Organic Feed Grade Grains & Dairy Gross Margin Report

June 2016
Macquarie Franklin was formed in April 2011 by the merger of two Tasmanian based consulting firms - Agricultural Resource Management (ARM) and Davey & Maynard.

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1 Overview

This report has been undertaken on behalf of AgriGrowth Tasmanian (DPIPWE) to provide an assessment of the gross margins for;

- organic feed grade wheat
- organic feed grade barley
- organic dairy conversion
- organic dairy greenfield development

It is assumed that the organic production practices would be guided by the National Standard for Organic and Bio-Dynamic Produce.
Organic Feed Grade Grain and Dairy Gross Margins Report AgriGrowth Tasmania (DPIPWE)

2 Organic Grain

2.1 Market Issues

The market price for both feed and milling grade organic grain are volatile and the implications of various supply and demand issues can result in substantial variation in market prices.

Key supply and demand factors include;

1. Variability in processor and consumer demand both on a domestic and international setting
2. International commodity price fluctuations
3. Seasonal factors affecting crop yield and quality
4. Australian terms of trade and currency fluctuations

Recent historical market analysis price indicators for Australian grown milling organic wheat;

Table 1; recent Australian organic milling wheat prices (Rural Directions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Base Price ($/T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/14</td>
<td>520</td>
</tr>
<tr>
<td>2014/15</td>
<td>570</td>
</tr>
<tr>
<td>2015/16</td>
<td>850</td>
</tr>
<tr>
<td>2016/17*</td>
<td>900</td>
</tr>
</tbody>
</table>

*predicted

The current market price (May 2016) for organic wheat grain based dairy pellets is $1,000/T, and depending upon the type and quantity of any additional feed additives, it is typical that the base feed grain would contribute approximately 60-80% of the total end feed price.

It is typical for producers to have well established markets for their organic grain, and typically these marketing arrangements result in organic grains being direct marketed to processors and/or end users, and this assists in maintaining a greater level of control over the separation of conventional and organic grain. Very little organic grain is sold on the open market.
2.2 Wheat Gross Margin Assumptions

Wheat gross margin assumptions;

- Feed grade organic wheat base price of $600 T
- Winter wheat variety to be grown with an organic standard derogation to permit the use of a fungicide seed treatment to manage seed borne disease
- Growing environment typical of northern midlands (Hagley area)
- Irrigation applied at 1 ML/ha (equivalent to 100mm)
- Weed control achieved by undertaking a series of surface cultivations to achieve a fallow period in conjunction with accepted crop rotations and green manuring
- Reasonable soil fertility levels
  - Phosphorus: 25-30 ppm (Olsen)
  - Potassium: 175-200 ppm (Colwell)
  - Soil pH 6
- Soil Nitrogen levels built up by the production of legume based green manure crop grown in the year proceeding wheat crop
- Current contractor rates have been applied to activities including fertiliser spreading, spraying, land cultivation, drilling and harvesting (grain and straw) as per outlined in the Tasmanian Agricultural Contractors Handbook 2016.
- Crop yield value based on an assumption of 0.65 of a conventional wheat crop yield, with a conventional wheat yield prediction based on;

\[(GSR - ET + ASW) \times WUE = \text{grain yield T/ha} \quad (550-125+35) \times 20 = 9.25 \text{ T/ha}\]

GSR = growing season rainfall and includes 1 ML/ha irrigation

ET = evapotranspiration rate

ASW = available soil water at the start of the season

WUE = water use efficiency

- A livestock grazing component is included, with an assumption of 2 T/ha available for grazing
- A straw component is included, and is based on a harvest of 12 bales/ha
## Wheat gross margin

### ORGANIC WHEAT

#### Irrigated organic wheat gross margin

<table>
<thead>
<tr>
<th>Income</th>
<th>$/ha</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain (feed grade)</td>
<td>6.0 t/ha</td>
<td>$600 /t</td>
</tr>
<tr>
<td>Straw</td>
<td>12 bales/ha</td>
<td>$30 /bale</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>10 :1 Conversion</td>
<td>2 tDM/ha</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$1.60 /kgLW net</td>
</tr>
<tr>
<td>Total Income</td>
<td>$4,200</td>
<td></td>
</tr>
<tr>
<td>Seed</td>
<td>150 kg/ha</td>
<td>$800 /t</td>
</tr>
<tr>
<td>Fertiliser</td>
<td>1 COF 250 kg/ha</td>
<td>$861 /t</td>
</tr>
<tr>
<td></td>
<td>1 Blood n Bone 200 kg/ha</td>
<td>$640 /t</td>
</tr>
<tr>
<td></td>
<td>1 Organic N 30 l/ha</td>
<td>$5.65 /l</td>
</tr>
<tr>
<td>Sprays</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeds</td>
<td>2 Dipel 0.75 kg/ha</td>
<td>$56.00 /kg</td>
</tr>
<tr>
<td>Pest &amp; Diseases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrigation</td>
<td>5 Applications 20 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$140 /ML</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$75 /ML</td>
</tr>
<tr>
<td></td>
<td>1.0 ML/ha</td>
<td>$100 /ML</td>
</tr>
<tr>
<td>Contract Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultivation</td>
<td></td>
<td>$100 /ha</td>
</tr>
<tr>
<td>Drilling</td>
<td>1</td>
<td>$65 /ha</td>
</tr>
<tr>
<td>Fertiliser Cartage</td>
<td>2</td>
<td>0.5 t/ha</td>
</tr>
<tr>
<td>Spraying</td>
<td>3</td>
<td>Applications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$35 /ha</td>
</tr>
<tr>
<td>Contract Harvest/Cartage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grain Harvest</td>
<td>6.0 t/ha</td>
<td>$35 /t</td>
</tr>
<tr>
<td>Grain Cartage</td>
<td>6.0 t/ha</td>
<td>$10 /t</td>
</tr>
<tr>
<td>Straw Baling</td>
<td>12 bales/ha</td>
<td>$20 /bale</td>
</tr>
<tr>
<td>Tractor &amp; Plant - Fuel &amp; Repairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy Cultivation</td>
<td></td>
<td>$40 /hr</td>
</tr>
<tr>
<td>Light Cultivation</td>
<td>3</td>
<td>2.0 hrs/ha</td>
</tr>
<tr>
<td>Drilling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spraying</td>
<td></td>
<td>0.5 hrs/ha</td>
</tr>
<tr>
<td>Irrigation</td>
<td></td>
<td>Traveller 4.0 hrs/ML</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100% Centre Pivot 1.0 hrs/ML</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harvesting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrigation</td>
<td></td>
<td>Traveller 4.0 hrs/ML</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100% Centre Pivot 1.0 hrs/ML</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
</tr>
<tr>
<td>Other Costs</td>
<td></td>
<td>Levies &amp; Other, Say 2.0% of Income</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Variable Costs</td>
<td>$1,850</td>
<td></td>
</tr>
<tr>
<td>Gross Margin</td>
<td>$2,350</td>
<td>$2,350 /ML</td>
</tr>
</tbody>
</table>

