



Horticulture Australia

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Horticulture Australia Limited



BUSINESS CASE

Developing a Block of Land for Vegetable Production



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"The Vegetable Industry Development Program is funded by HAL using the vegetable levy and matched funds from the Australian Government".





Content

What is a business case?	02
How do you calculate it?	03 - 06
Risk, debt and cash flow implications	07

Business Case

DEVELOPING A BLOCK OF LAND FOR VEGETABLE PRODUCTION

What is a business case?

A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. You will have greater confidence in your decision, if you use a formal process and make sure you count the right things the right way, whilst also considering the things that cannot be counted.

Developing a block of land for vegetable production

A business south of Perth, WA, grows carrots for sale to a supermarket. They have a well-developed market and a good relationship with the buyers who have encouraged them to expand. However, they are wary as they do not want to grow too quickly. They own a five-hectare block, which is currently undeveloped and they need to decide whether to expand production by installing an irrigation system, building internal roads and improving the soil for production.

What is the decision?

The decision for this grower is – should we invest in developing this block and expand our carrot production enterprise?

The grower already owns the land, so the cost of buying the land is not included, but the grower may need to think about what they will stop growing when they start growing carrots, i.e. not just the extra costs and income, but the costs saved and income foregone.

In this case, the land is grazed by cattle, so the income from grazing is not significant, but in some cases, the grower may be pulling out fruit trees or vines to grow vegetables. Then the decision is – should we change from growing fruit trees to growing carrots?

Thus, this decision is about a change in land use on an existing block of land.

What do you have to count?

Depreciation

An investment in new infrastructure will increase the grower's depreciation. This is not a cash cost, but a critical allowance to make when calculating profit. If you do not account for

depreciation, then you will not have any money available to maintain or replace the infrastructure when needed.

Cost of capital

An investment in new infrastructure also means that the grower will need to use spare cash or increase borrowings to pay for the machines, thus they need to consider the *cost of capital*. The cost of borrowed capital is obvious (i.e. the interest cost), but the cost of your own capital is less so. Why should you value it any less? If you spend money on developing a new block, then there will be other things you cannot do with that money, e.g. employ someone to do your marketing, pay less overdraft interest, improve existing irrigation systems. Thus, your own capital has a value too. It is known as its opportunity cost.

Existing production systems

It is unlikely that the new block of land will yield dramatically different results from the 'normal' production that occurs on the remainder of the farm. Therefore, it is important that we really understand the numbers on the existing enterprise to determine the financial impact of expansion.

Normally, when this sort of expansion occurs the profit margins remain the same and there is no dramatic change in profit (or loss) for the new area. It is very rare for a farm to expand and achieve a significantly different result from that achieved with the *existing production systems*.

Income foregone and costs saved

We need to examine any income foregone or costs saved from an existing enterprise when a block of land is developed for a new enterprise. In this example, where cattle are grazed on the land, the income foregone would be the proceeds from the sale of steers that were fattened on this land and the costs saved would be the purchase costs of those cattle and the associated animal husbandry costs.

How do you calculate it?

Step 1:

Review the gross margins and profitability from historical data

We calculate the margin and profitability of the existing enterprise as outlined in the following table (refer to the case study, “How is our business going?” for more detail):

EXISTING OPERATION:	TOTAL AREA	\$ / Ha
Farm size (cropped area ha)	42	1
Gross income (A)	650,000	15,476
Variable costs (B)	283,000	6,738
Gross Margin (C = A - B)	367,000	8,738
Overheads (D)	246,000	5,857
Operating profit (E = C - D)	121,000	2,881
Finance costs (F)	1,200	29
Net Farm Income (G= E - F)	119,800	2,852

The result of this calculation is that we can clearly understand the income, variable costs, overhead costs and, ultimately, the profitability of the farm. The net farm

income is \$2,852/ha. It is important to understand the existing business model, so that it can be applied to the new development.

continued | How do you calculate it?

Step 2:

Determine the capital costs and finance costs of the new development

We need to obtain prices and quotes for the capital expenditure required in the new development. These items may include: irrigation systems, additional water requirements, soil ameliorants and any roads or supporting infrastructure.

NEW DEVELOPMENT:	TOTAL AREA	\$ / ha
Farm size (cropped area ha)	5	1
Capital		
Sprinkler irrigation (H)	45,000	9,000
New water entitlement (I)	16,000	3,200
Bedforming & compost (J)	12,000	2,400
Road installation (K)	8,000	1,600
Total capital (L)	81,000	16,200
Depreciation (M = H + J x 10%)	5,700	1,140
Opportunity cost (N = Total Capital x 8%)	6,480	1,296

This table describes a 'budget' of capital costs to develop the new block to full production. The total cost of this development is \$81,000 or \$16,200/ha. It is important to understand the impact of these costs on our bank balance or debt position, but it is also important to understand the additional depreciation and opportunity costs we will incur as a result of the development.

