



# Investing in poultry farming in the Wimmera Southern Mallee

**DRAFT**

# Background

Over the past 10 years, the Wimmera Mallee Pipeline (WMP) project has been conceived, designed and then progressively constructed and commissioned.

To build upon the improved water security, the Department of Primary Industries (DPI) Victoria has identified options, developed tools and prepared documentation to enhance awareness of sustainable regional development opportunities for agribusiness.



This document focuses on the two main segments of the intensive poultry industry in the region: meat chicken (broilers) and table eggs. It identifies the characteristics and structure of the industry and investment requirements for establishing new grower operations.

## Step 1



Prepare a detailed analysis of a defined investment strategy.

## Step 2



Identify potential investors and provide copies of the analysis.

## Step 3



Support enquiries and provide direction to specific advisory services.

## Step 4



Assist value chain development and joint venture strategies. Establish the industry.

# Wimmera Mallee Pipeline Area

The WMP is located in north western Victoria, half way between the Southern Ocean and the Murray River.

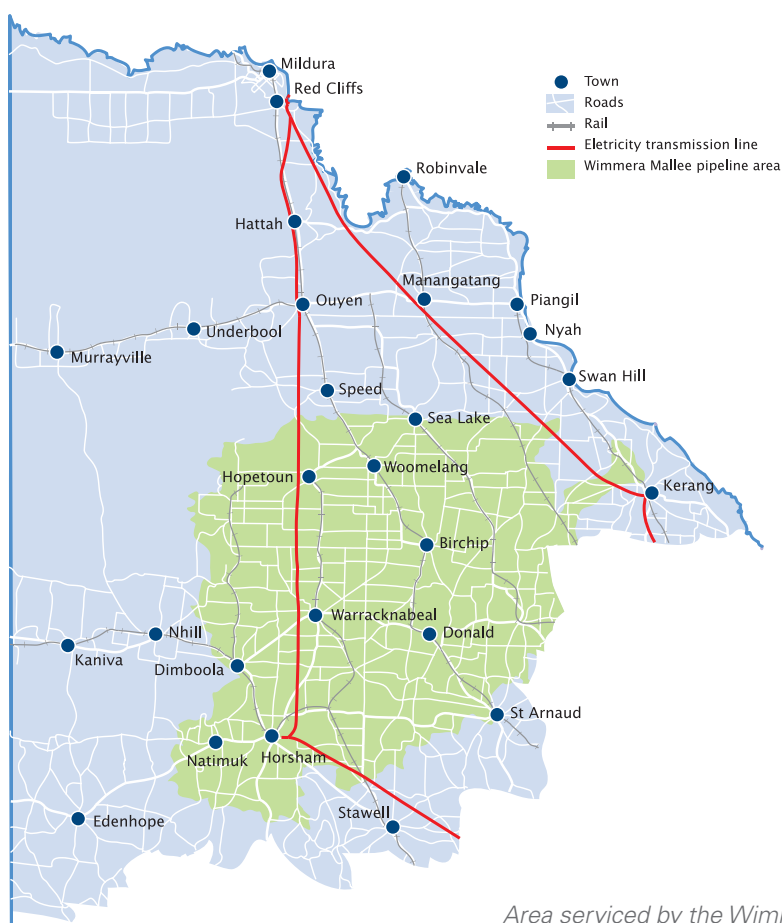
The region's climate is characterised by normally hot and dry summers with occasional storm events. Winter is relatively cool, with the most effective rainfall occurring between June and November. Average rainfall is 450 millimetres and average evaporation (Epan) is 1,600 millimetres.

Under forecast climate change, rainfall will decrease and evaporation and mean temperature will increase. The implications of these changes on intensive poultry production are that businesses and investors in the industry will be increasingly required to:

- Maximise the efficiency of water usage (in feed production, bird consumption and cooling systems)
- Design environmentally controlled production sheds which efficiently use mechanical, natural, and renewable energy sources for air-conditioning and ventilation.
- Modify designs for new production systems (such as the use of semi climate controlled annexes for free range and organic poultry).

