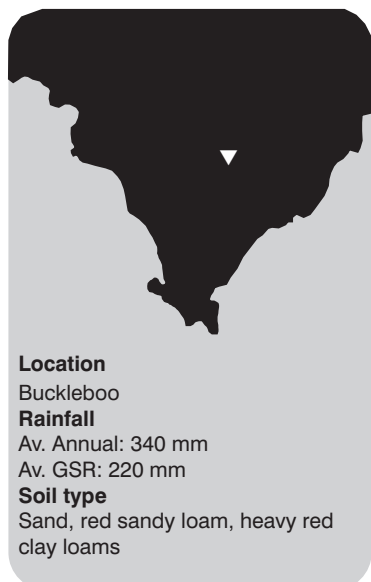


# Export hay analysis for Buckleboo

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Buckleboo Farm Improvement Group wanted to do an economic analysis to look at the viability of hay in the rotation and whether there is an increase in financial risk.

## How was it done?

A whole of farm gross margin analysis was used to look at two scenarios typical of the district:

1. Hay included in the rotation
2. No hay in the rotation

The percentage of export hay is typical of hay producers in other parts of the state. Sheep still predominate in many cropping programs and can capitalise on hay of poorer quality.

## Soil types

Yields both with cereals and export hay are sensitive to soil types. A typical range of soil types (finishing ability) was used in the analysis.

These percentages were deemed representative of the Buckleboo area which has a higher percentage of heavier and loam soils compared to other areas of the Eyre Peninsula.

## Hay value

Hay value is based on a number of quality parameters. One of the advantages of hay in the Buckleboo area is the quality is generally better than hay grown in

higher rainfall environments.

Decile 7 yields at Buckleboo of 5 t/ha is equivalent to the amount grown in Clare in a decile 3 season. These lower yields generally have higher quality and therefore a higher price.

Weather damage will occur in 10% of years where hay value can drop to the lowest price of \$80-\$90/t and needs to be taken into account.

## Grain values

Wheat \$253/t, barley \$215/t.

Source: <http://agprice.grainandgraze3.com.au>, August 2018.

## Machinery investment

Additional machinery investment was costed in as the 'no hay' example had a greater harvesting requirement due to the larger area to be harvested.

Standard machinery investment is \$300 of machinery per ton of grain produced. Harvest equipment comprises approximately one-third of most farmer's machinery costs. Therefore \$100/t of grain produced was used with a 10% depreciation/replacement value costed into the analysis in the 'no hay' scenario.

All hay activities were contracted at the rates given in Table 3.

## Key messages

- Including export hay in the farming system is increasing risk from a financial point of view where hay values are less than \$145/t at Buckleboo.
- Only at higher hay prices of \$210/t and above is it worth cutting hay in a decile 1 year.
- In a decile 1 year, if the grower is able to cut hay with their own header to reduce the costs, the breakeven price will be \$170/t.

## Why do the analysis?

The hay industry has recently expanded on Eyre Peninsula into the lower rainfall areas especially in the Buckleboo area. The

**Table 1. Whole farm gross margin analysis with and without export hay enterprises.**

Enterprise	With export hay (%)	Without export hay (%)
Wheat	45	50
Barley	20	25
Pasture – self replacing merino	20	25
Export oaten hay	15	-
Total	100	100

**Table 2. Percentage of area of different soil types used in the whole farm analysis.**

Soil type	Percentage
Heavier harder finishing soils	30
Loams good finishing soils	50
Sands poorer nutrition but good finishing	20

**Table 3. Contract rates for hay operations (local contracting rates in 2018-19).**

Mowing/Conditioning/Raking	\$60/ha
Baling	\$34/t
Freight & loading to Kimba	\$20/t

**Grain and hay yields for each soil type for each season by crop type (t/ha)****Table 4. Wheat grain yield (t/ha) for seasonal decile by soil type.**

Wheat	Season deciles				
	1	3	5	7	9
Sand	0.75	1.3	1.5	2.5	2.8
Loam	0.75	1.3	1.7	2.5	3.5
Heavy	0.3	1.1	1.6	2.8	3.6

**Table 5. Barley grain yield (t/ha) for seasonal decile by soil type.**

Barley	Season deciles				
	1	3	5	7	9
Sand	0.75	1.3	1.5	2.5	2.8
Loam	0.75	1.3	1.7	2.5	3.5
Heavy	0.3	1.1	1.6	2.8	3.6

**Table 6. Oat hay yield (t/ha) for seasonal decile by soil type.**

Oaten hay	Season deciles				
	1	3	5	7	9
Sand	1.5	3	3.5	4	5
Loam	1	2.5	3.5	5	6
Heavy	0	1.5	3	5	6.5

**Fertiliser inputs**

P fertiliser was costed in as a P replacement of 3.5 kg P/t for grain yields and 1.5 kg P/t for hay yields. Nitrogen was costed in on a soil type by season basis.

The urea rates are based on the N required to drive the yields for both grain and hay.

**Potassium**

Generally, the loam to heavy soils have adequate potassium. With only 15% of the areas going to hay, the potassium levels will take time

to run down however, they should still be monitored. The sands can be more problematic for potassium issues and should definitely be monitored. Additional potassium on the sand has not been costed in due to the hay being only 15% of the program and the sandy soils comprising only 20% of the farm. However, it is an issue that may need addressing.

**Chemical use**

Standard chemical inputs have been costed in however, there is additional weed control when not

incorporating hay. This was taken into account and an additional \$5/ha costed into the cereal years where hay is not included.

**Sheep**

The sheep enterprise is a self-replacing merino flock at 100% lambing. Wool value \$10/kg, lamb value \$120/head net, cull ewe value \$100/head net, stocking rate 2.2 DSE/ha.

**Table 7. Urea rate (kg/ha) for seasonal decile by soil type.**

	Urea rate (kg/ha)				
Soil type	Decile 1	Decile 3	Decile 5	Decile 7	Decile 9
Sand	25	25	50	75	100
Loam	25	25	50	75	100
Heavy	25	25	25	50	50

**Table 8. Gross margin (\$/ha) at Buckleboo for seasonal decile by hay price.**

		Hay value (\$)/ t at Buckleboo					
Buckleboo		90	130	145	170	210	250
Decile	No Hay	With Hay					
1	42	28	30	32	35	40	45
3	137	113	127	132	141	154	168
5	186	159	179	186	199	218	238
7	322	282	311	322	339	368	396
9	434	383	419	432	454	489	525

The bold text highlights where hay included in this scenario has improved profitability.

Light grey indicates where profitability is similar.

Dark grey indicates where profitability is less where hay is included.

## What happened?

### Financial analysis

The analysis is based on a gross margin but also considers interest payable on additional expenditure and additional cost of harvest machinery in the 'no hay' scenario.

## What does this mean?

### Risk

To compare scenarios on a risk basis is how they perform at the lower deciles (1 & 3). Hay included in the farm system is increasing risk from a financial point of view

where hay values are less than \$145/t at Buckleboo. At \$170/t it is only the decile 1 year where hay included is a riskier option. By choosing not to cut and bale in the decile 1 season the losses are minimised, so it is only at the higher hay prices of \$210/t and above that is it worth cutting in the decile 1 year. The other factor to consider in the decile 1 year is the farmer using their own header (if suitable) to cut hay therefore reducing the costs? This brings the breakeven price down to \$170/t.

There are other risk factors to consider based around experience in making good hay, availability and expertise of contractors and extending the stress period prior to harvest when hay is being made.

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