Figure 1: organic feed grade wheat gross margin
## Irrigated wheat summary

<table>
<thead>
<tr>
<th>Income</th>
<th>$/ha</th>
<th>Grain Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain</td>
<td>3,600</td>
<td>3,240 3,960</td>
</tr>
<tr>
<td>Straw</td>
<td>360</td>
<td>360 360</td>
</tr>
<tr>
<td>Grazing</td>
<td>240</td>
<td>240 240</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td>$4,200</td>
<td>3,840 4,560</td>
</tr>
</tbody>
</table>

| Variable Costs |       |                  |                  |
|----------------|-------|------------------|
| Seed           | 120   |                  |                  |
| Fertiliser/Lime| 513   |                  |                  |
| Sprays         | 84    |                  |                  |
| Irrigation     | 75    |                  |                  |
| Water Cost     | 100   |                  |                  |
| Contract Work  | 188   |                  |                  |
| Contract Harvest/Cartage | 510 |                  |                  |
| Tractor & Plant| 140   |                  |                  |
| Casual Labour  | 27    |                  |                  |
| Other          | 84    |                  |                  |
| **Total Variable Costs** | $1,850 | 1,850 1,850 |
| **Gross Margin** | $2,350 | 1,990 2,710 |

### Irrigated wheat variable costs

- **Seed**: 6%
- **Fertiliser/Lime**: 28%
- **Sprays**: 5%
- **Irrigation**: 4%
- **Water Cost**: 5%
- **Contract Work**: 10%
- **Tractor & Plant**: 8%
- **Contract Harvest/Cartage**: 28%
- **Casual Labour**: 1%
- **Other**: 5%

### Effect of Yield & Price

<table>
<thead>
<tr>
<th>Yield</th>
<th>Grain Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>-20%</td>
<td>$480 /t</td>
</tr>
<tr>
<td>Base</td>
<td>$600 /t</td>
</tr>
<tr>
<td>20%</td>
<td>$720 /t</td>
</tr>
<tr>
<td>50%</td>
<td>$1,080 /t</td>
</tr>
<tr>
<td>-10%</td>
<td>$/ha</td>
</tr>
<tr>
<td>Base</td>
<td>$/ha</td>
</tr>
<tr>
<td>10%</td>
<td>$/ha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yield</th>
<th>Grain Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10%</td>
<td>5.4 t/ha</td>
</tr>
<tr>
<td>Base</td>
<td>6.0 t/ha</td>
</tr>
<tr>
<td>10%</td>
<td>6.6 t/ha</td>
</tr>
</tbody>
</table>

- **$/ha**: $1,369 2,017 2,665 4,609
- **$/ha**: 1,630 2,350 3,070 5,230
- **$/ha**: 1,891 2,683 3,475 5,851

Figure 2; organic feed grade wheat gross margin summary and sensitivity analysis
2.4 Barley Gross Margin Assumptions

Barley gross margin assumptions;

- Feed grade organic barley base price of $550 T
- Spring sown barley variety being grown with an organic standard derogation to permit the use of a fungicide seed treatment to manage seed borne disease
- Growing environment typical of northern midlands (Hagley area)
- Irrigation applied at 0.8 ML/ha (equivalent to 100mm)
- Weed control achieved by undertaking a series of surface cultivations to achieve a fallow period in conjunction with accepted crop rotations and green manuring
- Reasonable soil fertility levels
  - Phosphorus: 25-30 ppm (Olsen)
  - Potassium: 175-200 ppm (Colwell)
  - Soil pH 6
- Current contractor rates have been applied to activities including fertiliser spreading, spraying, land cultivation, drilling and harvesting (grain and straw) as per outlined in the Tasmanian Agricultural Contractors Handbook 2016.
- Crop yield value based on an assumption of 0.65 of a conventional barley crop yield, with a conventional barley yield prediction based on currently achieved feed grade barley crop yields of 6 T/ha
2.5 Barley gross margin

---

### 2. ORGANIC BARLEY

**Irrigated organic barley gross margin**

<table>
<thead>
<tr>
<th>Income</th>
<th>Feed Grade</th>
<th>$/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain (feed grade)</td>
<td>4.0 t/ha</td>
<td>$550</td>
</tr>
<tr>
<td>Straw</td>
<td>8 bales/ha</td>
<td>$30</td>
</tr>
<tr>
<td>Grazing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Income</th>
<th></th>
<th>$2,440</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed</td>
<td>120 kg/ha</td>
<td>$800</td>
</tr>
<tr>
<td>Fertiliser</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COF</td>
<td>250 kg/ha</td>
<td>$861</td>
</tr>
<tr>
<td>Blood n Bone</td>
<td>200 kg/ha</td>
<td>$640</td>
</tr>
<tr>
<td>Organic N</td>
<td>30 t/ha</td>
<td>$5.65</td>
</tr>
<tr>
<td>Sprays</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeds</td>
<td>2 Dipel</td>
<td>0.75 kg/ha</td>
</tr>
<tr>
<td>Water Cost</td>
<td>0.8 ML/ha</td>
<td>$100</td>
</tr>
<tr>
<td>Contract Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultivation</td>
<td></td>
<td>$100</td>
</tr>
<tr>
<td>Drilling</td>
<td>1</td>
<td>$65</td>
</tr>
<tr>
<td>Fertiliser Cartage</td>
<td>2</td>
<td>0.5 t/ha</td>
</tr>
<tr>
<td>Spraying</td>
<td>3 Applications</td>
<td>$35</td>
</tr>
<tr>
<td>Contract Harvest/Cartage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grain Harvest</td>
<td>4.0 t/ha</td>
<td>$35</td>
</tr>
<tr>
<td>Grain Cartage</td>
<td>4.0 t/ha</td>
<td>$10</td>
</tr>
<tr>
<td>Straw Baling</td>
<td>8 bales/ha</td>
<td>$20</td>
</tr>
<tr>
<td>Tractor &amp; Plant - Fuel &amp; Repairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy Cultivation</td>
<td></td>
<td>$40</td>
</tr>
<tr>
<td>Light Cultivation</td>
<td>3</td>
<td>2.0 hrs/ha</td>
</tr>
<tr>
<td>Drilling</td>
<td></td>
<td>$20</td>
</tr>
<tr>
<td>Spraying</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrigation</td>
<td>% Traveller</td>
<td>0.5 hrs/ha</td>
</tr>
<tr>
<td>100% Centre Pivot</td>
<td>1.0 hrs/ML</td>
<td>$20</td>
</tr>
<tr>
<td>Harvesting</td>
<td></td>
<td>$20</td>
</tr>
<tr>
<td>Casual Labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrigation</td>
<td>Traveller</td>
<td>4.0 hrs/ML</td>
</tr>
<tr>
<td>100% Centre Pivot</td>
<td>1.0 hrs/ML</td>
<td>$27</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>$27</td>
</tr>
<tr>
<td>Other Costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Levies &amp; Other, Say</td>
<td>2% of Income</td>
<td>$2,440</td>
</tr>
</tbody>
</table>

| Total Variable Costs    | $1,570     |
| Gross Margin            | $870       |