In the WMP region, farming practices are dominated by broad-acre, dry-land cropping systems based on wheat rotated with other cereals, oilseeds (such as canola) and grain legumes (such as faba beans, lentils and chick peas). Farm sizes vary, with the majority in the range 600 to 800 hectares, and some larger than 5,000 hectares. The poultry industry in the region currently has fewer than 40 farm, or grower, operations in the WMP region, and many of these are enterprises on a broad-acre property, operating in complement to cropping activities. To the east of the WMP region, there is a greater level of poultry production, with dedicated individual and corporate farms.

The major service centre within the WMP region is Horsham (population 20,232 persons). Major regional centres within 3 hours by road transport<sup>1</sup> include Bendigo (population 91,713 persons), Mildura (population 50,522 persons), Ballarat (population 96,097 persons), and Geelong (population 178,650 persons), as well as the State capital of Melbourne (population 4,077,036 persons).



*Area serviced by the Wimmera Mallee pipeline*

<sup>1</sup> 2010 Statistical Division Populations, Australian Bureau of Statistics

# Poultry Industry Overview

Poultry production is becoming increasingly regionalised, following its original development near major capital cities. Poultry farming and market gardens were traditionally intensive agricultural industries that located on the urban-rural fringe of major cities, providing an effective use of higher value land and close proximity to markets. However, in recent decades this focus has shifted to more distant rural areas which offer:

- Greater security for the substantial investment that is required in modern poultry production (without pressure from urban development/urban encroachment).
- Bio-security.
- Proximity to stock feed (predominantly grain) which is the major operating cost in poultry production.

The Wimmera-Mallee region offers the potential to accommodate both new and expanding poultry businesses with the business investment protected by statutory planning and bio-security controls. Poultry is not an industry which can be readily developed in precincts of similar producers. Indeed, although poultry production is intensive, it is most sustainable in a broadacre environment. Access to feed supplies, water and power complete the industry's major needs.

The Wimmera-Mallee region's proximity to grain for stock feed production is suited to poultry operations, provided the processor is within a distance of no more than 100 kilometres by road transport.

Poultry production around the Wimmera Mallee region includes:

- Meat chickens (broilers) produced in controlled sheds and a small, but increasing, number in free range environments
- Layer chickens (producing table eggs) in caged or barn sheds, and free range production systems
- Turkeys
- Ducks
- Specialty birds for defined markets (such as roosters, silkies and boilers/spent hens)
- A range of game birds (squab, guinea fowl, pheasant and quail)

## Meat Chickens

Australia's meat poultry industry is more vertically integrated (through ownership of several links in the supply chain or supply contracts, or both) than other agribusiness sectors (in which growers and processors tend to operate with a level of independence).

The poultry industry has a low level of imports and exports. Very few live birds or live bird products are imported or exported, primarily due to strict quarantine requirements. Imports and exports of processed poultry are also very small (with the exception of niche products such as chickens feet). Total export value is currently estimated to be around \$10 million per annum.

The majority of businesses in the industry are individual poultry farmers, producing under contract to major processors. Poultry processors supply chicks, feed and veterinary requirements.

