

# INDUSTRY TRAINING DEMAND PROFILE

## AGRICULTURE

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## Scope of the Agriculture TDP

### Industry sectors and core occupations

This Agriculture Training Demand Profile (TDP) encompasses all farm production in Tasmania involved in all forms of crop, livestock and fibre production as well as Amenity Horticulture, Conservation and Land Management and Veterinary Nursing. The TDP uses the Australian Standard Classification of Education (ASCED)<sup>1</sup> 2001 definition of Agriculture which is the study of growing, maintaining and harvesting non-intensively managed crops and pastures, and breeding, grazing and managing animals. It includes the study of farming and producing unprocessed plant and animal products.

The Australian Bureau of Statistics (ABS) definitions are based on the Australian and New Zealand Standard Industrial Classification (ANZSIC) (1993 version)<sup>2</sup> to classify the lowest order of industry as:

#### 011: Horticulture and Fruit Growing

- 0111 Plant Nurseries
- 0112 Cut Flower and Flower Seed Growing
- 0113 Vegetable Growing
- 0114 Grape Growing
- 0115 Apple and Pear Growing
- 0116 Stone Fruit Growing
- 0117 Kiwi Fruit Growing
- 0119 Fruit Growing n.e.c.

#### 012: Grain, Sheep and Beef Cattle Farming

- 0121 Grain Growing
- 0122 Grain-Sheep and Grain-Beef Cattle Farming
- 0123 Sheep-Beef Cattle Farming
- 0124 Sheep Farming
- 0125 Beef Cattle Farming

#### 013: Dairy Cattle Farming

#### 014: Poultry Farming

- 0141 Poultry Farming (Meat)
- 0142 Poultry Farming (Eggs)

#### 015: Other Livestock Farming

<sup>1</sup> AUSTRALIAN BUREAU OF STATISTICS (2001a) Australian standard classification of education (ASCED) 2001. Canberra, ACT, Australian Government.

<sup>2</sup> This can be found at <http://www.abs.gov.au/ausstats/abs@.nsf/66f306f503e529a5ca25697e0017661f/6E3071319E5C3FE5CA25697E0018FD77?opendocument>

- 0151 Pig Farming
- 0152 Horse Farming
- 0153 Deer Farming
- 0159 Livestock Farming n.e.c.
- 016: Other Crop Growing
  - 0161 Sugar Cane Growing
  - 0162 Cotton Growing
  - 0169 Crop and Plant Growing n.e.c.
- Subdivision 02: Services to Agriculture; Hunting and Trapping
- 021: Services to Agriculture
  - 0211 Cotton Ginning
  - 0212 Shearing Services
  - 0213 Aerial Agricultural Services
  - 0219 Services to Agriculture n.e.c.
- 022: Hunting and Trapping
  - 0220 Hunting and Trapping
- 4251 Landscaping Services
- 9231 Zoological and Botanic Gardens
- 9239 Recreational Parks and Gardens

The Australian Standard Classification of Occupations (ASCO)<sup>3</sup> lists the relevant occupations as:

- 131 Farmers and Farm Managers
- 1299-17 Environment, Parks and Land Care Manager
- 2114 Environmental and Agricultural Science Professionals
- 2121-13 Landscape Architect
- 46 Skilled Agricultural and Horticultural Workers
- 461 Skilled Agricultural Workers
- 462 Horticultural Tradespersons
- 6392 Veterinary Nurses
- 992 Agricultural and Horticultural Labourers
- 9921 Farm Hands
- 9921-11 General Farm Hand

<sup>3</sup> AUSTRALIAN BUREAU OF STATISTICS (1997) ASCO: Australian standard classification of occupations. 2nd ed. Canberra, ACT, Australian Government.

|         |  |
|---------|--|
| 9921-13 | Fruit, Vegetable or Nut Farm Hand              |
| 9921-15 | Stud Hand or Stable Hand                       |
| 9921-17 | Shearing Shed Hand                             |
| 9921-79 | Farm Hands nec                                 |
| 9922    | Nursery and Garden Labourers                   |
| 9922-11 | Horticultural Nursery Assistant                |
| 9922-13 | Garden Labourer                                |
| 9929    | Other Agricultural and Horticultural Labourers |
| 9929-11 | Shooter-Trapper                                |
| 9929-13 | Rural Trainee                                  |
| 9929-79 | Agricultural and Horticultural Labourers nec   |

These classifications were used as the basis for the ABS commissioned data runs that provide the base data for this TDP research.

**However, it should be noted that the definitions are not clear-cut due to:**

1. Overlapping definitions
2. The mixed nature of the small farms and Horticultural businesses in Tasmania. In many instances, businesses will be involved in a range of activities and it is therefore very difficult to place an individual producer into only one category.

In any event, the hidden leakage between occupations and industries has never been addressed by the statistical authorities, probably because of the inherent difficulties. Ultimately, the approach adopted in the research is to triangulate data from several sources; ABS, industry studies conducted by various parties and the Office of Post-Compulsory Education & Training's (OPCET) own Vocational, Education & Training (VET) commencement and completion statistics.

## Training Package coverage

The main Training Packages relevant to this industry are:

|       |   |
|-------|---|
| RTE03 | Rural Production                                      |
| RTF03 | Amenity Horticulture                                  |
| RTD02 | Conservation and Land Management                      |
| RUV04 | Animal Care and Management                            |
| BSB01 | Business Services (specific units of competency only) |

## Qualifications and courses within Training Package(s)

### **RTE03 Rural Production**

|          |                                   |
|----------|-----------------------------------|
| RTE10103 | Certificate I in Rural Operations |
| RTE20103 | Certificate II in Agriculture     |
| RTE20203 | Certificate II in Irrigation      |

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|          |  |
|----------|--|
| RTE20303 | Certificate II in Wool Handling                            |
| RTE20403 | Certificate II in Shearing                                 |
| RTE20503 | Certificate II in Crutching                                |
| RTE20603 | Certificate II in Production Horticulture                  |
| RTE20703 | Certificate II in Rural Operations                         |
| RTE30103 | Certificate III in Agriculture                             |
| RTE30203 | Certificate III in Agriculture (Beef Production)           |
| RTE30303 | Certificate III in Agriculture (Cotton Production)         |
| RTE30403 | Certificate III in Agriculture (Dairy Production)          |
| RTE30503 | Certificate III in Agriculture (Goat Production)           |
| RTE30603 | Certificate III in Agriculture (Grain Production)          |
| RTE30703 | Certificate III in Agriculture (Horse Breeding)            |
| RTE30803 | Certificate III in Agriculture (Milk Harvesting)           |
| RTE30903 | Certificate III in Agriculture (Pig Production)            |
| RTE31003 | Certificate III in Agriculture (Poultry Production)        |
| RTE31103 | Certificate III in Agriculture (Sheep and Wool Production) |
| RTE31203 | Certificate III in Agriculture (Sugar Production)          |
| RTE31303 | Certificate III in Irrigation                              |
| RTE31403 | Certificate III in Wool Clip Preparation                   |
| RTE31503 | Certificate III in Shearing                                |
| RTE31603 | Certificate III in Production Horticulture                 |
| RTE31703 | Certificate III in Rural Business                          |
| RTE31803 | Certificate III in Rural Merchandising                     |
| RTE31903 | Certificate III in Rural Operations                        |
| RTE32003 | Certificate III in Advanced Wool Handling                  |
| RTE40103 | Certificate IV in Agriculture                              |
| RTE40203 | Certificate IV in Irrigation                               |
| RTE40303 | Certificate IV in Wool Classing                            |
| RTE40403 | Certificate IV in Shearing                                 |
| RTE40503 | Certificate IV in Production Horticulture                  |
| RTE40603 | Certificate IV in Rural Business                           |
| RTE50103 | Diploma of Agriculture                                     |
| RTE50203 | Diploma of Irrigation                                      |

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|          |   |
|----------|---|
| RTE50303 | Diploma of Production Horticulture            |
| RTE50403 | Diploma of Rural Business Management          |
| RTE60103 | Advanced Diploma of Agriculture               |
| RTE60203 | Advanced Diploma of Rural Business Management |

**RTF03 Amenity Horticulture**

|          |   |
|----------|---|
| RTF10103 | Certificate I in Horticulture                       |
| RTF20103 | Certificate II in Horticulture                      |
| RTF20203 | Certificate II in Horticulture (Arboriculture)      |
| RTF20303 | Certificate II in Horticulture (Floriculture)       |
| RTF20403 | Certificate II in Horticulture (Landscape)          |
| RTF20503 | Certificate II in Horticulture (Retail Nursery)     |
| RTF20603 | Certificate II in Horticulture (Wholesale Nursery)  |
| RTF20703 | Certificate II in Horticulture (Parks and Gardens)  |
| RTF20803 | Certificate II in Horticulture (Turf)               |
| RTF30103 | Certificate III in Horticulture                     |
| RTF30203 | Certificate III in Horticulture (Arboriculture)     |
| RTF30303 | Certificate III in Horticulture (Floriculture)      |
| RTF30403 | Certificate III in Horticulture (Landscape)         |
| RTF30503 | Certificate III in Horticulture (Retail Nursery)    |
| RTF30603 | Certificate III in Horticulture (Wholesale Nursery) |
| RTF30703 | Certificate III in Horticulture (Parks and Gardens) |
| RTF30803 | Certificate III in Horticulture (Turf)              |
| RTF40103 | Certificate IV in Horticulture                      |
| RTF40203 | Certificate IV in Horticulture (Arboriculture)      |
| RTF40303 | Certificate IV in Horticulture (Floriculture)       |
| RTF40403 | Certificate IV in Horticulture (Landscape)          |
| RTF40503 | Certificate IV in Horticulture (Retail Nursery)     |
| RTF40603 | Certificate IV in Horticulture (Wholesale Nursery)  |
| RTF40703 | Certificate IV in Horticulture (Parks and Gardens)  |
| RTF40803 | Certificate IV in Horticulture (Turf)               |
| RTF50103 | Diploma of Horticulture                             |
| RTF50203 | Diploma of Horticulture (Arboriculture)             |
| RTF50303 | Diploma of Horticulture (Floriculture)              |