Gross Margin/ML $1,090 /ML

---

Figure 3; organic feed grade barley gross margin
**Irrigated Barley Summary**

<table>
<thead>
<tr>
<th>Income</th>
<th>$/ha</th>
<th>Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain</td>
<td>2,200</td>
<td>1,980, 2,420</td>
</tr>
<tr>
<td>Straw</td>
<td>240</td>
<td>240, 240</td>
</tr>
<tr>
<td>Total Income</td>
<td>$2,440</td>
<td>2,220, 2,660</td>
</tr>
</tbody>
</table>

**Variable Costs**

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>$1,570</th>
<th>$870</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>Fertiliser/Lime</td>
<td>513</td>
<td></td>
</tr>
<tr>
<td>Sprays</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Irrigation</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Water Cost</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Contract Work</td>
<td>188</td>
<td></td>
</tr>
<tr>
<td>Contract Harvest/Cartage</td>
<td>340</td>
<td></td>
</tr>
<tr>
<td>Tractor &amp; Plant</td>
<td>136</td>
<td></td>
</tr>
<tr>
<td>Casual Labour</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Total Variable Costs</td>
<td>$1,570</td>
<td>1,570</td>
</tr>
</tbody>
</table>

**Gross Margin**

<table>
<thead>
<tr>
<th>Gross Margin</th>
<th>$870</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,090 /ML</td>
<td></td>
</tr>
</tbody>
</table>

**Effect of Yield & Price**

<table>
<thead>
<tr>
<th>Yield</th>
<th>Grain Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-20%</td>
</tr>
<tr>
<td></td>
<td>$440 /t</td>
</tr>
<tr>
<td></td>
<td>$/ha</td>
</tr>
<tr>
<td>-10%</td>
<td>3.6 t/ha</td>
</tr>
<tr>
<td>Base</td>
<td>4.0 t/ha</td>
</tr>
<tr>
<td>10%</td>
<td>4.4 t/ha</td>
</tr>
</tbody>
</table>

Figure 4: Organic feed grade barley gross margin summary and sensitivity analysis
3 Organic Dairying Assumptions

3.1 Year-In-Year-Out Budget

3.1.1 Stock trading
- The cow type is cross breed, cows weighing around 490 kg liveweight. All herd bulls are Jersey (easy calving breed)
- The income received for all classes of stock sold is reflective of what is being received from conventional (non-organic) selling methods; i.e. direct to abattoir, sale yard.
- Tasmania does not have a dedicated organic abattoir. Greenham Tasmania has ACOS, NOP and TOP certification, and the Never Ever program where cattle that have never received antibiotics or growth promotant hormone are eligible. Cattle must have 4 permanent incisor teeth or less to be eligible for this program. The vast majority of cull cattle would be three years or older. The sixth permanent incisor teeth can appear at 32-44 months of age. As a result very few cull cattle would be eligible for this program and all cull cattle have assumed to have attracted no price premiums.

3.1.2 Shed & Cow Costs

3.1.2.1 Animal Health/Vet
- Organic dairy focuses on preventing infection and maintaining high hygiene standards rather than treatment of diseases and illness.
- This cost centre allows for the following
  - Pregnancy testing of the milking herd to age calves (early and later pregnancy tests)
  - Pregnancy testing of rising 2 year old heifers
  - 7-1 vaccination all stock classes
  - Lice treatment – plant based oil
  - Cider apple vinegar
  - Seaweed extract
  - Molasses
  - Copper sulphate
  - Magnesium sulphate
  - Milk cultures to determine mastitis bacteria present
  - Vet visits

3.1.2.2 Breeding Costs (AI & HR)
- Allows for 1.5 straws semen per cow and 1.5 inseminations per cow. Semen used would be proven easy calving bulls to reduce the incidence of dystocia.
- Herd testing (Spot tests) to determine individual cell counts, budget allows for four spot tests per season to allow cell count to be monitored. Cows with persistently high individual cell counts would need to be culled due to the inability to use dry cow therapy (antibiotics) at dry off.
3.1.2.3 **Shed Costs**
- Milking machine and vat cleaning chemicals – Alkali and Acid
- Teat spray – post milking disinfectant
- Rubber ware –
  - 2 sets of inflations
  - Replacement claw tubes
  - Milk tube
- Milk filter socks/sleeves
- Milking gloves
- Marking paint/leg tags/tail tape that are approved for use.
- Disposal of wash water containing cleaning chemicals (trade waste). The trade waste would need testing to determine the cost of disposal. The location of the farm and the distance travelled by the contractor would also determine the cost of disposal.

3.1.2.4 **Dairy Electricity**
- Electricity for operating the dairy; vacuum pump, heating hot water, milk vat, lighting etc.

3.1.2.5 **Freight and Cartage**
- Cartage for cull cattle – cows and bulls

3.1.2.6 **Pasture & Forage Costs**
- Fertiliser. The budget allows for fertiliser applications to replace nutrients removed through milk production, these are at maintenance levels. The price used is for a commercially available organic fertiliser. The actual cost would be dependent on the source of fertiliser, level of production and soil type.
- Fertiliser Cartage and spreading. This is an indicative per tonne price. The actual cost will depend on the distance travelled and the rate that fertiliser is spread.
- Lime. The budget allows for a portion of the farm to have lime applied each year.
- Weed & Pest Control. The control of pests will largely rely on integrated pest management. Weeds will need to be controlled largely by mechanical means. The use of sodium to control weeds may be used.
- Pasture Renewal – seed shall be sourced from plants grown in accordance with the provisions of the Australian Organic Standard.
- Pasture Renewal – Contract Work. Cultivation with a tyned implement, a primary cultivation, followed by a pass with a power harrow fitted with an air seeder. The contractor is required to ensure that brought in machinery is free from contamination and contaminating agents.
- Irrigation Operating Cost. Water sourced from an irrigation scheme is likely to incur annual fees to cover the cost of water delivery. Fees are fixed and variable. The delivery fees will be dependent on the method of delivery.
- Irrigation Electricity. Pumping costs are dependent on many variables; such as the required lift, the irrigation application method, pipe size, pumping distance. The tariff and the timing of pumping can also affect the pumping cost.
- Silage/Hay Making. The cost per cow for silage/hay making would be dependent on the quantity of surplus pasture.
3.1.2.7 Purchased Feed & Agistment

- Nitrogen. To boost pasture production an organic source of nitrogen is used throughout the growing season.
- Grain/Pellet Supplement. The feed budget indicates that total feed demand exceeds forecast pasture utilisation. Grain is used to fill the feed deficit. The price is indicative as there is no locally available organic feed grain.
- Agistment – Cows. The budget allows for up to 100 to be agisted off farm for 6 weeks. It includes the cost of cartage to and from the agistment. The agistment would need to be organically certified, organic agistment may not be readily available. If agistment could not be secured the cost for this cost centre could be used to purchase organic feed to allow cows to remain on the home farm.
- Agistment – Heifers (R2’s) The example farms use all effective area for running the milking herd. Once weaned all heifers would need to exit the farm. The cost in the cost centre is indicative of what it would cost to agist heifers. Currently there is not any organically certified agistment services. If an organic dairy industry was developed it is likely that support services such as these would be available as demand grew. Organic dairy producers may need to own land to grow out dairy heifers if organic agistment is not available.