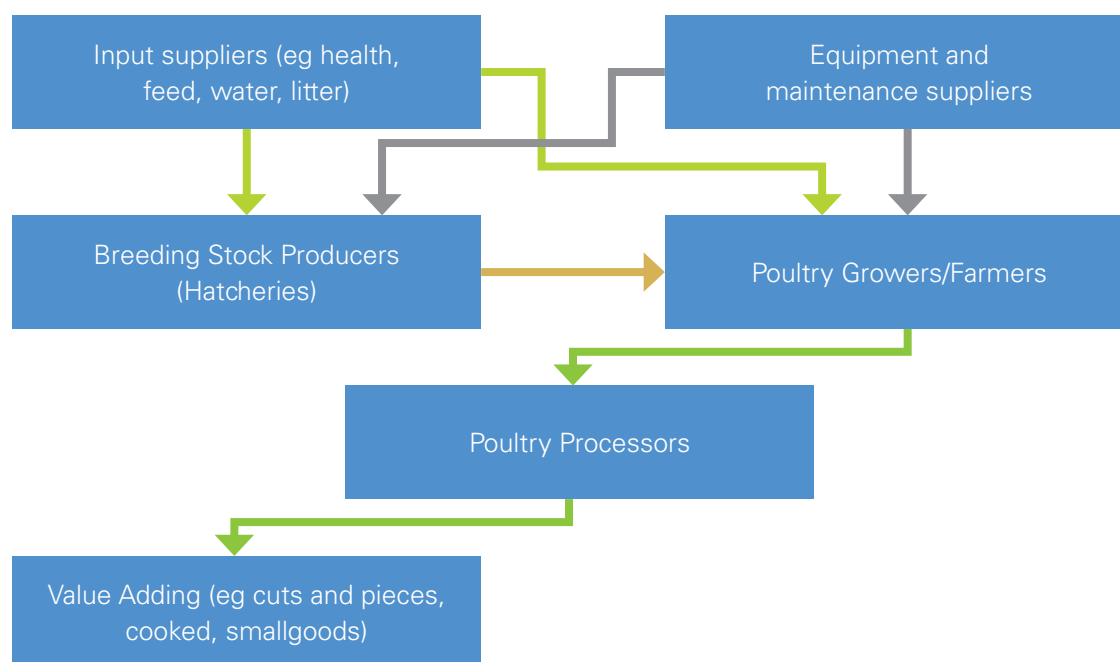
Meat chicken growers/farmers typically provide labour, sheds, power, water, and management skills during grow-out of birds from day-old chicks to processing weight. Consolidation

by both poultry processors and poultry farmers is driving change within the industry. In the northern Victorian region the average broiler shed accommodates 30,000 birds, and new developments typically involve accommodating 100,000 birds in each shed. Most farms have 3 to 10 sheds. Grow-out farms sheds are highly mechanised with computer controlled temperature, humidity and air quality systems. Water and feed supply is also mechanised.

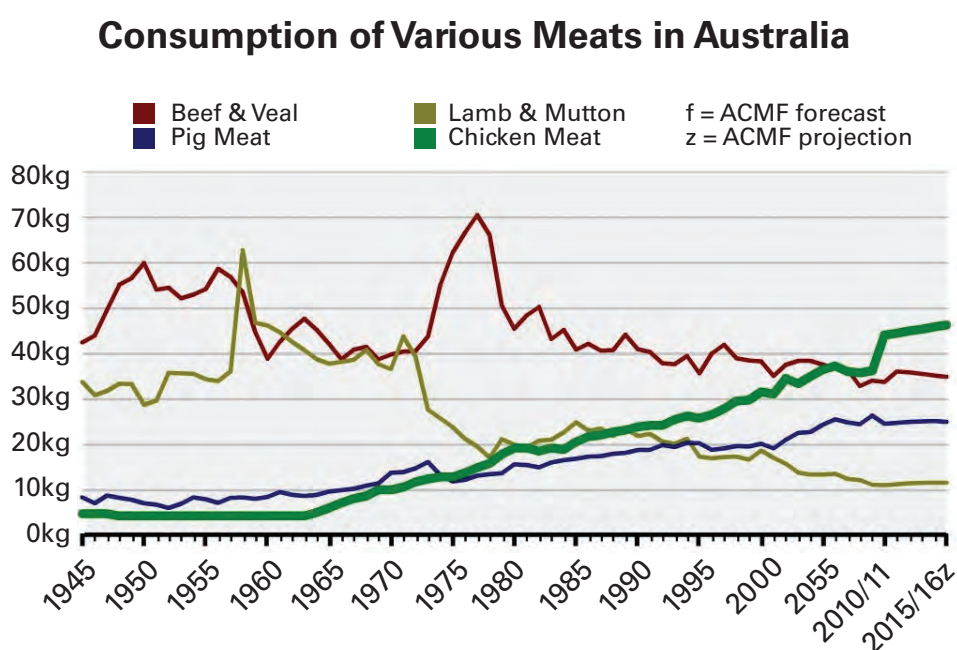
Growth in chicken consumption has outstripped other meat in Australia over the past 60 years, and the industry has responded with steady growth in output. Domestic chicken consumption has exceeded 40 kilograms per capita in 2011 and is greater than all other forms of white and red meat. Over the past five years (to 2011-12), the real price received by poultry growers per bird (the growing fee) is estimated to have risen by an average of 2.3% a year. With costs generally growing faster than fee increases, many smaller poultry farmers have experienced small and declining profits. Some have left the industry. Overall real industry revenue is expected to increase by an average of just 1.8% a year in the five years to 2010-11 to reach \$866.1 million<sup>2</sup>.