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|          |   |
|----------|---|
| RTF50403 | Diploma of Horticulture (Landscape)         |
| RTF50503 | Diploma of Horticulture (Retail Nursery)    |
| RTF50603 | Diploma of Horticulture (Wholesale Nursery) |
| RTF50703 | Diploma of Horticulture (Parks and Gardens) |
| RTF50803 | Diploma of Horticulture (Turf)              |
| RTF60103 | Advanced Diploma of Horticulture            |

**RTD02 Conservation and Land Management**

|          |  |
|----------|--|
| RTD10102 | Certificate I in Conservation and Land Management    |
| RTD20102 | Certificate II in Conservation and Land Management   |
| RTD30102 | Certificate III in Conservation and Land Management  |
| RTD40102 | Certificate IV in Conservation and Land Management   |
| RTD50102 | Diploma of Conservation and Land Management          |
| RTD60102 | Advanced Diploma of Conservation and Land Management |

**RUV04 Animal Care and Management**

|          |   |
|----------|---|
| RUV10104 | Certificate I in Animal Studies                             |
| RUV20104 | Certificate II in Animal Studies                            |
| RUV30104 | Certificate III in Animal Technology                        |
| RUV30204 | Certificate III in Captive Animals                          |
| RUV30304 | Certificate III in Companion Animal Services                |
| RUV40104 | Certificate IV in Animal Control and Regulation             |
| RUV40204 | Certificate IV in Captive Animals                           |
| RUV40304 | Certificate IV in Companion Animal Services                 |
| RUV40404 | Certificate IV in Veterinary Nursing                        |
| RUV50104 | Diploma of Animal Technology                                |
| RUV50204 | Diploma of Veterinary Nursing (Surgical)                    |
| RUV50304 | Diploma of Veterinary Nursing (Dental)                      |
| RUV50404 | Diploma of Veterinary Nursing (Emergency and Critical Care) |

## RTOs Registered to Deliver Agriculture and Related Training Packages

The RTOs registered to deliver these four Training Packages are too numerous to list in this report however they may be found on the National Training Information Service web site at: <http://www.ntis.gov.au/>

### The methodology

This TDP has adopted the position that it should not simply address the immediate needs for training during the next 1 – 2 years but also take a strategic view of where the industry is likely to be in 5 to 10 years. The reasoning for this is that Australian and Tasmanian Agriculture and Amenity Horticulture is undergoing such rapid and significant change that people undertaking education and training and entering the Tasmanian workforce need to be prepared for the 'industry of tomorrow' NOT the skills of today, many of which are likely to be redundant within 5 years.

Therefore, this approach attempts to answer the two questions:

- "What training is necessary to assist farmers cope with the immediate needs?"
- "What training will be necessary to enable and support the likely changes in the agricultural industry over the next 10 years?"

The problem with analysing Agriculture and Amenity Horticulture is that the various authorities responsible for demographic, economic and industry analysis such as the ABS, the Australian Bureau of Agriculture Resource Economics (ABARE), the Bureau of Rural Sciences (BRS) and the Commonwealth Department of Agriculture, Fishing and Forestry (AFFA), ceased collecting detailed statistics in the mid 1990s. Therefore, in the absence of direct data, other inferential methods had to be adopted, and where they have been employed, they will be explained.

The methodology used to answer these questions has encompassed the following:

- Desk research of documents in the public domain (listed in the References).
- Commissioned data runs by the ABS as well as published ABS data and reports. The data presented in this report is at an aggregate state level because analysis at a Local Government Area and ABS industry level introduced significant error due to definitional changes and low numbers.
- Special data runs from the statistical databases of OPCET.
- Qualitative data was gathered by:
  - Semi-structured telephone and face-to-face interviews with farmers, service personnel, commodity processors and buyers
  - Conducting four (4) focus groups with farmers
  - A Delphi process in the fields of Agriculture, Farm Management, Natural Resource Management, Supply Chain Management, Economics, Demography, Environment, Agricultural Policy, and Business Innovation.

They were all asked to answer the following questions:

- Please describe the social, technological, economic, environmental, and political context for Tasmanian farmers in 2015.

- What will be the characteristics of Tasmanian farm businesses in 2015 that will have enabled them to survive?
- What will be the characteristics of the Tasmanian farm labour force (owner/operators as well as employees) that have enabled the farm businesses to be sustainable?

## Part 1 Industry background and directions

### 1 The Drivers of Change

It is now accepted that the future is not predetermined and not predictable, but can be influenced by our choices in the present. We do not know what will happen in the future, but this ignorance is not complete. There are methods by which we can conceptualise possible future trajectories and some of those techniques have been employed in this research. The results are described in this section as 'drivers of change'.

Driving forces or 'drivers' are external forces of change that will shape future dynamics in predictable and unpredictable ways. Driving forces have both a forecasting utility in that they give us information on potential futures, and a disruptive dimension in that they call into question our assumptions about the present. Driving forces can be categorized into macro and micro trends.

#### Macro-trends

Macro and micro-trends will determine the nature of the VET and higher education and training provision. These factors can reasonably be predicted or forecast:

- Demographic trends such as the **ageing** of the Western World and the 'youth bulge' and Westernisation in the Developing World.
- Culturally driven **changes in the eating and recreational behaviour** of both the Developed and the Developing Worlds.
- The **integration of supply chains** or vertical integration.
- The **increasing power of the consumer** that has driven the evolution of the 'demand chain' changing the focus of wholesalers, processors and retailers.
- The quest for economies of scale is driving the **concentration of retailers** and they in turn are seeking larger, more stable, **brand-less commodity producers**. Markets are volatile, price driven and increasingly demanding premium quality without price differentials.
- Producers have to be more **integrated with the supply chain** through quality and safety systems.
- **Production technology** is becoming increasingly **integrated contractually** to supply the quality and product characteristics required by the consumer/retailer.
- Improvements in production management are emphasising **precision, scale, uniformity of quality** which all requires high management and employee skill levels.
- **Consumer driven environmental concerns** have changed the course of management techniques towards a triple bottom line perspective.
- **Food safety and security issues** are major drivers of the nature of the food and fibre supply chain.
- **A continuing fall in the number of full time farmers** whose sole or major source of income is from farming.
- The **growth in the average size of businesses**.

- **Climate change** has variable effects dependant on the location and industry, however there are both positive and negative effects.

### Micro-trends

- **Increasing competition** in agricultural commodities from countries that either have cheaper cost structures or are subsidised. This **lack of competitiveness** is based on higher labour and production input costs and small scale of production units.

For Horticulture, competition will be more internally focused between Australian businesses but essentially will be driven by the same principles; scale, cost, quality and customer focus.

- **Increasing imports of cheaper foreign farm commodities into Australia.** For example, imports of frozen vegetables into Australia have increased during the past 12 months and this trend is expected to accelerate as supermarkets and processors source even greater volumes from overseas in the immediate future.<sup>4</sup>
- The **increasing employment of specialised contracting firms in agriculture** to carry out many of the agronomic production processes because contractors offer significant increases in efficiency.
- The **increasing specialisation of labour** as farm and horticultural businesses grow in size and division of labour occurs. However, the employees of the emerging industry will be highly skilled, probably with higher-level VET qualifications or university degrees, and will be attracted by salaries, career structures and conditions that will be competitive with careers in other industries.
- The **choice between niche or commodity based production.**
- **Rapidly advancing technologies** that have the potential to fundamentally change industry and society are nanotechnology; biotechnology and biomedicine; advanced computing and information technologies; cognitive neuroscience, and new materials.
- **Social and cultural changes** amongst the Australian population that affect values, attitudes and fashion.
- The state of the **national economy** as it affects individual consumers and businesses; that is, interest rates, disposable income, fuel costs etc.

## 2 Industry Background

### Australian Agriculture and Amenity Horticulture

#### Agriculture and the Role of the Farm Dependant Economy

Australian farm income has historically been very volatile from year to year and the long term downward trend in farmers' terms of trade has been exacerbated by high levels of support of domestic agriculture in competitor countries, drought, input price rises and the growing concentration of the buying power of multinational supermarket chains,

<sup>4</sup> DPIWE & DED (2005) Tasmanian Vegetable Industry Situation Paper. IN DEPARTMENT OF PRIMARY INDUSTRIES WATER AND ENVIRONMENT & DEPARTMENT OF ECONOMIC DEVELOPMENT (Eds.), DPIWE, Hobart, Tasmania.

competition from synthetic fibres and increases in global productive capacity. The largest 10% of farms produce 50% of the value of Australia's agricultural production whilst the smallest 50% produce only 10% of the value of agricultural production.

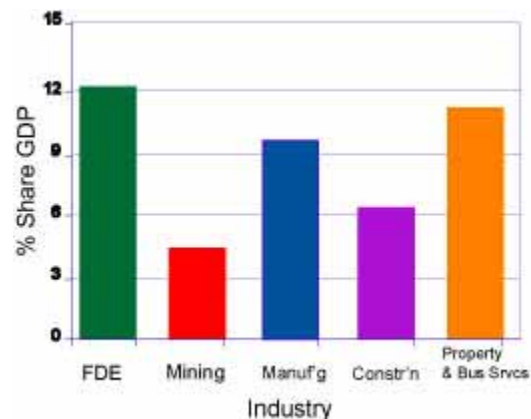
However, it is little recognised that Australian Agriculture is a significant supplier to and consumer of the production of other industries and has a significantly larger effect on the overall economy and employment than might be immediately apparent from standard, publicly available ABS statistical publications. The combination of the Agricultural Sector plus the Farm-Output Sector plus the Farm-Input Sector is defined as the '**Farm-Dependent Economy**' (FDE).