3.1.3 Tractor, Plant & Vehicle Operating

- Fuel & Oil. The quantity of fuel and oil used in the budgets is indicative of a pasture based production system. Spring pasture surplus would be made into silage and fed out during periods of feed deficit.
- Repairs to Plant and Machinery. The repairs to plant and machinery will be dependent on the amount of machinery owned and its age. Servicing of the dairy is required annually to ensure the milking plant is functional and does not impact udder health.

3.1.4 Repairs to Structures & Improvements.

- The upkeep of laneways, gateways, and water trough skirts is important to ensure the incidents of lameness is minimised and mud is minimised to reduce the risk of mastitis.

3.1.5 Insurance and General Overheads

- These cost centres have similar costs to conventional dairy farms.
- In addition there are annual organic certification audit fees.

3.1.6 Wages

- The salary for the Farm Manager is at industry standards and includes superannuation.
- Other staff are assumed to be permanent staff at level 5 under the Pastoral Award working around 45 hours per week.
- The number of cows milked per labour unit is assumed to be lower for an organic dairy farm than a conventional dairy farm due to the need to maintain high levels of hygiene during milking and regularly strip cows to detect clinical mastitis.
3.2 Assumption for pasture utilisation:

Irrigated pasture utilisation is assumed to be 9.0 T/ha.

3.3 Assumed milk solids production:

The assumed production of 385 kg/MS is achievable for cross bred cows, fed on a well-managed pasture based diet with limited grain.

3.4 Heifer replacement rate:

Both organic dairy scenarios allow for heifer replacements rates of 25%. This allows for a herd biased towards younger cows. Younger cows generally have less health issues and individual cell counts are lower which is positive for milk quality. Herd management will ultimately determine replacement rates.

3.5 Development of Greenfield site to dairy

Land value used is $19,750 ha or $8,000 acre.

Assumes that the property has previously been a grazing or cropping property and does not have any existing dairy infrastructure, laneways or reticulated stock water system. Fencing may need to be constructed to allow for rotational grazing.

The dairy used in the example scenario is a 36 unit swing over herringbone. This dairy would efficiently milk 400 cows twice per day.
### 3.6 Organic Dairy – Conversion Gross Margins

<table>
<thead>
<tr>
<th>Farm Area -</th>
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<tbody>
<tr>
<td>Total Farm Area</td>
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<tr>
<td>Effective Area</td>
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<tr>
<td>irrigated</td>
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<tr>
<td>Dryland</td>
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<tr>
<td>Total Effective Area</td>
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<table>
<thead>
<tr>
<th>Irrigation Water</th>
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<td>Total (ML)</td>
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<td>(ML)</td>
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<td>Extra required (ML)</td>
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<td>Per Hectare</td>
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<tr>
<td>Cows to Calve</td>
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<tr>
<td>Calves Born</td>
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<td>Calves Reared</td>
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<tr>
<td>Yearlings Reared</td>
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<td>Replacements On-Farm</td>
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<th>Milk Production</th>
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<td>Milkfat per Cow</td>
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<td>Milk Solids per Cow</td>
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<th>Feed Requirements per Head (tDM/hd)</th>
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<td>Cows</td>
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<td>Calves</td>
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<td>Calves</td>
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<td>Total</td>
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<td>Purchased Grain per Cow (90% DM)</td>
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<table>
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<tr>
<th>Feed Efficiency (kgDM/kgMS*)</th>
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<td>Dry Matter per KgMS*</td>
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<th>Labour Employed</th>
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Figure 5; organic dairy conversion performance assumptions
# Capital Investment

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<th>Land &amp; Improvements</th>
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<th>Per Cow</th>
<th>Per KgMS</th>
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<tr>
<td><strong>Base Farm</strong></td>
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<tr>
<td>Effective Area</td>
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<tr>
<td>Irrigated</td>
<td>175 ha</td>
<td>$15,250/ha</td>
<td>2,668,750</td>
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<tr>
<td>Non irrigated</td>
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<td>$15,250/ha</td>
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<tr>
<td>Non Effective Area</td>
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<tr>
<td>175 ha</td>
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<tr>
<td>Improvements</td>
<td>$1,250,000</td>
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<td>1,250,000</td>
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<tr>
<td>Effective area</td>
<td>175 ha</td>
<td>$22,400 / effective ha</td>
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<tr>
<td>Water Storage/Licence(s)</td>
<td>700 ML</td>
<td>$1,000/ML</td>
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<tr>
<td>Farm Development</td>
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<tr>
<td>Land Clearing &amp; Tree Removal</td>
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<tr>
<td>Pump Stations &amp; Miscellaneous</td>
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<tr>
<td>Dairy</td>
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<td>Milking Machine</td>
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<td>Rotary Platform</td>
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<td>Milk Silo</td>
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<td>Yards</td>
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<td>Grain Silo</td>
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<tr>
<td>Tanker Track</td>
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</tr>
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<tr>
<td>Effluent System</td>
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</tr>
<tr>
<td>Contingencies</td>
<td>0</td>
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</tr>
<tr>
<td>$0 / effective ha</td>
<td>0</td>
<td>$0</td>
<td>$0.00</td>
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Figure 6; organic dairy conversion capital investment
<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Per Cow</th>
<th>Per KgMS</th>
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<tbody>
<tr>
<td><strong>Other Buildings</strong></td>
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<tr>
<td>House(s)</td>
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<tr>
<td>Machinery &amp; Calf Sheds</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$0 / effective ha</td>
<td>$0</td>
<td>$0.00</td>
</tr>
<tr>
<td><strong>Total Land &amp; Improvements</strong></td>
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<td>$11,597</td>
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<td><strong>Livestock</strong></td>
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<tr>
<td>Cows</td>
<td>420 @ $1,350</td>
<td>567,000</td>
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</tr>
<tr>
<td>Yearlings</td>
<td>100 @ $750</td>
<td>75,000</td>
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<tr>
<td>Bulls</td>
<td>9 @ $1,400</td>
<td>12,600</td>
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<tr>
<td><strong>Total Livestock</strong></td>
<td>654,600</td>
<td>$1,637</td>
<td>$4.25</td>
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<td><strong>Plant &amp; Machinery</strong></td>
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</tr>
<tr>
<td>Motorbike (1)</td>
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</tr>
<tr>
<td>Tractor (1)</td>
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</tr>
<tr>
<td>Trailer</td>
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</tr>
<tr>
<td>Hay Feeder</td>
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<tr>
<td>Hay Feeder (RollKing)</td>
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<td>Mule</td>
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<td>Calf Rearing Equipment</td>
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<td>Workshop &amp; Other</td>
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<td><strong>Total Plant &amp; Machinery</strong></td>
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<td><strong>Equity</strong></td>
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<td>$9,697</td>
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## Year-In-Year-Out Budget