**Figure 1** The Meat Poultry Industry Supply Chain



**Figure 2** Australian Meat Consumption Trends



Source: Australian Chicken Meat Federation 2011

<sup>2</sup> IBIS World Meat Poultry Farming Industry Report 2011

# Table Eggs

Similar to meat poultry, the table egg farming sector operates intensive shed systems with temperature, humidity and air quality controls, a guaranteed water supply and strict nutrition formulations (although a mash formulation is used for layers, whereas pelletised feed is used for broilers). Additional capital expenditure for shed automation is required in the table egg industry; automated conveyors for egg collection and, often, for manure disposal. These are installed in caged and barn operations and, in the most modern facilities even in free range environments, since birds are housed at night and adverse weather conditions in sheds and lay in nests.

The image of table eggs has improved considerably in recent years, leading to increased demand for eggs. The rising per capita consumption is linked to a new health message regarding eggs. There has also been increased demand for free range eggs as consumers include animal welfare issues in their food choices. The Australian Egg Corporation reports that per capita egg consumption now exceeds 200 per annum.

There are five types of layer production system currently used in Australia:

## Caged Layers

In traditional cage (or battery) environments, chickens are kept undercover in small cages. This system of production is the lowest cost method of egg production, although recent changes to legislation have required larger cages to be used, which has imposed additional costs to some growers and has forced some sheds and producers to leave the industry. Demand for cage eggs is declining as a share of industry revenue (caged layers currently account for about 60% of table eggs by volume and 45% by value).

## Free Range

Free range environments allow birds to roam freely over an outdoor environment during daylight hours. Free range farms are typically smaller than cage farms and they are more labour intensive. However, free range systems can potentially produce price premiums as a result of consumer preferences over animal welfare and perceived quality and health benefits. This segment has been experiencing strong growth and accounts for about 20% of table egg sales by volume and 33% by value.

## Barn Laid

In barn laid systems hens are free to roam, but they are confined to an area under cover. Demand for barn laid eggs and their price premium has been moderating as consumers are unsure about the welfare differences between barn and caged hens. Barn laid eggs account for about 10% of table eggs by volume and 9% by value.

