$0.00
Weeding	hours	x per hour	= \$0.00
Irrigation	hours	x per hour	= \$0.00
Harvest	hours	x per hour	= \$0.00
Shed (forklift / cookroom)	hours	x per hour	= \$0.00
Other	hours	x per hour	= \$0.00

**Piece Rate Activities**

Activity Description	Basis of Payment (e.g. \$ per row or \$ per bucket)	Number of "Payment Units" in your chosen Area Unit	Cost per your Area Unit
Choose an activity from the list or type in your own	\$ Payment Unit	x	= \$0.00
	per	x	= \$0.00
	per	x	= \$0.00
	per	x	= \$0.00

Total cost per hectare: \$0.00  
 Total cost per Area Unit: \$0.00

The Yield per your Area Unit is 6,898.89 Cartons (of 18 kg) = 124,180.20 kg = 124.18 Tonnes.  
 The Yield per Hectare is 960.88 Cartons (of 18 kg) = 17.28 Tonnes.

**Method 1** in this example provides a basic estimate of the cost for this scenario, by dividing the total labour cost for your farm by the area in hectares, and then making a further calculation to get the labour cost for the area you have chosen for this scenario (i.e. the cost per your Area Unit).

**Method 2** allows you to work out costs in more detail, based on the cost of each specific input. This Labour Cost example uses hours per activity and labour rates per hour.

You can include activities that are charged at piece rates in Method 2 of the Labour Cost Calculator.

If you are entering data for Step B on the costs of production and you don't know the \$/ha figure, then simply hit the arrow button and a new screen opens up for each cost item to make it easy to enter the data. The data can be entered based on your management information or previous tax returns, these screens take the hard work out of the calculations and are flexible enough to use many different management units.

Figure 3: The labour cost calculation screen

## Step C: Veg Tool will calculate the Gross Margin for your Scenario!

	33,000.00	5,200.00	33,000.00	5,200.00	33,000.00	5,200.00	2,000.00	320.00	500.00	10,000.00
Labour	33,000.00	5,200.00	33,000.00	5,200.00	33,000.00	5,200.00	2,000.00	320.00	500.00	10,000.00
Energy	1,500.00	240.00	1,500.00	240.00	1,500.00	240.00	150.00	24.00	14.00	280.00
Packaging	1,500.00	240.00	1,500.00	240.00	1,500.00	240.00	0.00	0.00	540.00	10,800.00
Freight	6,000.00	960.00	6,000.00	960.00	6,000.00	960.00	800.00	128.00	250.00	5,000.00
Other	4,000.00	640.00	3,500.00	560.00	3,500.00	560.00	1,000.00	160.00	250.00	5,000.00
<b>Total Costs</b>	<b>63,570.00</b>	<b>10,171.20</b>	<b>64,070.00</b>	<b>10,251.20</b>	<b>63,070.00</b>	<b>10,091.20</b>	<b>15,870.00</b>	<b>2,507.20</b>	<b>2,076.00</b>	<b>41,520.00</b>
<b>Gross Margin</b>	<b>23,030.00</b>	<b>3,694.80</b>	<b>2,930.00</b>	<b>468.80</b>	<b>-4,770.00</b>	<b>-785.20</b>	<b>330.00</b>	<b>52.80</b>	<b>234.00</b>	<b>4,680.00</b>

The final result: using the 'compare scenarios' button shows the gross margins for each scenario and which crops, planting areas and management strategies are likely to make more money.

The VegTool calculator is a quick and simple way of comparing the financial consequences of different decisions. It may be difficult to accurately estimate (for example) the time and fuel differences between each crop; however your best estimate will be good enough and the answer is usually quite clear once VegTool displays the scenarios. You still need to take into consideration crop rotations, disease impacts and the volatility in crop pricing or yield, have another look at the 'limitations of gross margins' information to double check.

### Easy steps to create a "Scenario" and see your Gross Margin:

1. Select a **crop** and enter **yields** and **prices** for that crop.
2. Enter the **operating costs** for this Scenario.
3. **Compare** the gross margins for this Scenario against other Scenarios that you have prepared.
4. **Manage** and modify your Scenarios.

Figure 4: VegTool scenarios

If you would like some assistance with VegTool or training on gross margin analysis then please contact Kristen Stirling from the InnoVeg program on 03 9882 2670 or at kristens@rmcg.com.au.



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