The FDE has contributed 12.1% of national GDP for the six years up to and including 2003–04. In comparison, the Agricultural Sector has contributed 3.2% of national Gross Domestic Product (GDP) over the same period, which means that the sector has contributed an additional 8.9% of GDP in its role as the foundation component of Australia's FDE. The contribution of the Agricultural Sector to the FDE, the Australian and Tasmanian economy more generally are as follows:

- In value terms, for every dollar of Agricultural Sector GDP, there is an additional \$3 worth of GDP in the economy through the Farm-Input and Farm-Output Sectors
- In terms of employment, for every million dollars of Agricultural Sector GDP, there are 22 jobs in the Agricultural Sector and an additional 65 jobs in the rest of the FDE
- Each dollar earned from agricultural exports created an additional \$1.07 of output in the domestic economy.

Furthermore, the FDE generates value and employment in both metropolitan and rural areas. Analysis shows that 50.7% of the FDE, or \$36.7bn was generated in the six state capitals in 1998–99. Of this, \$31.5bn was generated by the Farm-Output Sector. The remaining 49.3% of Farm-Dependent GDP, or \$35.6bn, was generated in regional areas. Of this contribution, the Farm-Output Sector generated around \$18.3bn; the Agricultural Sector generated a further \$16bn while the balance of \$1.4bn was generated by the Farm-Input Sector.

Figure 1: Comparison of Industry Size (1998 - 99)



Source: (Econtech, 2005)

In 1998–99, the contribution of the FDE to GDP was larger than any of the Industry Sectors in the Australian economy (Figure 1). However, the general trend of the contribution of agriculture to GDP in the last 50 years is declining.<sup>5</sup>

<sup>5</sup> ECONTech (2005) Australia's farm dependent economy: Analysis of the role of agriculture in the Australian economy. Surry Hills, Australia, Australian Farm Institute.. While this comparison puts the size of the FDE into perspective, it should be used with caution. It should be noted that the FDE in Figure 1 includes both the Agricultural Sector and also industries up and down the supply chain. In contrast the estimates for the other sectors are for that sector's production only and the estimates exclude the industries that are dependent on that sector up and down the supply chain. Although Figure 1 provides a good visualisation of the size of the FDE, the actual comparisons with other sectors should be qualified and used with caution.

## The Australian Amenity Horticulture Industry

The Australian Nursery & Garden Industry does not have accurate information on the size, structure and economic output of the industry nationally. The value of the industry captured at the last reseller is \$ 5.195 billion excluding GST.

Landscaping (25%), Retail Nurseries (18.1%), Garden Supplies (16.5%) and Hardware (16.4%) are the dominant distribution channels and make up 76% of the market.

Garden Construction and Maintenance services (27.4%), Greenlife (32.4%) and Allied Garden Product (28.6%) are the dominant product categories.

There are a total of 45,451 full time equivalent employees in businesses that have as the majority of their commercial activity the nursery and garden industry. 72% of these individuals or 32,543 are employed in the distribution channels and 26% are employed in the production of garden greenlife and allied garden products.

There are 22,230 businesses in operation in the distribution channels and production/wholesale sectors of the Garden Industry. The Landscaping (5,139), Garden Services (6,309) and Retail Nurseries (2,649) have the highest amount of businesses in operation and combine to make up 60% of the businesses in this definition of the garden market.

It is also evident that parts of the market are increasing at different rates. This is most evident with the Landscape distribution channel, which has low barriers to entry and is increasing in the quantity and productivity of business.

The wholesale value of greenlife provided to resellers was \$1.006bn. There were 2,100 businesses and 7,744 FTE's involved in the primary production of this greenlife material.

The sizes of the State Markets generally reflect similar proportions to the national spread of dwellings and population. The exceptions are with the Wholesale Production Nurseries, where there are more businesses in operation in Queensland than in Victoria and also with Landscaper distribution channel, which has a higher number than the population in New South Wales and Victoria.<sup>6</sup>

## Tasmanian Background and Directions

### Agriculture

Agriculture is an important contributor to the Tasmanian economy both in its own right and because of other industries that depend on it. In particular, the manufacturing and service sectors that utilise farm outputs are very significant contributors to gross state product and employment. The direct or farm-gate contribution of agriculture is around 5% of gross state product, and 6% of total state employment. When agriculture and its related input and output sectors are combined the contribution of the so-called farm dependent economy (FDE) increases to almost 16% of gross state product, and 20% of state employment.

Tasmania's FDE is 30% more important to the Tasmanian economy than it is to the nation as a whole. Tasmania's FDE has contributed an average of 15.8% of its gross state product over the past five years. This is at least 3.3 times its direct contribution of 4.8%.

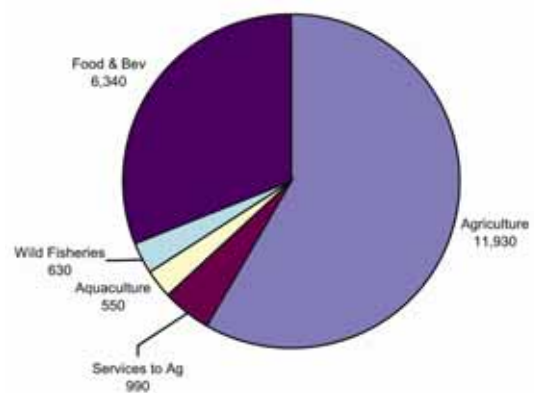
Two thirds of Tasmania's FDE contribution to gross state product occurs beyond the farm gate - in the farm output sector. The manufacturing and service sectors each contribute around half of the value added beyond the farm gate. While total employment in the

<sup>6</sup> RETAILWORKS (2004) Nursery and garden industry size and structure. Sydney, Nursery & Garden Industry Australia.

direct agriculture sector has fallen somewhat in recent years, this has been offset by an increase in the farm-output sector. Total FDE employment has fluctuated between 40,000 and 44,000 over the past five years. That is around 20% of total state employment. This compares to a 17.2% contribution by the FDE nationally. Slightly more than two thirds of farm dependent economy employment occurs beyond the farm gate – in the farm output sector. Within the farm output sector (ex farm-gate) 70% of employment is in the service sector and 30% is in manufacturing.

Agriculture is a more significant contributor to the Tasmanian economy than it is in any other state. Tasmania's 16% of gross state product from the farm dependent economy compares to a range of 10% to 15% for other states and an Australian average of 12%. Two thirds of Tasmania's farm dependent economy contribution to gross state product occurs beyond the farm gate - in the farm output sector. The manufacturing and service sectors each contribute around half of the value added beyond the farm gate.

Figure 2: Primary Industry Employment in the Tasmanian Farm Dependancy Economy



Direct farm output in Tasmania in 2003-04 was valued at around \$857 million. This is down slightly from a peak of \$903 million in 2001-02. Since 2003-04, some reduction in vegetable and poppy output is likely to have been more than offset by an increase in the value of milk production.

Farm employment in 2003-04 was around 11,000 people. This was down by around 2,000 people since 2001-02 but that reduction has been offset by an increase in agriculturally dependent employment in the manufacturing and service sectors.

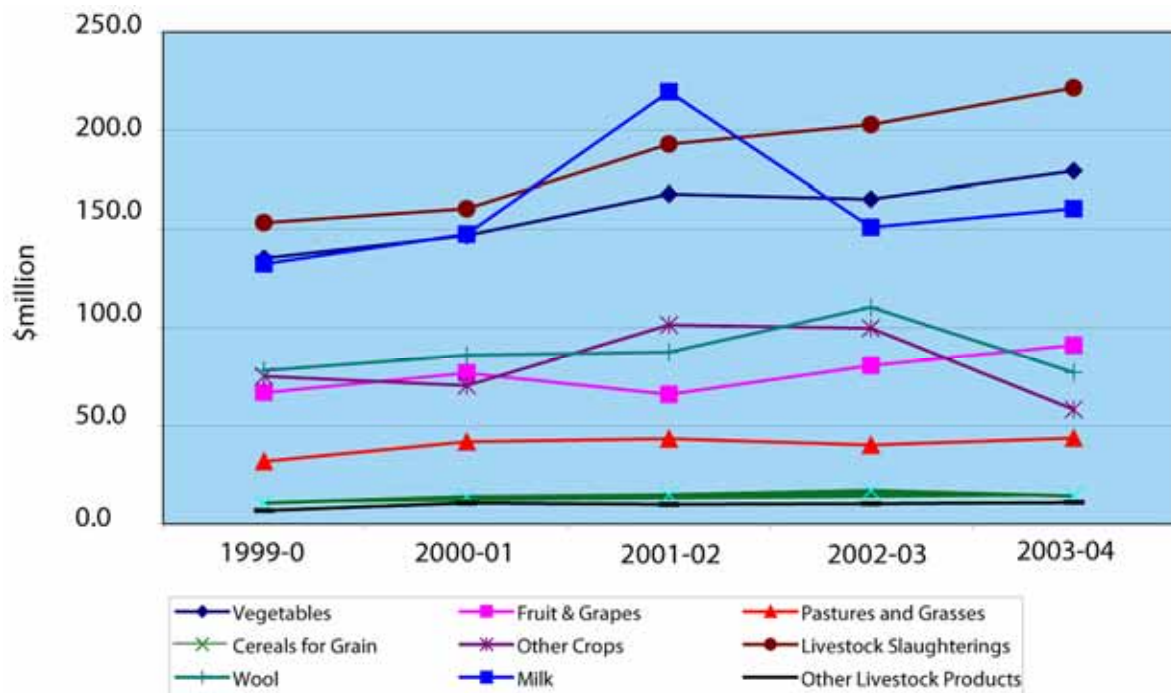
The importance of the downstream benefits of agriculture in Tasmania is highlighted by a recent analysis of the state's food industry (including seafood) which showed the following value chain:

- Farm-gate and beach-point value      \$944 million.
- Packed or processed value              \$2,100 million.
- Total food revenue (net of imports)    \$2,980 million.<sup>7</sup>

Tasmanian farm income has historically been very volatile from year to year and the long term downward trend in farmers' terms of trade has been exacerbated by high levels of support of domestic agriculture in competitor countries, input price rises and the growing concentration of the buying power of multinational supermarket chains, competition from synthetic fibres and increases in global productive capacity. Succinctly, farmers are being forced to develop globally sustainable business models within Australia's cost structures.