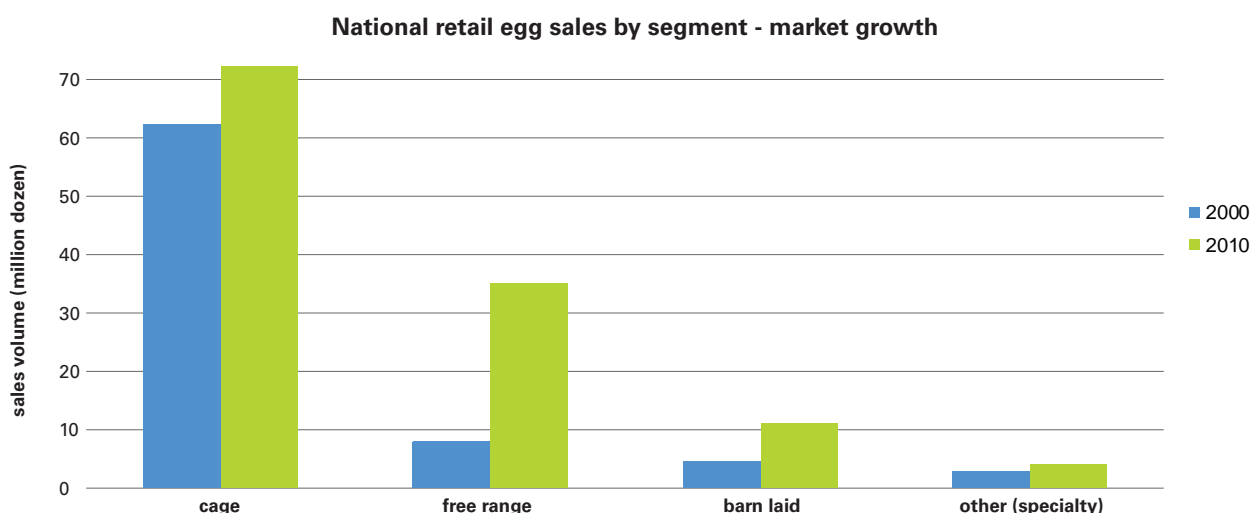
## Organic eggs

Organic egg production systems require organic feed (no chemicals, growth stimulants or antibiotics), with hens usually raised in free range environments which must also be organically certified (having no chemical use or residues). Other types of eggs included in this segment include omega 3 and vegetarian eggs. Supermarket sales of organic and specialty eggs have recorded significant growth.

## Specialty eggs

Most eggs in Australia are produced from chickens. Eggs from other avian species such as ducks and quail represent a very minor part of the market and are regarded as a delicacy or a special ingredient for baking.

**Figure 3** Retail Egg Sales by Production System 2000 and 2010



Source: AZTEC

# Strategic assumptions

Most segments of the world poultry industry have become increasingly effective in breeding for genetic improvement. Meat poultry birds have rapid growth rates, low mortality rates, consistent conformation and they yield consistent, lean white meat. Source of supply of the best genetics is limited to a few major companies.

Large processing companies employ nutritionists and either have their own feed mills or a close relationship with a toll processor of feed to suit their corporate formulations.

Financial investment analysis estimates have been prepared from industry knowledge and the following major assumptions:

- Average grow-out time from day old birds to processing weight (about 2.1-2.2 kilograms live weight) is 38 days.
- Values and relationships are based on the industry situation in January 2012. They do not take into account major changes in industry structure or regulation, or adverse impacts from any major future climatic events.

- The model for broiler farming is based on contract supply of 5.2 batches of chickens per year.
- Table egg farming is based on production of eggs for a period of 15 months per batch.
- Businesses require advanced management skills (top 25%) to achieve the performance levels required for commercial sustainability.
- Site, situation and people specific development strategies will need to be addressed for each investor.
- Required water delivery rates and volumes through the WMP are reliable under climate change.
- All pricing to be at estimated long term trend values to minimise influence of seasonal and atypical variations.

Capital investment estimates include machinery and equipment requirements for the scale of venture identified.



# Business Structural Assumptions

The options for investing in poultry production in the Wimmera Mallee are: Farming/growing operation or integrated farming/growing and processing operation.

## Farming/Growing Operations: Meat Poultry

- There are 8 to 10 existing processing businesses in the Northern Poultry Region and the Wimmera Mallee region, across all industry segments. One or more of these may be prepared to offer contracts for poultry production.
- The property is managed by an employed or contracted manager and a retained, regular, trained workforce
- Genetically improved day old birds, feed, health vaccinations, and litter material are supplied by the processor.