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<tr>
<td>Milk Sales</td>
<td></td>
</tr>
<tr>
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<td>Cull Cow Sales</td>
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<td>Calf Sales</td>
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<td>less Purchases</td>
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<td><strong>Shed &amp; Cow Costs</strong></td>
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<td>Animal Health/Vet</td>
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<td>Breeding Costs (AI &amp; HR)</td>
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<td>Shed Costs</td>
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<td>Calf Rearing &amp; Bedding</td>
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<td><strong>Pasture &amp; Forage Costs</strong></td>
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<td>Silage/Hay Making</td>
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<tr>
<td><strong>Purchased Feed &amp; Agistment</strong></td>
<td></td>
</tr>
<tr>
<td>Nitrogen</td>
<td>175 ha</td>
</tr>
<tr>
<td>Grain/Pellet Supplement</td>
<td>339 t</td>
</tr>
<tr>
<td>Agistment - Cows</td>
<td>100 hd @</td>
</tr>
<tr>
<td>Agistment - Heifers (R2’s)</td>
<td>100 hd @</td>
</tr>
<tr>
<td>Agistment - Calves (R1’s)</td>
<td>100 hd @</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 7: organic dairy conversion year in year out budget*
### YIYO Budget (Continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tractor, Plant &amp; Vehicle Operating</strong></td>
<td></td>
</tr>
<tr>
<td>Fuel &amp; Oil (net DF Rebate)</td>
<td>9,000</td>
</tr>
<tr>
<td>Repairs to Plant &amp; Machinery</td>
<td>15,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>24,000</td>
</tr>
<tr>
<td><strong>Repairs to Structures &amp; Improvements</strong></td>
<td></td>
</tr>
<tr>
<td>Farm Fences, Buildings, Lanes etc</td>
<td>30,000</td>
</tr>
<tr>
<td><strong>Insurance</strong></td>
<td></td>
</tr>
<tr>
<td>General Insurance</td>
<td>8,500</td>
</tr>
<tr>
<td>Mobile Plant &amp; Machinery</td>
<td>4,000</td>
</tr>
<tr>
<td>Workers Compensation</td>
<td>9,300</td>
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<tr>
<td><strong>Total</strong></td>
<td>21,800</td>
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<tr>
<td><strong>General Overheads</strong></td>
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</tr>
<tr>
<td>Annual Audit/Levy</td>
<td>5,590</td>
</tr>
<tr>
<td>Consulting</td>
<td>5,000</td>
</tr>
<tr>
<td>Accounting/Legal</td>
<td>5,000</td>
</tr>
<tr>
<td>Rates &amp; Land Tax</td>
<td>5,000</td>
</tr>
<tr>
<td>Registrations</td>
<td>1,500</td>
</tr>
<tr>
<td>Telephone</td>
<td>1,000</td>
</tr>
<tr>
<td>Sundry Overheads</td>
<td>8,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>31,090</td>
</tr>
<tr>
<td><strong>Wages</strong></td>
<td></td>
</tr>
<tr>
<td>Including Superannuation</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td>1.0</td>
</tr>
<tr>
<td>Assistant Manager</td>
<td>-</td>
</tr>
<tr>
<td>Other Wages</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Capital Replacement/Depreciation</strong></td>
<td></td>
</tr>
<tr>
<td>Plant &amp; Machinery</td>
<td>10%</td>
</tr>
<tr>
<td>Irrigation Infrastructure</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td></td>
</tr>
<tr>
<td><strong>EBIT Total</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Return on Total Capital</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Interest on Borrowed Funds</strong></td>
<td>$1,662,500</td>
</tr>
<tr>
<td><strong>Net Profit Total</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Return on Equity</strong></td>
<td></td>
</tr>
</tbody>
</table>
## Milk Price Sensitivity

<table>
<thead>
<tr>
<th>Milk Price</th>
<th>EBIT</th>
<th>Net Profit</th>
<th>Return on Total Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>$7.00</td>
<td>$124,155</td>
<td>$40,955</td>
<td>2.2%</td>
</tr>
<tr>
<td>$7.25</td>
<td>$162,655</td>
<td>$79,455</td>
<td>2.9%</td>
</tr>
<tr>
<td>$7.50</td>
<td>$201,155</td>
<td>$117,955</td>
<td>3.6%</td>
</tr>
<tr>
<td>$7.75</td>
<td>$239,655</td>
<td>$156,455</td>
<td>4.3%</td>
</tr>
<tr>
<td>$8.00</td>
<td>$278,155</td>
<td>$194,955</td>
<td>5.0%</td>
</tr>
<tr>
<td>$8.25</td>
<td>$316,655</td>
<td>$233,455</td>
<td>5.7%</td>
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</table>

Figure 8: Organic dairy conversion milk sensitivity analysis
### 3.7 Organic Dairy – Greenfield development Gross Margins

<table>
<thead>
<tr>
<th>Farm Area -</th>
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</thead>
<tbody>
<tr>
<td>Total Farm Area</td>
<td>175</td>
</tr>
<tr>
<td>Effective Area</td>
<td></td>
</tr>
<tr>
<td>irrigated</td>
<td>175</td>
</tr>
<tr>
<td>Dryland</td>
<td>0</td>
</tr>
<tr>
<td>Total Effective Area</td>
<td>175</td>
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</table>

<table>
<thead>
<tr>
<th>Irrigation Water</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Per hectare (ML/ha)</td>
<td>4.0</td>
</tr>
<tr>
<td>Total (ML)</td>
<td>700</td>
</tr>
<tr>
<td>Currently available (ML)</td>
<td>700</td>
</tr>
<tr>
<td>Extra required (ML)</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pasture Utilisation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Hectare - Irrigated (tDM/ha)</td>
<td>9.0</td>
</tr>
<tr>
<td>Dryland (tDM/ha)</td>
<td>7.5</td>
</tr>
<tr>
<td>Total - Irrigated (tDM)</td>
<td>1,575</td>
</tr>
<tr>
<td>Dryland (tDM)</td>
<td>0</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Stock Numbers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Cows Milked (No.)</td>
<td>400</td>
</tr>
<tr>
<td>Cows to Calve (Per Hectare)</td>
<td>2.3</td>
</tr>
<tr>
<td>Calves Born</td>
<td>90%</td>
</tr>
<tr>
<td>Calves Reared</td>
<td>25%</td>
</tr>
<tr>
<td>Yearlings Reared</td>
<td>25%</td>
</tr>
<tr>
<td>Replacements On-Farm</td>
<td>0%</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Milk Production</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Milkfat per Cow (kg)</td>
<td>220</td>
</tr>
<tr>
<td>Protein</td>
<td>4.3%</td>
</tr>
<tr>
<td>Milk Solids per Cow (kg)</td>
<td>385</td>
</tr>
<tr>
<td>Total MS</td>
<td>154,000</td>
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</table>