<sup>7</sup> DAVEY & MAYNARD (2005) The contribution of Agriculture to the Tasmanian Economy. Devonport, Tasmania, Tasmanian Farmers & Grazier's Association and Tasmanian Agricultural Productivity Group.

Figure 3: Gross Value of Agricultural Production – Per Cent of Total (2003-04)



Source: (Davey & Maynard, 2005)

For the last fifty years, Tasmanian farmers have coped with cost-price induced change through self-education, the implementation of new technology and the aggregation of farms into larger productive units. However, the commodity cost-price squeeze and the recent loss of several major buyers of Tasmanian produce have highlighted the structural challenges facing the industry.

The last two decades have seen globalisation affect the food and fibre chain in similar ways to the rest of the Australian economy; one of the most important changes being the concentration of buyers in almost every sector. For example, 65% of vegetables sold within Australia go through the retail sector, and two large supermarket chains dominate 75% of that sector. Worldwide, the trend is that supermarkets are increasingly developing their own store or home brands. These have displaced some brands, and pose significant challenges to remaining well-established global and Australian brands of major packers and processors. Another example, in the wool sector, is where there are now two main wool brokers buying the Tasmanian wool clip.<sup>8</sup>

## Amenity Horticulture

The market drivers fall into two categories; those having a positive effect and those with a negative effect on the industry:

- Positive:
  - Gardening skills and attitudes – consumers are now less skilled and need educational input. Gardeners are also more environmentally aware and this has effects on recycling, design, participation etc
  - Design and décor trends

<sup>8</sup> DPIWE & DED (2005) Tasmanian Vegetable Industry Situation Paper. IN DEPARTMENT OF PRIMARY INDUSTRIES WATER AND ENVIRONMENT & DEPARTMENT OF ECONOMIC DEVELOPMENT (Eds.), DPIWE, Hobart, Tasmania.

- Weather – climate change is a positive driver for outdoor horticultural based activities in many states
- Negative:
  - Media exposure – the internet is now affecting on-site sales
  - Discretionary income levels for households – this is being hit by petrol price rises and interest rates etc
  - Housing market downturns affect the demand for plants, garden equipment etc
  - Water availability and restrictions

Nationally the last five years has seen some significant changes:

- The largest sector, Garden Retail, which includes Retail Nurseries, has declined significantly (approx. 8%) due to loss of market share to other forms of outlets, water restrictions constraining home gardeners and the loss of smaller outlets
- Garden supplies and hardware has grown with the leverage of consumers purchasing whole gardens and the growing dominance of the large chain outlets and hardware stores
- Landscape gardeners have seen their market expand in association with the focus of large developers on landscaped gardens, but this will be affected by any downturns in the housing market. The Landscaping now dominate the Retail Nursery sector.
- The trend is, in common with the USA and the UK, away from 'Do-It-Yourself' to the supply of packages of services and products
- For Nurseries, the trends were towards the supply of trees and shrubs, especially natives (15% increase) whilst bedding plant supply has dropped over 19%
- No specific information could be obtained on the trends in turf grass management, however anecdotally it would appear that the focus on improving the quality of all recreational venues would have seen a slight increase in the demand for fine turf facilities<sup>9</sup>

## Conservation and Land Management (CLM)

This area of training is largely driven by public sector agencies with responsibilities in the field of Natural Resource Management. These are:

- Department of Tourism, Parks, Heritage and the Arts which is the source of the majority of enrolments
- Department of Primary Industry and Water
- Local Governments such as:
  - Hobart City Council
  - Kingborough Council

<sup>9</sup> FRESHLOGIC (2005) Australian garden market monitor: For the spring period ending 31st December 2005. Sydney, Nursery and Garden Industry Australia.

- Clarence Council

The main driver is the need for increasing professionalism amongst their field staff who actually carry out much of the conservation and land management tasks. This need is based on a number of factors, not fundamentally uncommon to the pressures on government agencies and businesses across Australia, that involve issues such as improved governance, management, accountability, occupational health and safety and a recognition of the complexity of the issues faced within their field.

Department of Tourism, Parks, Heritage and the Arts Parks and Wildlife Service has been accessing VET training since 2004 to upgrade the skills and qualifications of their field staff. Local Governments have also been upgrading their staff qualifications due to the devolution of many environmental and land management and other responsibilities to that tier of government.<sup>10</sup>

### **Veterinary Nursing and Animal Studies**

Veterinary practice in Tasmania is largely a micro-business based sector. Tasmania has about 50 veterinary practices and all except 2 – 3 practices would employ Veterinary Nurses. The industry is largely made up of mixed practices that undertake a range of veterinary tasks ranging from small/companion animals to large animal/equine animals. The industry drivers are the size and capacity of the population to pay for veterinary services and so is quite a stable, small business based industry.

For this reason, and the nature of the employee profile for Veterinary Nurses, the employment base in this industry is quite stable and most have now been trained through the VET system.

## **Strategic directions**

### **Tasmanian Agriculture**

The Tasmanian Farm Sector is undergoing structural readjustment to achieve world competitiveness. Essentially, larger more sophisticated farm businesses will emerge, whether they are owned by new or old farming families or by corporate enterprises such as superannuation funds or investment groups. This change will qualitatively and structurally change the shape of the sector as well as generate new farm business structures and require new processes and skills to operate them.

The qualitative research produced remarkably consistent views between all the groups involved; the Delphi Group of experts, processors and buyers, industry representatives, service agents and the farmers themselves.

The snapshot of the future characteristics of farming that will ensure sustainability are critically important to the nature of the training provided, both in the short term support provided for the industry as well as its medium term design and delivery. These views are summarised in the following:

- Tasmania is more reliant on agriculture than other states.
- Tasmanian (and Australian) farmers are producers of undifferentiated world commodities and compete on price with other lower cost producing countries.

<sup>10</sup> HAWKER, D. (2003) Rates and taxes: A fair share for responsible Local Government. Canberra, ACT, The Parliament of the Commonwealth of Australia - House of Representatives Standing Committee on Economics, Finance and Public Administration.

- Tasmanian farms will diversify and become considerably larger to gain economies of scale. They will increasingly compete on world markets with highly efficiently produced commodities or with niche, high value, value-added, low volume products with quality and brand differentiation.
- Farm ownership will increasingly be in the hands of corporate investors and farm families who have adapted to a corporate mode of farming.
- The notion of having to own the assets that are farmed will decline.
- Farm labour will be specialised, either as highly qualified full time employees or as highly trained, specialist agricultural contractor employees.
- The skill sets required will emphasise business and finance, management and particularly human resource and external relationship management, and the acquisition and use of technology.
- Continuing education and training throughout life will be the emphasis at all levels of employment.

## **Tasmanian Amenity Horticulture**

### **Green keepers and turf specialists**

- This sector does not see any significant impacts of change in short or long-term, hence skills requirements are stable in the short and medium term.
- Short term change includes potential use of effluent water and introducing new machinery.

### **Parks, Reserves, Gardens, Sports Grounds**

- An ageing workforce will turn over, replacements will be needed and will require skills training.
- Parks managers are increasingly deskbound (by greater administration, computer and communication demands) and having less contact with people on the ground and thus do not get out into the field to see what is happening. This impacts knowledge of operational requirements into the future and consequently staff skilling, not just quality of maintenance. While a manager might accurately predict skills needed from the supply-administrative perspective, he/she might less reliably predict skills needed at the worker-consumer end. Where such information contributes to the training system it would be best to cover (consult) both perspectives.
- Changes in thinking, plants and technologies will continue to affect the industry. This is not expected to drive demand from employers for training from the public training system. None-the-less publicly funded training needs to be flexible to keep pace with such change.
- Managers will be affected by new technology (management software) which will continue to impact services management (e.g. running with Best Practice, Best Value, also Value Space Safety). Other issues impacting are public safety, public liability and risk management and demands of bureaucracy, particularly administration. Budgets are not going up consistent with service level agreements (driving a need for efficiencies, and smarter work). Training and skills impacts of these changes and imperatives are initially on managers and team leaders, and flow from there to workers. The specialised training for managers and team

leaders is usually available through internal initiatives or external sources (e.g. relevant associations, conferences, on-line) so it is not seen that the publicly funded training system needs to do any more than at present for this group.

- Larger local governments may have marginal increases in the next couple of years. There is some use of out-sourced contractors (e.g. for chemical spraying).

### **Nursery and Garden Industry**

- Over the next ten years there will be more pressure on water resources and from environmental issues and there will be a need to further develop sustainable management practices. This must also be addressed in training and education.
- Employee numbers are uncertain and depend on which sectors are included and who (full-time, part-time, casual, contract) is included in the count. Stable to small growth will occur in employees.
- The industry has embraced the need for accreditation and consequently the number of accredited nurseries has doubled in the last 12 months. Many of the training needs are provided through the national office of the Nursery and Garden Industry and through the state public training system.

### **Landscaping**

- The Landscape Industries Association (Tasmania) estimates there are 170 businesses in Tasmania, employing around 500 people, although the nature of those enterprises is indeterminable. It is likely that most of those are part time or occasional micro-businesses. There has definitely been growth in businesses during the last five years but it is difficult to predict future employee numbers due to:
  - Increasing difficulties associated with employment (IR one factor)
  - A shift towards using more contractors
  - Other issues

which means that employee numbers are estimated to remain stable during the next couple of years.

- Issues impacting (in the short-term and perhaps longer) landscape businesses flowing from rising fuel costs and interest rates, causing consumers and businesses to economise. This acts as a restraint on growth in employee numbers even though most businesses could put extra people on.

### **Arborists and Floriculturalists**

- No changes that will significantly impact training needs and demand in next 12 months.
- Longer term needs driving with training implications – GPS and other technology (e.g. for better field management, nutrients, chemicals and fertilisers), water resources (usage and restrictions), environmental issues (including sustainability) and marketing.