## Farming/Growing Operations: Table Eggs

- There are a few table egg packing businesses in Northern Poultry Region and the Wimmera Mallee region. One of these may be prepared to contract pack for a new entrant to the industry
- The property is managed by an employed or contracted manager and a retained, regular, trained workforce
- Genetically improved point of lay pullets are secured from an independent elite poultry supplier
- Markets are developed by the farming/growing business.

## Integrated Farming/Growing and Processing Operation

- The business is managed by a professional team including both a processing manager and a farm manager with a retained, regular, trained workforce
- Genetically improved day old birds, feed, health vaccinations, and litter material are supplied by the processor
- Genetically improved day old birds are secured from an independent elite poultry supplier
- Receive all animals from grow-out operation.
- Process to agreed standards and food safety regulations.
- Package to specification.
- Markets to be developed by the business.

## Budgeted scenarios

It is possible to model many scenarios with varying throughput, the results presented here are based on four business structure options:

- Meat chicken (broiler) farming/growing operation
- Table egg farming/growing operation (caged layers)
- Table egg farming/growing operation (free range)
- Integrated meat chicken (broiler) farming/growing and processing operation



# Broiler Chickens Production investment analysis

**Table 1:** Financial Parameters for Broiler Chickens (shedded) Investment

Sheds capacity	Capital (\$m)	Annual Revenue (\$m)	Annual Operating Expenditure (\$m)	EBIT (\$m p.a)	EBIT Yield (%)	IRR (%)	Output of Broilers (million p.a.)
500,000 birds	8.01	1.60	1.36	0.23	1.9	4.5	2.52
1,000,000 birds	14.63	3.20	2.64	0.56	4.6	5.2	5.04

**Definitions:**

**EBIT** - Earnings before Interest and Tax (= debt free profit).

**IRR** - Internal rate of return: Assumed 10 years between business establishment and sale (sale values indicate the efficiency of operations which accrue to

well managed operations \$10.0 million and \$18 million respectively).

The modelled outcomes are consistent with well performing existing businesses in the industry.

## Table Egg Production investment analysis

**Table 2:** Financial Parameters for Caged Layer Investment

Sheds capacity	Capital (\$m)	Annual Revenue (\$m)	Annual Operating Expenditure (\$m)	EBIT (\$m p.a)	EBIT Yield (%)	IRR (%)	Output of Eggs (million dozen p.a)
200,000 birds	11.6	9.36	8.93	0.43	3.71	4.6	4.78
500,000 birds	24.0	23.40	19.75	1.83	7.63	7.7	11.96

**Table 3:** Financial Parameters for Free Range Layer Investment

Sheds capacity	Capital <sup>1</sup> (\$m)	Annual Revenue (\$m)	Annual Operating Expenditure (\$m)	EBIT (\$m p.a)	EBIT Yield (%)	IRR <sup>2</sup> (%)	Output of Eggs (million dozen p.a)
30,000 birds	1.85	1.20	0.92	0.27	14.59	8.7	0.70
40,000 birds	2.19	1.47	1.13	0.34	15.53	5.2	0.93

NOTES: 1. This investment assumes a co-enterprise with broad-acre cropping, with no land acquisition capital costs.

2. No sale at end of 10 year period (since not on separately titled land).

# Processing Operations Analysis

**Table 4:** Financial Parameters for Broiler Chickens Integrated Grower/Processing Investment

Sheds capacity	Capital (\$m)	Annual Revenue (\$m)	Annual Operating Expenditure (\$m)	EBIT (\$m p.a)	EBIT Yield (%)	IRR (%)	Output of Processed Broilers (million p.a.)
500,000 birds	22.41	12.52	12.09	0.43	1.9	2.7	2.52
1,000,000 birds	37.89	26.41	25.31	1.10	2.9	3.1	5.04

The analysis suggests that it would be preferable to contract grow rather than develop an integrated operation with a processing plant unless there are definite new markets available or some other reason for establishing an entirely new supply chain (such as cultural requirements, export markets or specific value adding processes).