<table>
<thead>
<tr>
<th>Feed Requirements per Head</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cows</td>
<td>4.7</td>
</tr>
<tr>
<td>Yearlings (2.2t/hd+6.5 kgDM/kgMS)</td>
<td>2.2</td>
</tr>
<tr>
<td>Calves</td>
<td>0.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Feed Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cows</td>
<td>1,881</td>
</tr>
<tr>
<td>Yearlings</td>
<td>0</td>
</tr>
<tr>
<td>Calves</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1,881</td>
</tr>
<tr>
<td>Feed Surplus/Deficit (Pasture)</td>
<td>-306</td>
</tr>
<tr>
<td>Purchased Dry Matter per Cow</td>
<td>0.77 t</td>
</tr>
<tr>
<td>Purchased Grain per Cow (90% DM)</td>
<td>0.85 t</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Feed Efficiency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Matter per KgMS*</td>
<td>12.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Labour Employed</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Labour Units (FTE)</td>
<td>3.5</td>
</tr>
<tr>
<td>Cows Milked per FTE</td>
<td>114</td>
</tr>
<tr>
<td>Breakdown:</td>
<td></td>
</tr>
<tr>
<td>Manager</td>
<td>1.0</td>
</tr>
<tr>
<td>Assistant Manager</td>
<td>0.0</td>
</tr>
<tr>
<td>Other/Casual</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>3.5</td>
</tr>
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</table>

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Figure 9; organic dairy greenfield development performance assumptions
<table>
<thead>
<tr>
<th>FARM DEVELOPMENT</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land Development</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearing</td>
<td>0 ha @</td>
<td>$370 /ha</td>
<td>$0</td>
</tr>
<tr>
<td>Stone Removal</td>
<td>0 ha @</td>
<td>$400 /ha</td>
<td>$0</td>
</tr>
<tr>
<td>Drainage - spinner</td>
<td>0 ha @</td>
<td>$50 /ha</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Laneways</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main lane - upgrade (50% new)</td>
<td>1.5 km @</td>
<td>$25,000 /km</td>
<td>$37,500</td>
</tr>
<tr>
<td>Upgrades to existing</td>
<td>0.0 km @</td>
<td>$10,000 /km</td>
<td>$0</td>
</tr>
<tr>
<td>Culverts</td>
<td>0.0 @</td>
<td>$1,000</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Underpass</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stock Water</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(63mm)</td>
<td>4.1 km @</td>
<td>$2,850 /km</td>
<td>$11,700</td>
</tr>
<tr>
<td>(50mm)</td>
<td>0.0 km @</td>
<td>$1,200 /km</td>
<td>$0</td>
</tr>
<tr>
<td>Troughs</td>
<td>30.0 Troughs @</td>
<td>$650</td>
<td>$19,500</td>
</tr>
<tr>
<td>Bore</td>
<td>0.0 Bore</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Pump</td>
<td>0.0 Pump</td>
<td>$4,500</td>
<td>$0</td>
</tr>
<tr>
<td>Tank</td>
<td>0.0 Tank</td>
<td>$2,500</td>
<td>$0</td>
</tr>
<tr>
<td>Trench</td>
<td>4.1 km Trench</td>
<td>$1,000</td>
<td>$4,100</td>
</tr>
<tr>
<td><strong>Fencing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 wire electric</td>
<td>20.5 km @</td>
<td>$4,000 /km</td>
<td>$82,000</td>
</tr>
<tr>
<td>1 wire electric</td>
<td>0.0 km @</td>
<td>$800 /km</td>
<td>$0</td>
</tr>
<tr>
<td>Boundary</td>
<td>0.0 km @</td>
<td>$4,000 /km</td>
<td>$0</td>
</tr>
<tr>
<td>Wallaby</td>
<td>0.0 km @</td>
<td>$7,500 /km</td>
<td>$0</td>
</tr>
<tr>
<td>Electric Fence Units</td>
<td>0 @</td>
<td>$1,500</td>
<td>$0</td>
</tr>
<tr>
<td>Pivot gates</td>
<td>0 @</td>
<td>$100</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Capital Fertilser</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potash</td>
<td>0 ha @</td>
<td>0.25 t/ha</td>
<td>$660 /t</td>
</tr>
<tr>
<td>0-7-10</td>
<td>0 ha @</td>
<td>0.40 t/ha</td>
<td>$430 /t</td>
</tr>
<tr>
<td>Lime</td>
<td>0 ha @</td>
<td>5.0 t/ha</td>
<td>$34 /t</td>
</tr>
<tr>
<td>Spreading</td>
<td>0 tonnes</td>
<td>$15 /t</td>
<td>$0.00</td>
</tr>
<tr>
<td><strong>Pasture Establishment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roundup</td>
<td>0 ha @</td>
<td>2.0 L/ha</td>
<td>$8.30 /L</td>
</tr>
<tr>
<td>Spraying</td>
<td>0 ha @</td>
<td>$35 /ha</td>
<td>$0</td>
</tr>
<tr>
<td>Cultivation - heavy</td>
<td>0 ha @</td>
<td>1 passes</td>
<td>$85 /ha</td>
</tr>
<tr>
<td>Cultivation - light</td>
<td>0 ha @</td>
<td>1 passes</td>
<td>$85 /ha</td>
</tr>
<tr>
<td>Seed</td>
<td>0 ha @</td>
<td>$150 /ha</td>
<td>$0</td>
</tr>
<tr>
<td>Drilling</td>
<td>0 ha @</td>
<td>$150 /ha</td>
<td>$0</td>
</tr>
<tr>
<td>Rolling</td>
<td>0 ha @</td>
<td>$0 /ha</td>
<td>$0</td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
<td>$0</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>$154,800</td>
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</tbody>
</table>

Figure 10; organic dairy greenfield development capital development
### WATER PURCHASE

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Purchase</td>
<td>700 ML</td>
<td>$1,250/ML</td>
<td>$875,000</td>
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</table>

### WATER STORAGE

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra Water Storage</td>
<td>0 ML</td>
<td>$1,000/ML</td>
<td>$0</td>
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</tbody>
</table>

### IRRIGATION DEVELOPMENT

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre Pivot 1</td>
<td>175.0 ha</td>
<td>$5,600</td>
<td>$980,000</td>
</tr>
<tr>
<td>Centre Pivot 2</td>
<td>0.0 ha</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Centre Pivot 3</td>
<td>0.0 ha</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Centre Pivot 4</td>
<td>0.0 ha</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Centre Pivot 5</td>
<td>0.0 ha</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Pivot Pads</td>
<td>0 @</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Rock Fill for Wheel Tracks</td>
<td>0 Km</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Pivot Connecting Pipework</td>
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<td>$0</td>
</tr>
<tr>
<td>PVC Mainline Pipe</td>
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<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>PVC Main Line Fittings</td>
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</tr>
<tr>
<td>Air Valves</td>
<td></td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Installation - Below Ground</td>
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<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Overhead Power</td>
<td>0.0 Km</td>
<td>$0</td>
<td>$0 see dairy</td>
</tr>
<tr>
<td>Power to Pivots</td>
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<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Pump Station</td>
<td></td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Pump Station - boost</td>
<td></td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td></td>
<td>$0</td>
<td>$0</td>
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Total: $5,600/ha overall $980,000