## Conservation and Land Management

There is a growing focus of the community on maintaining and using the state's natural environmental assets for tourism and recreation which is producing significantly heavier usage of our national parks, heritage and recreation areas. In addition, within our communities there is a significantly increased onus on authorities to properly monitor and manage the environment, particularly around towns and cities.

Consequently, the relevant government agencies are having to recruit new skilled staff and upgrade the skills and qualifications of existing staff. For these reasons it is expected that the need for **CLM training at all levels will continue to grow steadily over the foreseeable future.**

This trend is substantiated by incorporation of staff development and recruitment strategies into the strategic plans of the Department of Tourism, Parks, Heritage and the Arts, the major source of enrolments. Their training/recruitment program has two facets: graduate level training for people who work as Park Rangers, and VET level training for field staff who actually carry out the work. The nature of those two occupational groups within the service means that the training for each is closely linked to the roles and duties. The more practical VET training for field staff is well suited to their more practical duties and many graduates who enter the service through a field staff position find that they have to undertake VET CLM training to be able to cope with the work. This is because the more theoretical Natural Resource Management education at university does not outfit them with the necessary skills.

## Veterinary Nursing and Animal Studies

Since the introduction of the Veterinary Nursing courses some years ago almost all veterinary nurses in the state have been trained to some extent. The Tasmanian Division of the Australian Veterinary Association (AVA) currently informally recognises this training by awarding 'certificates of recognition' to people successfully gaining qualifications.

However, at a national level, the AVA is discussing the possibility of formally registering Veterinary Nurses, much as Medical and Psychological Nurses are registered in the human health system. This concept has the potential to radically change the design and delivery of training as well as the overall system resourcing, not to speak of the ramifications for the definition of vet nurses' scope of work, legal liability, professional relationships and wages. The implications have the potential to change the wage and cost structure of the industry and so it will be some time before they are implemented, if ever. **However, this issue needs to be monitored by the industry and future TDP research.**

## Training system responses

In **Agriculture**, farmer's responses to these forces for restructuring are three-fold:

- Persist with the current approaches to business.
- Change.
- Exit the industry.

Resisting change will require that farmers have a financial buffer, tighten their belts, supplement income from other sources, borrow or further exploit their resources (e.g. diversification into tourism).<sup>11</sup>

This level of fundamental change requires a major re-development of the human resource capability of Agriculture to ensure the long term, sustainable supply of skilled people for these important industries. However, when this education and training need is seen in the context of the breadth and depth of the change that is occurring in farming it begs a holistic response that:

1. Facilitates the development of the skills needed immediately by those who want to change and the assisted exit of those that make that choice by short specialised courses.
2. Prepares those young people who will enter the workforce in the near-future, need continuous skill development and will have career progression as in other industries through:
  - a. Short in-service flexible training
  - b. Re-structuring of the Certificates II – IV, Diplomas and Advanced Diplomas
3. Provides for the in-service skilling through short in-service flexible training of those who enter the workforce in their mature years – this includes both lower and higher order skills.

For **Amenity Horticulture**, it is time to reassess both the focus and quantum of training. The industry is, like many others, driven by scale and cost issues and is having to professionalise to be able to compete. It is heavily reliant on part time and casual workers and, whilst it is difficult to assess, there appears to be a broad base of skilled employees and small contractors.

The quantum of funding and places for **CLM traineeships and certificates** should be at least maintained in the short term and close liaison by OPCET with the relevant agencies (and vice versa) maintained with a view to increasing funding for training as the need grows.

The Australian Veterinary Association should be consulted regarding the **discontinuing of Veterinary Nursing** courses for the near term. However, the potential change in status of this occupation should be monitored by the AVA and representation be made to OPCET should a change in their status require additional training in the future.

## Diminishing areas/skills

The areas that are (as evidenced in the statistics in later sections) and will continue to diminish in importance are:

- Veterinary Nursing.
- Broad packages of Agricultural skills without a balance of technology, business management and people management skills.
- Lower level Agricultural and Amenity Horticultural skills without progression on into higher levels.

<sup>11</sup> VANCLAY, F. (2003) The impacts of deregulation and agricultural restructuring for rural Australia. *Australian Journal of Social Issues*, 38, 81-94.

## Part 2 Skill shortages

Skill shortages are complex issues involving aspects of supply, demand and workforce structure. Skill shortages can be due to either a shortage of skilled people amongst an adequate labour pool or an inadequate labour pool that is regarded as a 'structural' problem, or both. In this instance, it is a combination of both types of skills shortage. The current skills shortages experienced by many industries are likely to be caused by all of these and involve the following drivers:

- Workforce Participation Factors
  - Demographic Change
  - Worker Attraction and Retention
  - Employment Arrangements
- Market Pressures
  - Globalisation
  - Market Expansion
  - Customer and Consumer Service Demands
  - Competitiveness and Productivity Demands
- Technological change
  - Technological Advancement
  - E-Business
  - Regulatory Compliance
- Regulatory Compliance
  - Health and Safety Issues
  - Insurance<sup>12</sup>

### The Effect of Australia's Demographic Ageing

Over the next few decades, Australia's population will age significantly through:

- Numerical ageing (caused by increasing life expectancy) which will bring pressure on health and recreation services but increase demand in certain areas.
- Structural ageing (caused by falling birth rates) will result in a lower proportion of young people, more people leaving the labour market than entering it, intergenerational tensions for government services, and a fall in unemployment amongst other phenomena.
- Natural decline caused by deaths exceeding births (from 2035 onwards) will challenge growth-based economic management and disadvantage areas that age faster than others due to the way government allocates funding based on generalised historical trend data.

<sup>12</sup> DEPARTMENT OF EDUCATION SCIENCE AND TRAINING (2006) National Industry Skills Report. Canberra, ACT, Australian Government, RICHARDSON, S. (2005) What is a skills shortage? Adelaide, SA, The National Institute of Labour Studies, Flinders University.

- Absolute decline if migration fails to compensate for the lower birth rates and increased death rates (from 2070 onwards) will exacerbate the former (Jackson, 2004).

Under some scenarios, Tasmania's population is projected to grow by about 10,000 people or may well decline by about 20,000 under other scenarios by 2018. Of the 29 Local Government Areas (LGAs), 10 are projected to grow while 12 are projected to decline under all three series. Those projected to show strongest growth include Sorell, Latrobe, Kingborough, Kentish and Meander Valley. Those projected to show strongest decline include West Coast, Burnie, Devonport, King Island and George Town.

However, the projections show that the ageing of Tasmania's population will continue. As growth slows, the population will age progressively, with the median age of 36 years at 30 June 1999 increasing to 44-45 years by 30 June 2021. By 30 June 2021, the number of people aged 65 years and over is projected to be at least fifty per cent greater than at 30 June 1999, increasing from 13% of the population at 30 June 1999 to 22-23% by 30 June 2021. The population aged 0-14 made up 21% of the population at 30 June 1999. This will decline to between 15 and 16% by 30 June 2021.

The population aged 15-64 years, which encompasses much of the working-age population, made up 65% of Tasmania's population at 30 June 1999. This proportion increases slightly over the first nine years of the ABS projection to reach over 66% by 30 June 2008. It then declines to just over 62% by 30 June 2021<sup>13</sup>.

Tasmania faces greater ageing problems and an earlier onset of those problems than the other states. This will produce greater competition for school leavers between:

- Industries
- Potential employers and educational institutions<sup>14</sup>

Agriculture and Horticulture are part of that problem, however, there are some unique issues inherent within Agriculture that is exacerbating the situation.

The entry rate of new farmers is exceeded by the exit of older farmers and the entry rate of new farm workers has fallen significantly over the last two decades. Older farmers deferring their exit from farming until commodity prices improve have masked these statistics for some time. Within the next 5 – 10 years the succession of the current generation of farmers and the challenge of recruiting sufficient, skilled farm labour could potentially change the structure of Australian farming, constrain farming outputs and increase operational costs<sup>15</sup>. The farm sector's lack of competitiveness in sourcing human resources will lead to substantial difficulties in recruiting skilled farm workers. The net result will be that agriculture may be faced with a critical shortage of qualified new entrants to farm ownership and skilled labour just when increasing structural and technological change is demanding smarter owners and employees.

**No evidence has been identified by this TDP research indicating that Amenity Horticulture is experiencing problems to the same degree as Agriculture where specific skill shortages are significant drivers of change.**

<sup>13</sup> AUSTRALIAN BUREAU OF STATISTICS (2001b) Population projections, Tasmania.

<sup>14</sup> JACKSON, N. & KIPPEN, R. (2001) Whither Tasmania? A note on Tasmania's population problem. *People and Place*, 9, 27-37, JACKSON, N. & THOMPSON, B. (2002) Population ageing and the A-B-C of educational demand. A focus on Tasmania and South Australia. *People and Place*, 10, 11-22.

<sup>15</sup> BARR, N. (2004) The micro-dynamics of change in Australian agriculture 1976 – 2001. IN STATISTICS, A. B. O. (Ed.), Commonwealth of Australia.

