

Careers in agriculture

A piece of my pie – budgeting and profit analysis

Humanities and Social Sciences Science

- ACHES045
- ACHES048
- ACHES046



A piece of my pie – budgeting and profit analysis



Lesson overview

Students will develop an understanding of profit drivers for farmers. They will discuss how seasonal variability and global markets affect profitability and conduct an analysis on a wheat cropping program.

Australian Curriculum:

Economics and Business

Interpretation and Analysis Year 9 and 10 - Analyse data and information in different formats to explain cause and effect relationships, make predictions and illustrate alternative perspectives ([ACHES045](#))

Communication and Reflection Year 9 and 10 - Present reasoned arguments and evidence-based conclusions in a range of appropriate formats using [economics](#) and [business](#) conventions, language and concepts ([ACHES048](#))

Economic reasoning, decision-making and application Year 9 and 10 - Generate a range of viable options in response to an economic or [business](#) issue or event, use [cost-benefit analysis](#) and appropriate criteria to recommend and justify a course of action and predict the potential consequences of the proposed action ([ACHES046](#))

Resources

- Calculator
- Access to chart tool (MS Word suggested)

Student activities



The business of farming does not involve only the physical planting and harvesting of a crop. Farmers undertake many roles and being a good business manager is important to ensure a successful enterprise. Successful businesses make a profit and in farming profit can be measured using the following equation

$$(\text{Yield} \times \text{Price}) - \text{Costs} = \text{Profit}$$

- Yield – how much the farmer grows
- Price – what the farmer is paid for the crop
- Cost – how much it costs to grow the crop
- Profit – what is left after costs are paid.

Cereal farmers make money by selling the grain they produce, but it is difficult for a farmer to know exactly how much grain they will grow as it is very dependent on seasonal conditions. It is also not unusual for the price paid for grain to fluctuate considerably over the year. The table below outlines some of the variables that affect a farmer's profitability.

Variables		
Yield can be affected by:	Price can be affected by:	Costs can be affected by:
Rainfall	Global markets	Global markets
Soil type	Marketing decisions	Amount of inputs (e.g. fertiliser)
Inputs (e.g. fertiliser and chemicals)	Quality of product	Investment decisions
Technology inputs	Time of marketing	Outsourcing of work (e.g. seeding or harvesting)

Adapted from Plan, Prepare, Prosper. DAFWA 2011.

Profitable cereal growing requires high production and low costs. All input decisions like chemical and fertiliser are based on the benefit to the yield and quality potential of the crop. Farmers use many tools to guide their decision making. Having clear projections of yields and potential selling price points helps them to manage the costs of production and understand the financial consequences of market fluctuations and seasonal variation.



Reflection

Farmers undertake many roles but often outsource work to specialists. In the student activities provided the farmer has an agronomist, a grain marketer and a farm advisor working for him. What services do they provide?

Budgeting and profit analysis assignment

Farmer Black planted 800ha of wheat this season. She works to produce maximum yields for minimum costs knowing that seasonal variability can affect her yields and global markets can change the price she is paid for her grain.

This season had average seasonal conditions and she received a good price for her grain. You need to assess her profitability.

Profit can be measured by the equation below:

$$\text{(Yield x Price) – Costs = Profit.}$$

The components of profit for a grain enterprise are:

Yield – how much grain a farmer produces

Price – what the farmer is paid for the grain produced

Cost – how much it costs to grow the crop

Profit – what is left after the costs are paid

Income – total money received for grain from buyer.

1. Farmer Black averaged 2.6 tonnes per hectare (t/ha) over her 800ha crop. What was her total yield?

2. She sold her grain for \$311/t. What was her total income from selling the grain?



3. To use the equation, you also need to know the costs of growing and delivering the crop. The table below shows the input costs that were budgeted. The growing costs remain the same, regardless of yield and are calculated per hectare. Delivery costs are directly related to how much is harvested and are worked out on a per tonne basis.

Inputs	Cost	\$
Seed	30/ha	
Fertiliser	148/ha	
Chemical	73/ha	
Fuel	35/ha	
Crop insurance	2/ha	
Grain marketing	1/ha	
Agronomy	1/ha	
Farm advisor	1/ha	
Wages	22/ha	
Freight	10/t	
Receival fees	10.2/t	
Destination freight fee	18.6/t	
Total cost		\$

Note: All calculations based on an average yield of 2.6t/ha

4. Use the equation **(Yield x Price) – Costs = Profit** to work out this year's profit.



7. Farmer Black has budgeted for next season's crop based on the same input costs over 800ha. As yields and prices can fluctuate she wants to analyse profit at different yield and price points.

Complete the following budgeting table to show:

- a. The costs of growing and delivering the crop – use the table in Q3 to assist.
- b. The income that may be expected at different yields and price points.
(Yield x Price = Income)
- c. The profit that may be expected at different price points per hectare
(Yield x Price – Costs = Profit)

Wheat Price		\$250/t		\$300/t		\$350/t	
Yield	Costs	Income	Profit	Income	Profit	Income	Profit
1.0t/ha							
2.0t/ha							
3.0t/ha							
3.5t/ha							

8. Farmer Black could put an extra 30kg/ha of Nitrogen (N) fertiliser on the crop in August. It will cost \$17/ha and could improve yields by 10% if it is followed by a significant rain event. Without any rain, the plant cannot uptake the N and there is no benefit. Over the last 6 years, her average yield has been 2.8t and she has sold her wheat at an average price of \$295/t. Can you do a cost-benefit analysis on this scenario and recommend whether or not she should go ahead?