### DAIRY

<table>
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<tr>
<th>Description</th>
<th>Quantity</th>
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<th>Total</th>
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<tr>
<td>Shed</td>
<td></td>
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</tr>
<tr>
<td>Power Supply</td>
<td>0.6 Km</td>
<td>$25,000/km</td>
<td>$15,000</td>
</tr>
<tr>
<td>Transformer</td>
<td></td>
<td>$40,000</td>
<td>$40,000</td>
</tr>
<tr>
<td>Milking Machine</td>
<td></td>
<td></td>
<td>$100,000</td>
</tr>
<tr>
<td>Steel work in shed for bails</td>
<td></td>
<td></td>
<td>$27,500</td>
</tr>
<tr>
<td>Milk Silo</td>
<td></td>
<td></td>
<td>$100,000</td>
</tr>
<tr>
<td>Yards/concrete work</td>
<td></td>
<td></td>
<td>$150,000</td>
</tr>
<tr>
<td>Grain Feeding System</td>
<td></td>
<td></td>
<td>$52,000</td>
</tr>
<tr>
<td>Grain Silo</td>
<td>2 @</td>
<td>$15,000</td>
<td>$0</td>
</tr>
<tr>
<td>Tanker Track</td>
<td>0.7 Km</td>
<td>$25,000/km</td>
<td>$16,250</td>
</tr>
<tr>
<td>Plumbing</td>
<td></td>
<td></td>
<td>$70,000</td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
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<tr>
<td>Effluent System</td>
<td></td>
<td></td>
<td>$100,000</td>
</tr>
<tr>
<td>Contingencies</td>
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Total: $850,750

### OTHER BUILDINGS

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<thead>
<tr>
<th>Description</th>
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<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managers House</td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td>Machinery &amp; Calf Sheds Upgrade</td>
<td></td>
<td>$0</td>
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Total: $0
## Capital Investment

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Per Cow</th>
<th>Per KgMS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land &amp; Improvements</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Base Farm</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective Area</td>
<td>175 ha</td>
<td>$19,750/ha</td>
<td>3,456,250</td>
</tr>
<tr>
<td>Irrigated</td>
<td>175 ha</td>
<td>$19,750/ha</td>
<td>3,456,250</td>
</tr>
<tr>
<td>Non irrigated</td>
<td>0 ha</td>
<td>$15,250/ha</td>
<td>0</td>
</tr>
<tr>
<td><strong>Bush</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrigated</td>
<td>0 ha</td>
<td>$0/ha</td>
<td>0</td>
</tr>
<tr>
<td>Non irrigated</td>
<td>0 ha</td>
<td>$0/ha</td>
<td>0</td>
</tr>
<tr>
<td>Improvements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrigated</td>
<td>175 ha</td>
<td>$19,750/ha</td>
<td>3,456,250</td>
</tr>
<tr>
<td><strong>Water Storage/Licence(s)</strong></td>
<td>680 ML</td>
<td>$0/ML</td>
<td>0</td>
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<tr>
<td><strong>Farm Development</strong></td>
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</tr>
<tr>
<td>Land Clearing &amp; Tree Removal</td>
<td>0</td>
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</tr>
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<td>Laneways</td>
<td>37,500</td>
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<tr>
<td>Underpass</td>
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<tr>
<td>Stock Water</td>
<td>35,300</td>
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<td>Fencing</td>
<td>82,000</td>
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<tr>
<td>Capital Fertiliser</td>
<td>0</td>
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</tr>
<tr>
<td>Pasture Establishment</td>
<td>0</td>
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</tr>
<tr>
<td><strong>Water Purchase</strong></td>
<td>700 ML</td>
<td>$2,188</td>
<td>$5.68</td>
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<tr>
<td><strong>Water Storage</strong></td>
<td>extra storage 0 ML</td>
<td>$0</td>
<td>$0.00</td>
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<tr>
<td><strong>Irrigation Development</strong></td>
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</tr>
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<td>Centre Pivots</td>
<td>980,000</td>
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<td>Pipes &amp; Installation</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump Stations &amp; Miscellaneous</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dairy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shed</td>
<td>110,000</td>
<td></td>
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</tr>
<tr>
<td>Power Supply</td>
<td>15,000</td>
<td></td>
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</tr>
<tr>
<td>Transformer</td>
<td>40,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milking Machine</td>
<td>100,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steel work in shed for bails</td>
<td>27,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk Silo</td>
<td>100,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yards</td>
<td>150,000</td>
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</tr>
<tr>
<td>Grain Feeding System</td>
<td>52,000</td>
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<tr>
<td>Grain Silo</td>
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</tr>
<tr>
<td>Tanker Track</td>
<td>16,250</td>
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<tr>
<td>Plumbing</td>
<td>70,000</td>
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</tr>
<tr>
<td>Electrical</td>
<td>70,000</td>
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</tr>
<tr>
<td>Effluent System</td>
<td>100,000</td>
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</tr>
<tr>
<td>Contingencies</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>400 cows 154,000 kgMS</td>
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</tbody>
</table>

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Figure 11; organic dairy greenfield development capital investment
### Organic Feed Grade Grain and Dairy Gross Margins Report AgriGrowth Tasmania (DPIPWE)