There is no requirement to factor in the cost of the land, as it is currently vacant and already owned outright by the grower. This decision is about a change in land use on

an existing block of land. However, if the land were to be purchased, then this cost of capital would also need to be included in the calculations.

Depreciation is only calculated for those items that will depreciate over time, (i.e. sprinkler irrigation and bedforming & composting), as the road installation will add value to the current land and infrastructure when resold and water entitlements rise and fall in value, but do not depreciate.

The opportunity cost is incurred on the total capital cost, as this cost needs to be financed.

We need to consider any changes in the variable costs and overhead costs that will result from expanding the existing production systems ...

Step 3:

Understand the impact of changing overhead cost structures

We need to consider any changes in the variable costs and overhead costs that will result from expanding the existing production systems onto the new development area.

In this example, we assume that the variable costs will remain the same, as the soils and weed pressures will be similar because of the proximity of the development block to the existing farm.

The overhead costs have been calculated as only half the additional per hectare rate, as many of the overhead (fixed) costs remain the same. However, some will increase, e.g. insurances, rates and administration of staff. We have also added the depreciation component to the overhead costs component to reflect the need for increased plant and equipment, or increased utilisation of existing plant and equipment that will lead to increased depreciation.

NEW OVERHEAD COSTS:	5 ha	1 ha
Existing overhead costs (D)		5,857
Half of existing overhead costs (D ÷2)	14,643	2,929
Depreciation (M)	5,700	1,140
New development overheads (D ND)	20,343	4,069



continued | *How do you calculate it?*

Step 4:

Determine the profitability of the new development

With our income and cost assumptions understood and calculated for the new area, we can then construct a profit budget to see the impact of operating our existing production system on the new land area.

If this particular parcel of land was being used for a purpose that was generating income, then we would also need to include the income and expenses associated with that other enterprise, i.e. the income foregone and costs saved from no longer operating it. In this example, the cattle grazing was a minor enterprise, as the costs and expenses were small and very similar i.e. no profit. Thus, we have not included it.

The calculation shows that the new development is more efficient and profitable per hectare (\$3,374) than the existing land area under production (\$2,852). This is because our overhead cost structure has been reduced or distributed over a larger land area of production. There has also been an increase in opportunity cost, or if funded with debt, finance costs would have increased. However, the increase in efficiency of overhead costs has outweighed the increase in finance costs.

ANNUAL IMPACT - NEW DEVELOPMENT:	5 ha	1 ha
Gross income (A ND)	77,381	15,476
Variable costs (B ND)	33,690	6,738
Gross Margin (C ND = A ND - B ND)	43,690	8,738
Overheads (D ND)	20,343	4,069
Operating profit (E ND = C ND - D ND)	23,348	4,670
Opportunity cost (N)	6,480	1,296
Net Block Income (O = E ND - N)	16,868	3,374
Break even point (P = A ND - O)	60,513	12,103
Break even crop requirement (P ÷ A ND x 100)	78%	78%

One of the final steps in testing the decision is to determine how sensitive the result is to crop impacts.

Some of these changes may include price, yield, drought or higher fertiliser costs. Each one of these assumptions can be changed in the calculation of estimated profit to see what impact they have. If the result changes dramatically with a small change in yield or price, then the development is risky. The calculation in this example shows that the breakeven income for the grower (P) is \$12,103 per

hectare, or alternatively is 78% of the yield and price of the budgeted crop.

That is, if the grower is confident that 78% yield and price can be achieved in an average year then this new development could proceed. However, if the yield and price vary dramatically by +/- 50% then some additional consideration should be given to a year or a number of years of low yield and price creating a cash deficit situation.

Risk, debt and cash flow implications

The next step requires an assessment of the risks, cash flow and debt implications of the new development.

PAYBACK PERIOD - NEW DEVELOPMENT	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Net block income (O)	16,868	16,868	16,868	16,868	16,868
Total capital (L)	81,000				
Net Cash Flow (Q = O - L)	-64,132	16,868	16,868	16,868	16,868
Cumulative Cash Flow	-64,132	-47,265	-30,397	-13,530	3,338

The table above shows the cash flow implications of the development with the total capital spent in year one to develop the block and the net block income budgeted for each year thereafter. The cumulative cash flow at the bottom of the table shows that the development will take five years to pay-off or break-even.

Other questions to consider include:

- If the entire crop failed, what impact would that have on my business?
- Instead of having a larger area of carrots, and more exposure to a single buyer, are there opportunities to sell to other buyers or plant a different crop that may offset the risk in the carrot market?

- What is the maximum amount of debt that I will be taking on? How will I repay that debt?
- How will I fund the additional variable costs of growing the larger area until the crop is harvested and payment received? Is sufficient cash available to carry me through?
- What will happen if I have a 'bad' season? Will there be sufficient cash to plant out the existing area and new development area again?





Disclaimer

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