## The Skilled Labour Shortages in Agriculture

Skills shortages identified by this research include:

### Core Skills for all Agricultural Employees

- Interpersonal skills – working in teams, conflict resolution, communication, problem solving
- Literacy and generic skills (e.g. communication, reading, writing, numeracy, analysing information, reporting)
- General computer skills (seen more as a need for 'older' workers, as younger people coming into the industry are more likely to have experience of computers) applied to farm technology
- Learning skills are crucial – the ability to keep up-to-date and multi-skill is important

### Skills for Farm Owners and Managers

#### *Strategic*

- Strategic thinking skills including sources of strategic advice and support, how to plan, make decisions, analyse business, assess opportunities/risks and advice (e.g. in expansion)
- Change management
- Project management
- Risk management
- Financial management
- Business law
- Contract management
- Leasing
- Corporate governance
- Vertical integration
- Rural sociology
- Digital business applications
- Farming systems

#### *People management*

- Organisational skills including supervision and coordination of work
- Developing plans and work schedules including self-management and time management
- Logistics and transport

- Human resource/contract labour management
- Relationships development and management
- Supply chains/Value chains
- Understanding and working with bureaucracies and regulators
- Job design and analysis
- Industrial relations
- Succession planning
- Workplace safety/OH&S

*Business Development*

- Customer focus
- Quality Assurance and quality management software systems to manage multiple QA systems
- Continuous improvement
- International business and marketing
- Innovation
- Entrepreneurship
- Negotiation skills
- Public speaking
- Organise and participate in meetings

*Operational*

- Environmental management
- Agronomy
- Animal husbandry
- Irrigation and water systems
- Global Positioning Systems
- Organic vegetable production

*Core Management*

- Information literacy including skills in:
  - Communication
  - Internet research skills
  - Processing and maintaining farm information, reports and records

- Basic computer and software skills – e.g. for using computerised farm technology (e.g. electronic tagging), and systems for planning, finance and livestock management
- Farm management recording systems – e.g. paddock management, pasture-based feeding, feedlot production, irrigation
- Livestock handling (e.g. to yard, sort, get on the scales, assess livestock weight, drenching rate/size, etc)
- National Livestock System and other external mandated production monitoring and audit systems
- Training, assessment, mentoring and coaching
- Systems and techniques for simplifying and efficiently handling 'red tape', such as regulatory requirements, quality assurance, accreditation and auditing
- Writing business documents
- Business management software

### The Drivers of Farm Labour Supply

Farmers and contract labour firms identify that they have significant problems recruiting people with sufficient skills and the appropriate work attitudes (Gleeson et al., 2005). The reasons for this are complex and involve:

- Economic factors concerning:
  - √ Wages.
  - √ The capacity of the industry to pay.
- Industrial relations factors involving:
  - √ The nature of farm work.
  - √ Employment conditions.
  - √ The lack of career paths.
- Human resource management issues.
- Social issues including:
  - √ Generational differences in values and attitudes and aspirations for career, work and quality of life.
  - √ Attitudes of farmers to such issues as succession and HRD.
  - √ Changes in the values and aspirations of Australians.
  - √ The decline of understanding and empathy with farming by the broader Australian population as we become an increasingly urbanised society.
  - √ The negative, media-created perceptions of agriculture as a career.
- Educational issues including:
  - √ The lack of understanding about and the attitudes of teachers towards agriculture.

- √ Limited educational options and delivery capability for agricultural education in the secondary sector.

The single most important factor in farm capacity in developing competitive wage structures and management practices is the price received for commodities. However, it is also recognised that the capacity to pay higher wages is not solely a commodity price issue but also a function of traditional attitudes to human resource management and industrial relations.

## Entry and Exit from Farming

The entry and exit rates of farmers and farm workers are critical to understanding the quantum and the nature of the training needs. From this, we will be able to infer the total numbers of people who need to be trained.

Table 1: Net Entry/Exit Rates to Farming in Tasmania by Statistical Local Area (1986 - 2001)

| SLA Code      | Statistical Local Area   | Numbers Exiting per Census Period |             |           |
|---------------|--------------------------|-----------------------------------|-------------|-----------|
|               |                          | 1986-91                           | 1991-96     | 1996-01   |
| 605050410     | Brighton                 | -74                               | 69          | 91        |
| 605051410     | Clarence                 | -11                               | 5           | -6        |
| 605051511     | Derwent Valley Part A    | -13                               | -3          | 26        |
| 605052610     | Glenorchy                | -10                               | 3           | 2         |
| 605052811     | Hobart Inner             | -27                               | 6           | 1         |
| 605052812     | Hobart Remainder         | 0                                 | 0           | 0         |
| 605053611     | Kingborough Part A       | 0                                 | 47          | 33        |
| 605054811     | Sorrell Part A           | -30                               | 7           | 29        |
| 610051010     | Central Highlands        | -231                              | -95         | -63       |
| 610051512     | Derwent Valley Part B    | -33                               | -3          | 1         |
| 610052410     | Glamorgan/Spring Bay     | -25                               | 0           | 5         |
| 610053010     | Huon Valley              | 0                                 | -16         | -2        |
| 610053612     | Kingborough Part B       | -57                               | -9          | -36       |
| 610054812     | Sorell                   | -6                                | 12          | -18       |
| 610055010     | Southern Midland         | 5                                 | 0           | -10       |
| 610055210     | Tasman                   | -106                              | -65         | -7        |
| 615052211     | George Town Part A       | -36                               | -36         | 15        |
| 615054011     | Launceston Inner         | -10                               | 16          | -10       |
| 615054012     | Launceston Part B        | 3                                 | -3          | 0         |
| 615054211     | Meander Valley Part A    | -7                                | 1           | -14       |
| 615054611     | Northern Midlands Part A | 3                                 | -6          | 3         |
| 615055811     | West Tamar Part A        | 1                                 | -36         | 22        |
| 615102212     | George Town Part B       | -212                              | -120        | -36       |
| 615104013     | Launceston Part C        | 10                                | -7          | -21       |
| 615104212     | Meander Valley           | -44                               | -32         | 27        |
| 615104612     | Northern Midlands Part B | -36                               | -43         | -36       |
| 615105812     | Wes Tamar Part B         | -104                              | -28         | 13        |
| 615150210     | Break O'Day              | -66                               | -18         | -9        |
| 615151810     | Dorset                   | -19                               | 17          | 12        |
| 615152010     | Flinders Is              | -22                               | -15         | -20       |
| 620050611     | Burnie Part A            | -111                              | -42         | 12        |
| 620050811     | Central Coast Part A     | -46                               | 9           | 16        |
| 620051610     | Devonport                | -4                                | -17         | 6         |
| 620053811     | Latrobe                  | -12                               | 0           | -24       |
| 620055411     | Waratah-Wynyard          | -13                               | 5           | 5         |
| 620100612     | Burnie Part B            | -365                              | -152        | -27       |
| 620100812     | Central Coast Part B     | -19                               | -8          | -14       |
| 620101210     | Circular head            | -91                               | -70         | -2        |
| 620103210     | Kentish                  | -77                               | 12          | -36       |
| 620103410     | King Island              | -81                               | -21         | -1        |
| 620103812     | Latrobe                  | -27                               | -41         | 28        |
| 620105412     | Waratah-Wynyard Part B   | -14                               | -10         | 23        |
| 620155610     | West Coast               | 9                                 | -3          | 13        |
| <b>Totals</b> |                          | <b>-2,008</b>                     | <b>-689</b> | <b>-9</b> |

Source: Derived from data provided from (Barr, 2004)

Table 1 provides an interesting insight into the median age entry and exit of farmers themselves in the main processing vegetable growing regions (and the Statistical Local Areas – see Appendix A for a map of the ABS SLAs) of the north of the state.<sup>16</sup>

Overall, it appears that the rate of exit has slowed over the last fifteen years in keeping with the trend elsewhere in Australia. This represents a rate of decline in the number of farms of around 1.3%. However, as Barr points out, similar work in other countries using similar data and methods indicates that the actual rate of decline in farmers may be much higher due to it being masked by a complexity of other factors. In addition, the exit rate may well be accelerating rapidly again as suggested by discussions with farming organisations and demographers.

The most important feature of Table 1 is the evidence of structural change occurring over many years. The high rates of exit in the 1986-91 census were the result of a major industry readjustment occurring after the collapse of the Wool Floor Price Scheme in 1988, and while it might be inferred that Table 1 is evidence of the passing of the crisis, the research for this TDP provided ample anecdotal evidence that after the 2001 census, the exit rates have accelerated once again. However, there is evidence within Table 1 that the main vegetable growing areas have been undergoing higher exit rates than other farm sectors and this is likely to have accelerated markedly to the present time.

The trends in farmer migration have meant that there has been little recent change in the total number of farmers; however the median farmer age has continued to increase. This is the result of not just the declining younger entry, but also of the new phenomena of delayed exit by older farmers. These two trends have dramatically changed the age profile of the farmer population.

The continuance of the decline between 1996 and 2001, particularly for women and for older persons as identified by Barr (2004), probably reflects increasing numbers of farmers choosing to continue to farm in the absence of a next generation interested in taking over the business.

Neil Barr (2004) found that, historically, exits from farming are usually associated with higher commodity prices because this is also the time of higher land prices. This exit rate was highest during the 1986-91 between census periods and was associated with very high rates of woolgrowers either leaving farming or taking off-farm work, effectively dropping out of the census count but not necessarily selling their farms.

Whilst there is often great variation between regions and industry sectors, the number of farmers aged in their 20s has declined by over 60% since 1976. These trends are more pronounced in the beef and sheep industries whilst dairying and cropping have been less affected and generally have a younger profile.

### **Ageing of the Farm Workforce**

Table 2 provides evidence of the ages of farmers entering and leaving farming. Firstly, we can see the rapid ageing of farmers, slightly more so in the northern region, as well as the significant difference in the ageing of farmers in the north-western rural versus the Burnie-Devonport areas. This is probably due to the predominance of dairying, a somewhat more youthful industry, in the latter.

<sup>16</sup> It should be noted that these statistics represent a best possible effort to shed light on this issue and it is recognised that these statistics contain anomalies and definitional problems. The base data was sourced originally from the 2001 ABS Census. These tables are for farming as a whole and have been derived by a deductive method (explained in Appendix C) because none of the authorities collecting statistics in Australia now collect detailed information about farming beyond what is normally collected in the Censuses and published in the Social Profiles.

Secondly, it is also apparent that the median entry age to farming has been increasing significantly overall and is currently likely to be in excess of 38 years. This may reflect the increasing amount of capital required to enter farming as land prices are being sustained by farm aggregation, corporate buying and hobby farmer entry into some regions.

Thirdly, median exit ages are similarly falling with the average now around 46 years. The increase in the 1991-96 census period is likely to be an aberration due to some localised changes such as urban influences where the ABS boundaries encroach on urban or semi-urban areas around Burnie, Devonport, Wynyard and Latrobe. Never-the-less, it is apparent that the median exit age of many of the SLAs is dropping more quickly in some of the state's most productive farming areas and, further, these are frequently the areas with the largest numbers leaving (Refer Table 1). For example, the Central Highlands (Wool), Northern Midlands (Mixed - Wool), West Tamar, Georgetown and Dorset (Mixed – Beef) and Central Coast and Kentish (Dairy – Vegetables) all have larger numbers of exits and larger falls in the median age of those exits.