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Per Cow</th>
<th>Per KgMS</th>
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</thead>
<tbody>
<tr>
<td><strong>Other Buildings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>House(s)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machinery &amp; Calf Sheds</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Land &amp; Improvements</td>
<td>$36,100</td>
<td>$6,316,800</td>
<td>$15,792</td>
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<tr>
<td><strong>Livestock</strong></td>
<td></td>
<td></td>
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<tr>
<td>Cows</td>
<td>420 @ $1,350</td>
<td>567,000</td>
<td>$1,637</td>
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<tr>
<td>Yearlings</td>
<td>100 @ $750</td>
<td>75,000</td>
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</tr>
<tr>
<td>Bulls</td>
<td>9 @ $1,400</td>
<td>12,600</td>
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</tr>
<tr>
<td>Total Livestock</td>
<td>654,600</td>
<td>$1,637</td>
<td>$4.25</td>
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<tr>
<td><strong>Plant &amp; Machinery</strong></td>
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</tr>
<tr>
<td>Motorbike (1)</td>
<td>10,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tractor (1)</td>
<td>90,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trailer</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hay Feeder</td>
<td>15,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hay Feeder (RollKing)</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mule</td>
<td>15,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calf Trailer</td>
<td>2,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk Trailer</td>
<td>3,500</td>
<td></td>
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</tr>
<tr>
<td>Calf Rearing Equipment</td>
<td>3,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fence Reels &amp; Posts</td>
<td>2,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plate Meter</td>
<td>1,000</td>
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<td></td>
</tr>
<tr>
<td>Workshop &amp; Other</td>
<td>5,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Plant &amp; Machinery</td>
<td>148,000</td>
<td>$370</td>
<td>$0.96</td>
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<tr>
<td><strong>Working Capital</strong></td>
<td>100,000</td>
<td>$250</td>
<td>$0.65</td>
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<tr>
<td><strong>Total Capital Investment</strong></td>
<td>7,219,400</td>
<td>$18,049</td>
<td>$46.88</td>
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<tr>
<td>Debt</td>
<td>2,165,900</td>
<td>$5,415</td>
<td>$14.06</td>
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<tr>
<td>Equity</td>
<td>5,053,500</td>
<td>$12,634</td>
<td>$32.81</td>
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### Year-In-Year-Out Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>$</th>
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<tbody>
<tr>
<td><strong>Milk Sales</strong></td>
<td></td>
</tr>
<tr>
<td>Milk Sales</td>
<td></td>
</tr>
<tr>
<td>Milk Sales</td>
<td>154,000 kg MS</td>
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<tr>
<td><strong>Stock Trading</strong></td>
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<tr>
<td>Cull Cow Sales</td>
<td>21% 88</td>
</tr>
<tr>
<td>Calf Sales</td>
<td>280</td>
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<tr>
<td>Bull Sales</td>
<td>25% 2</td>
</tr>
<tr>
<td>less Purchases</td>
<td></td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Shed &amp; Cow Costs</strong></td>
<td></td>
</tr>
<tr>
<td>Animal Health/Vet</td>
<td>$45.00/cow</td>
</tr>
<tr>
<td>Breeding Costs (AI &amp; HR)</td>
<td>$37.50/cow</td>
</tr>
<tr>
<td>Shed Costs</td>
<td>$102.50/cow</td>
</tr>
<tr>
<td>Dairy Electricity</td>
<td>$42.50/cow</td>
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<tr>
<td>Freight &amp; Cartage</td>
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</tr>
<tr>
<td>Cull Rearing &amp; Bedding</td>
<td>100</td>
</tr>
<tr>
<td>less Purchases</td>
<td></td>
</tr>
<tr>
<td><strong>Pasture &amp; Forage Costs</strong></td>
<td></td>
</tr>
<tr>
<td>Fertiliser - Irrigation</td>
<td>175 ha</td>
</tr>
<tr>
<td>Fertiliser - Other</td>
<td>- ha</td>
</tr>
<tr>
<td>Fertiliser Cartage &amp; Spreading</td>
<td>63 t</td>
</tr>
<tr>
<td>Lime</td>
<td>$40/ha</td>
</tr>
<tr>
<td>Weed &amp; Pest Control</td>
<td>$10.00/ha</td>
</tr>
<tr>
<td>Pasture Renewal - Seeds</td>
<td>17.0 ha</td>
</tr>
<tr>
<td>Pasture Renewal - Contract Work</td>
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</tr>
<tr>
<td>Water Purchase - Hydro</td>
<td>- ML</td>
</tr>
<tr>
<td>Irrigation Operating Costs</td>
<td>700 ML</td>
</tr>
<tr>
<td>Irrigation Electricity</td>
<td>700</td>
</tr>
<tr>
<td>Silage/Hay Making</td>
<td></td>
</tr>
<tr>
<td>Silage/Hay Making</td>
<td></td>
</tr>
<tr>
<td><strong>Purchased Feed &amp; Agistment</strong></td>
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</tr>
<tr>
<td>Nitrogen/Urea</td>
<td>175 ha</td>
</tr>
<tr>
<td>Grain/Pellet Supplement</td>
<td>339 t</td>
</tr>
<tr>
<td>Agistment - Cows</td>
<td>100 hd @</td>
</tr>
<tr>
<td>Agistment - Heifers (R2's)</td>
<td>100 hd @</td>
</tr>
<tr>
<td>Agistment - Calves (R1's)</td>
<td>100 hd @</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</table>

*Figure 12: organic dairy greenfield development year in year out budget*
### YIYO Budget (Continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tractor, Plant &amp; Vehicle Operating</strong></td>
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<tr>
<td>Fuel &amp; Oil (net DF Rebate)</td>
<td>9,000</td>
</tr>
<tr>
<td>Repairs to Plant &amp; Machinery</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td>24,000</td>
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<tr>
<td><strong>Repairs to Structures &amp; Improvements</strong></td>
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<tr>
<td>Farm Fences, Buildings, Lanes etc</td>
<td>30,000</td>
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<tr>
<td><strong>Insurance</strong></td>
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</tr>
<tr>
<td>General Insurance</td>
<td>8,500</td>
</tr>
<tr>
<td>Mobile Plant &amp; Machinery</td>
<td>4,000</td>
</tr>
<tr>
<td>Workers Compensation 4.50%</td>
<td>9,300</td>
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<tr>
<td></td>
<td>21,800</td>
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<tr>
<td><strong>General Overheads</strong></td>
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<tr>
<td>Annual Audit/Levy</td>
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</tr>
<tr>
<td>Consulting</td>
<td>5,000</td>
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<tr>
<td>Accounting/Legal</td>
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<tr>
<td>Rates &amp; Land Tax</td>
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</tr>
<tr>
<td>Registrations</td>
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<tr>
<td>Telephone</td>
<td>1,000</td>
</tr>
<tr>
<td>Sundry Overheads</td>
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<tr>
<td></td>
<td>25,500</td>
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<tr>
<td><strong>Wages</strong></td>
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</tr>
<tr>
<td>Including Superannuation</td>
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<tr>
<td>Manager 1.0 $78,840 /FTE</td>
<td>78,840</td>
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<tr>
<td>Assistant Manager - $0 /FTE</td>
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<tr>
<td>Other Wages 2.5 $51,000 /FTE</td>
<td>127,500</td>
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<td></td>
<td>206,340</td>
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<tr>
<td><strong>Capital Replacement/Depreciation</strong></td>
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</tr>
<tr>
<td>Plant &amp; Machinery 10%</td>
<td>14,800</td>
</tr>
<tr>
<td>Irrigation Infrastructure 5%</td>
<td>49,000</td>
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<td></td>
<td>63,800</td>
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<tr>
<td><strong>Total Expenses</strong></td>
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<tr>
<td><strong>EBIT</strong></td>
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<tr>
<td>Total</td>
<td>188,370</td>
</tr>
<tr>
<td>Return on Total Capital 2.6%</td>
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<tr>
<td><strong>Interest on Borrowed Funds</strong></td>
<td>$2,165,900 5.0%</td>
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<tr>
<td><strong>Net Profit</strong></td>
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<tr>
<td>Total</td>
<td>80,070</td>
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<tr>
<td>Return on Equity 1.6%</td>
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</table>
## Milk Price Sensitivity

<table>
<thead>
<tr>
<th>Milk Price</th>
<th>$7.00</th>
<th>$7.25</th>
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<th>$7.75</th>
<th>$8.00</th>
<th>$8.25</th>
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<tbody>
<tr>
<td>EBIT</td>
<td>$111,370</td>
<td>$149,870</td>
<td>$188,370</td>
<td>$226,870</td>
<td>$265,370</td>
<td>$303,870</td>
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<tr>
<td>Net Profit</td>
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<td>$41,570</td>
<td>$80,070</td>
<td>$118,570</td>
<td>$157,070</td>
<td>$195,570</td>
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<tr>
<td>Return on Total Capital</td>
<td>1.5%</td>
<td>2.1%</td>
<td>2.6%</td>
<td>3.1%</td>
<td>3.7%</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

Figure 13; organic dairy greenfield development sensitivity analysis