## Export Operations Analysis

Tables 5 and 6 present estimates of the costs to produce and export fresh and cooked broiler meat to selected export destinations, based on a 500,000 poultry production operation with contract arrangements for processing and cooking. The estimates are premised on costs and exchange rates applicable in early 2012.



**Table 5:** Estimated Costs per Kilogram of Wimmera Produced Poultry Meat for Export<sup>1</sup>: Shipped in 20 ft FCL Refrigerated Sea Containers

	Dubai	Tokyo/ Osaka	Los Angeles	Shanghai	Hong Kong
<b>Fresh Poultry Meat</b>					
Sea Freight	\$3,429	\$2,232	\$3,428	\$2,155	\$2,253
Local Charges	\$125	\$125	\$125	\$125	\$125
Road Freight	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400
Fresh Product	\$38,241	\$38,241	\$38,241	\$38,241	\$38,241
Export Cost 20ft container	\$43,195	\$41,998	\$43,194	\$41,921	\$42,019
<b>Export Cost per kg</b>	<b>\$2.52</b>	<b>\$2.45</b>	<b>\$2.52</b>	<b>\$2.45</b>	<b>\$2.45</b>
<b>Cooked Poultry Meat</b>					
Sea Freight	\$3,429	\$2,232	\$3,428	\$2,155	\$2,253
Local Charges	\$125	\$125	\$125	\$125	\$125
Road Freight	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400
Cooked Meat	\$75,955	\$75,955	\$75,955	\$75,955	\$75,955
Export Cost 20ft container	\$80,909	\$79,712	\$80,908	\$79,635	\$79,733
<b>Export Cost per kg</b>	<b>\$4.72</b>	<b>\$4.65</b>	<b>\$4.72</b>	<b>\$4.65</b>	<b>\$4.65</b>

**Table 6:** Estimated Costs per Kilogram of Wimmera Produced Poultry Meat for Export: Shipped in 40 ft FCL Refrigerated Sea Containers

	Dubai	Tokyo/ Osaka	Los Angeles	Shanghai	Hong Kong
<b>Fresh Poultry Meat</b>					
Sea Freight	\$4,635	\$3,310	\$4,531	\$3,375	\$3,375
Local Charges	\$125	\$125	\$125	\$125	\$125
Road Freight	\$1,650	\$1,650	\$1,650	\$1,650	\$1,650
Fresh Product	\$77,641	\$77,641	\$77,641	\$77,641	\$77,641
Export Cost 40ft container	\$84,051	\$82,726	\$83,947	\$82,791	\$82,791
<b>Export Cost per kg</b>	<b>\$2.41</b>	<b>\$2.38</b>	<b>\$2.41</b>	<b>\$2.38</b>	<b>\$2.38</b>
<b>Cooked Poultry Meat</b>					
Sea Freight	\$4,635	\$3,310	\$4,531	\$3,375	\$3,375
Local Charges	\$125	\$125	\$125	\$125	\$125
Road Freight	\$1,650	\$1,650	\$1,650	\$1,650	\$1,650
Cooked Meat	\$154,213	\$154,213	\$154,213	\$154,213	\$154,213
Export Cost 40ft container	\$160,623	\$159,298	\$160,518	\$159,363	\$159,363
<b>Export Cost per kg</b>	<b>\$4.61</b>	<b>\$4.58</b>	<b>\$4.61</b>	<b>\$4.58</b>	<b>\$4.58</b>

<sup>1</sup> Based on production facilities with 500,000 birds shedding capacity

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## Legal considerations

A significant poultry development will need to be in accordance with local government planning guidelines.

Please consult with the relevant shire along with the Environmental Protection Agency (EPA) Victoria for appropriate management of odour, effluent and other potential environmental matters.



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