This trend means that the most productive areas in the state's agriculture are suffering the largest drains of labour force capacity and will bring additional pressure for structural change in the industry and on individual enterprise capacity to employ their own labour. This will exacerbate the move towards specialist outsourced labour in the form of contractors and consultants.

Finally, it is significant that the percentage of younger farmers (less than 35 years of age) entering the industry is generally between 1% - 4%. This is probably a function of the amount of capital that is now required for entering farming. Typically, between 40% to 75% equity is now required to be sustainable (depending on the main enterprise) and, with high land prices, most young people find the entry barrier insurmountable. Hence, most entrants are in their mid-forties and come from outside of Agriculture where they have generated considerable capital.

As part of this study, ABS data was further analysed by occupation and industry to Local Government Area (LGA) and SLA level. However, as stated by Barr (2004) in Appendix B, exits from farming are problematic and can only be derived from other Census questions. Unfortunately, during the period relevant to this report, changes in ABS definitions render analysis to this level for all relevant LGAs fraught with danger. However, some conclusions can be drawn and they are discussed in Section 3 under 'Changes in training demand'.

Note that the information, views and recommendations in this document have been obtained under contract from industry sources as part of Industry Advisory Arrangements; they may include data or information which have not been otherwise verified, and they should not be interpreted as being the views, intentions or policy of OPCET or the Tasmanian Government.

Table 2: Tasmanian Farmer Age Profile with Median Entry and Exit Ages (1981-2001)

| SLA Code                |                          | Median Farmer Age |           |           |           | Median Farmer Entry Age |           |           | Median Farmer Exit Age |           |           | Annual No <35yrs Entering as % Total Farmers |           |           |           |
|-------------------------|--------------------------|-------------------|-----------|-----------|-----------|-------------------------|-----------|-----------|------------------------|-----------|-----------|--|-----------|-----------|-----------|
|                         |                          | 1981-86           | 1986-91   | 1991-96   | 1996-01   | 1986-91                 | 1991-96   | 1996-01   | 1986-91                | 1991-96   | 1996-01   | 1981-86                                      | 1986-91   | 1991-96   | 1996-01   |
| 605050410               | Brighton                 | 49                | 50        | 47        | 48        | 36                      | 37        | 37        | 59                     | 32        | 44        | 1  | 2         | 2         | 3         |
| 605051410               | Clarence                 | 49                | 53        | 53        | 48        | 55                      | 0         | 38        | 46                     | 47        | 65        | 1  | 0         | 0         | 2         |
| 605051511               | Derwent Valley Part A    | 51                | 51        | 47        | 46        | 37                      | 33        | 36        | 61                     | 50        | 39        | 1  | 2         | 3         | 3         |
| 605052610               | Glenorchy                | 47                | 43        | 46        | 55        | 40                      | 60        | 55        | 54                     | 69        | 33        | 0  | 0         | 4         | 3         |
| 605052811               | Hobart Inner             | 46                | 50        | 43        | 45        | 40                      | 28        | 38        | 47                     | 35        | 34        | 2  | 2         | 5         | 2         |
| 605052812               | Hobart Remainder         | 0                 | 0         | 0         | 0         | 0                       | 0         | 0         | 0                      | 0         | 0         |  |           |           |           |
| 605053611               | Kingborough Part A       | 0                 | 0         | 43        | 46        | 0                       | 41        | 35        | 0                      | 46        | 36        |  |           | 3         | 6         |
| 605054811               | Sorell Part A            | 49                | 50        | 47        | 48        | 34                      | 42        | 42        | 63                     | 68        | 41        | 2  | 2         | 2         | 3         |
| 610051010               | Central Highlands        | 46                | 47        | 48        | 51        | 35                      | 38        | 42        | 55                     | 60        | 53        | 1  | 2         | 2         | 1         |
| 610051512               | Derwent Valley Part B    | 46                | 46        | 47        | 52        | 30                      | 37        | 56        | 63                     | 75        | 53        | 1  | 2         | 1         | 0         |
| 610052410               | Glamorgan/Spring Bay     | 43                | 51        | 47        | 53        | 40                      | 38        | 50        | 45                     | 64        | 46        | 2  | 0         | 2         | 0         |
| 610053010               | Huon Valley              | 44                | 46        | 42        | 50        | 38                      | 34        | 31        | 59                     | 55        | 37        | 1  | 2         | 2         | 2         |
| 610053612               | Kingborough Part B       | 46                | 47        | 49        | 51        | 41                      | 35        | 40        | 52                     | 55        | 52        | 1  | 2         | 2         | 2         |
| 610054812               | Sorell                   | 46                | 50        | 51        | 51        | 35                      | 39        | 49        | 40                     | 25        | 69        | 2  | 3         | 1         | 0         |
| 610055010               | Southern Midland         | 44                | 45        | 42        | 39        | 36                      | 40        | 34        | 28                     | 71        | 49        | 1  | 2         | 1         | 3         |
| 610055210               | Tasman                   | 48                | 48        | 49        | 52        | 33                      | 41        | 50        | 58                     | 63        | 65        | 1  | 1         | 1         | 0         |
| 615052211               | George Town Part A       | 50                | 49        | 48        | 50        | 43                      | 41        | 42        | 60                     | 61        | 56        | 2  | 2         | 2         | 1         |
| 615054011               | Launceston Inner         | 48                | 60        | 48        | 55        | 65                      | 38        | 0         | 38                     | 33        | 38        | 2  | 3         | 0         | 0         |
| 615054012               | Launceston Part B        | 0                 | 23        | 0         | 0         | 23                      | 0         | 0         | 0                      | 28        | 0         |  | 20        |           |           |
| 615054211               | Meander Valley Part A    | 51                | 45        | 48        | 48        | 41                      | 40        | 42        | 57                     | 48        | 54        | 2  | 2         | 3         | 1         |
| 615054611               | Northern Midlands Part A | 65                | 58        | 38        | 75        | 63                      | 0         | 75        | 0                      | 65        | 43        | 0  | 0         | 0         | 10        |
| 615055811               | West Tamar Part A        | 48                | 45        | 48        | 50        | 48                      | 43        | 44        | 70                     | 50        | 43        | 2  | 1         | 1         | 1         |
| 615102212               | George Town Part B       | 44                | 46        | 47        | 49        | 37                      | 38        | 39        | 54                     | 56        | 56        | 2  | 2         | 1         | 1         |
| 615104013               | Launceston Part C        | 41                | 42        | 46        | 44        | 33                      | 43        | 43        | 48                     | 38        | 52        | 4  | 5         | 1         | 0         |
| 615104212               | Meander Valley           | 47                | 50        | 54        | 53        | 34                      | 65        | 45        | 54                     | 65        | 43        | 1  | 3         | 0         | 1         |
| 615104612               | Northern Midlands Part B | 45                | 45        | 47        | 50        | 36                      | 38        | 39        | 59                     | 54        | 53        | 2  | 2         | 2         | 1         |
| 615105812               | Wes Tamar Part B         | 43                | 46        | 45        | 48        | 39                      | 39        | 39        | 48                     | 60        | 50        | 2  | 1         | 1         | 2         |
| 615150210               | Break O'Day              | 43                | 46        | 46        | 49        | 33                      | 36        | 41        | 44                     | 62        | 46        | 2  | 2         | 2         | 2         |
| 615151810               | Dorset                   | 39                | 47        | 46        | 48        | 41                      | 41        | 39        | 38                     | 74        | 45        | 3  | 1         | 2         | 2         |
| 615152010               | Flinders Is              | 44                | 46        | 44        | 48        | 34                      | 35        | 41        | 50                     | 63        | 45        | 2  | 2         | 2         | 1         |
| 620050611               | Burnie Part A            | 48                | 47        | 48        | 51        | 35                      | 40        | 38        | 61                     | 59        | 39        | 2  | 2         | 2         | 2         |
| 620050811               | Central Coast Part A     | 58                | 55        | 53        | 54        | 23                      | 55        | 43        | 65                     | 48        | 21        | 2  | 3         | 2         | 3         |
| 620051610               | Devonport                | 45                | 45        | 48        | 51        | 38                      | 45        | 35        | 64                     | 49        | 25        | 3  | 2         | 2         | 2         |
| 620053811               | Latrobe                  | 49                | 49        | 49        | 51        | 40                      | 41        | 45        | 62                     | 55        | 63        | 1  | 1         | 3         | 2         |
| 620055411               | Waratah-Wynyard          | 50                | 48        | 49        | 51        | 33                      | 39        | 40        | 61                     | 68        | 59        | 1  | 2         | 1         | 2         |
| 620100612               | Burnie Part B            | 44                | 45        | 46        | 48        | 38                      | 37        | 37        | 52                     | 52        | 50        | 2  | 2         | 2         | 2         |
| 620100812               | Central Coast Part B     | 45                | 49        | 50        | 51        | 45                      | 48        | 30        | 47                     | 59        | 56        | 2  | 1         | 1         | 2         |
| 620101210               | Circular head            | 46                | 46        | 47        | 47        | 44                      | 38        | 39        | 58                     | 56        | 66        | 1  | 1         | 1         | 2         |
| 620103210               | Kentish                  | 41                | 42        | 42        | 44        | 35                      | 35        | 35        | 48                     | 45        | 43        | 2  | 3         | 4         | 4         |
| 620103410               | King Island              | 47                | 48        | 52        | 52        | 40                      | 46        | 43        | 55                     | 50        | 69        | 1  | 1         | 1         | 1         |
| 620103812               | Latrobe                  | 46                | 46        | 46        | 52        | 41                      | 36        | 45        | 61                     | 55        | 34        | 2  | 2         | 2         | 1         |
| 620105412               | Waratah-Wynyard Part B   | 43                | 47        | 49        | 51        | 40                      | 45        | 36        | 45                     | 63        | 48        | 1  | 1         | 1         | 2         |
| 620155610               | West Coast               | 23                | 55        | 38        | 42        | 0                       | 33        | 29        | 58                     | 75        | 51        | 0  | 0         | 7         | 6         |
| <b>Overall Averages</b> |                          | <b>43</b>         | <b>45</b> | <b>45</b> | <b>48</b> | <b>36</b>               | <b>37</b> | <b>38</b> | <b>49</b>              | <b>54</b> | <b>46</b> | <b>2%</b>                                    | <b>2%</b> | <b>2%</b> | <b>2%</b> |

Source: Derived from data supplied from Barr, 2004.

## Why is farming not attracting young entrants?

One of the important issues for this report, and indeed is a frequent topic of discussion at farmer's meetings, is the question of why young people are not attracted to farming careers. A significant cause is the generational differences in values and beliefs that are now affecting the career choices being made by young people.

Young people's identities are constructed on their perception of who they are and their views about their abilities, interests, personality and place in society. Their occupational aspirations and identities are reflective of their understanding of themselves and of their place in the world; both are dynamic, on-going processes and can be changed. They prefer, seek and are most satisfied with occupations that are consistent with their views of themselves. The critical influences in these factors are the family worldview and its values and attitudes towards occupations including farming itself and issues such as learning and education, social standing.

Geldens (2004) found in extensive research with young people on farms around four Victorian rural centres, that:

- Parents, family world-view, attitudes and values were primary influences on occupational choice. In addition, their teachers/career teachers and peer/reference group attitudes were also critical influences in that choice.
- A considerable range of occupational aspirations were held by young farming folk and only 26% wanted to work in agriculture or horticulture per se.
- 37% aspired to university education and 63% to TAFE or 'on-the-job' training.
- Parental expectations for farming succession were low (7%).
- Occupational exploration and knowledge acquisition are vital to the construction of both identities and occupational choice.
- Communities had a powerful impact upon young residents' opportunities, activities, world-views and decisions.<sup>17</sup>

However, Holmes and Sackett (2006)<sup>18</sup> argue in a report based on a limited sample of farm businesses that raises more questions than it answers, that farm salaries are not as bad as they might first appear due to all the non-cash components. However, it is apparent from this report that career development and career paths are important as are some of the components of 'modern' human resource management, such as better communication and better task allocation.

Perhaps the lack of a true 'career path' in Agriculture is being exacerbated by the booming mining industry that has targeted 38,000 new entrants per year from 2005 – 08, of which at least 1,000 per annum have been targeted from Tasmania. The great wage disparities in wages perhaps provide young rural people with too much of an opportunity to 'set themselves up' in life to ignore.

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<sup>17</sup> GELDENS, P. M. (2004) 'I just can't see myself doing it' - Occupational aspirations and identities: Young people from family farms, Victoria. IN BUREAU OF RURAL SCIENCES (Ed.) *BRS Seminar Series*. Canberra, ACT, Bureau of Rural Sciences.

<sup>18</sup> HOLMES AND SACKETT (2006) *Farm staff 2006 – Finding keeping and rewarding people in agriculture*. Sydney.

## The Skilled Labour Shortages in the Amenity Horticulture and CLM Sectors

There does not appear to be a shortage of appropriately skilled labour for these industry sectors. Neither during the interviews with Amenity Horticulture personnel conducted for this TDP, nor in the available literature is there any mention of significant recruitment difficulties beyond those that could be classed as the structural issues faced by all businesses.

### Conclusions about the nature of the labour supply

1. The drivers of labour supply are complex but largely associated with socio-economic factors. The fundamental driver is commodity prices as it affects remuneration and lack of a career structure providing progression and development.
2. Demographic ageing is going to hit Tasmanian Agriculture hard as it is already uncompetitive in the labour market and will become increasingly so compared to other industries.
3. Employers across all industries will increasingly recruit young people before they leave secondary school and 'buy' them into specific careers by offering high wages with 'study at work' options.
4. Exit rates in farming have been high but are now slowing, reflecting the aggregation of farms and therefore increasing farm size. Exit rates are highest in 'Grain, Sheep and Beef Cattle Farming' and 'Horticulture and Fruit Growing', particularly for 'Farmers and Farm Managers' and 'Unskilled Labourers'. The higher figures for the former probably reflect the move from extensive agriculture into more intensive production horticulture in the North of the state. The age of those leaving is generally in the early 50s although in processing vegetable areas of the state that is becoming progressively younger. The age of those entering farming is in the mid to late 30s and is relatively stable.
5. The agricultural labour force will become increasingly focused on specialist contract labour hire firms and agricultural contractors. The employees on farms will be either highly qualified and professional full time employees or foreign seasonal workers managed by labour hire firms.
6. Farm employment will become increasingly less attractive to young people and the drift away from rural areas will continue. Farm succession will continue to decline, paradoxically at the encouragement of many farming parents.
7. Agricultural and Horticultural education and training will also be out-competed by other fields of study and skilled staff will be increasingly hard to recruit.
8. The skilled labour pool for Amenity Horticulture appears to be at a stage where 'maintenance training' will suffice for the next two years, although as the industry responds to the forces of change, the training needs may also change and therefore should be monitored by both planning authorities and Registered Training Organisations (RTOs).

## Part 3 Industry demand for training

Due to the aggregation of a number of distinct sectors within this industry grouping that require separate consideration, the following sub-heading summary is hyperlinked to the appropriate section for easier navigation. To proceed to the desired section simply **point your screen cursor to the desired section and hold down the Ctrl-Key** on your keyboard and **'click' the mouse button** on that section.

[Characteristics of the Agricultural Workforce](#)

[Characteristics of the Horticultural Workforce](#)

[Changes occurring in demand for training](#)

[Changes required to the nature of training](#)

[The target market for training](#)

[Numbers of people that need to be trained](#)

[Recommendations for the appropriate response by the training system](#)

[Information on training demand being met outside the Tasmanian public system](#)

[Additional industry advice not directly related to industry demand for training](#)

### 1 Normal drivers of training demand

Essentially, farmers and horticulturalists undertake training if they see a benefit and the drivers of training demand are similar to other small businesses. The benefit may be one or combinations of the following factors:

- **Implementation of new technology:** Where the introduction of new technology requires either generic or specific training.
- **New full time employee (s) needing training:** If a business decides to engage a new full time employee, the employer subsidies associated with traineeships are a significant incentive to do so.
- **Problem solving:** When specific problems arise, farmers and horticulturalists will frequently seek out appropriate short course training.
- **Exploiting opportunities:** If an opportunity arises to buy an additional property, expand a contract, diversify, vertically integrate or change to producing a new product, they will frequently seek training for themselves or consider employing an additional person and seek subsidised training for that person.
- **Change in practices:** A voluntary or forced change in business practices may also result in them seeking out training. However, it may also be more subtle such as the recognition of the growing sophistication of their industry and their need to gain new skills to remain competitive.

## 2 Characteristics of the existing workforce

### Characteristics of the Agricultural Workforce

The farm labour force has not modernised as in other industries and is comprised of independent, disparate individuals; often employed on piecework rates or part time, short term casual, or long-term unskilled/semi-skilled basis, and with little career structure, opportunity for advancement or enhancement of their individual skill-base.

The median age of farmers has been increasing steadily since 1981 but there are differential age profiles between industries. The dairy and horticulture industries have the youngest age profile whilst beef and sheep have the oldest. Ageing is greatest in areas where farm aggregation has slowed and small farms predominate. These areas are less and less important for aggregate agricultural production figures. As a generalisation, it can be said that the largest 10% of farms produce 50% of the value of agricultural production whilst the smallest 50% produce only 10% of the value of agricultural production.

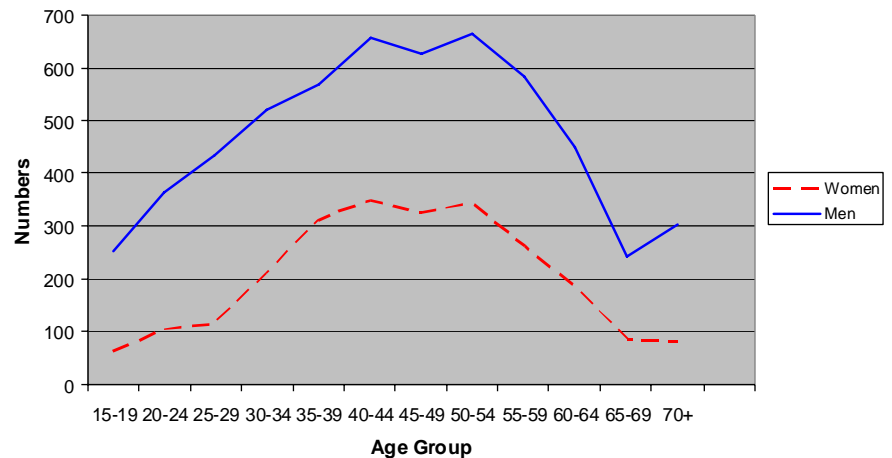
Whilst the number of farmers has declined only marginally, differential changes in the entry and exit rates of younger and older farmers mean that the age profile of the farming population is changing, despite the limited change in the total number of farmers.

The decline in the rate of entry of younger people to farming and the associated deferral of retirement from farming can be expected to lead to an ageing of the farm population. In particular, ageing is potentially a significant issue for the wool and beef industries.<sup>19</sup>

Table 3 indicates the qualifications of Tasmanian Farming employees. It appears that approximately 5% have agricultural higher education qualifications, 21% have agricultural VET qualifications, and the remaining 74% have secondary qualifications. As might be expected, these are concentrated in the main agricultural Local Government Areas (LGAs).

Table 4 shows Tasmanian farming employees with post-secondary qualifications by field of study and Local Government Area. It shows that of those who have qualifications, 37% are in the agricultural, 30% horticultural and 11% environmental fields of study.

Figure 4: Farmers by Age and Gender (2001)



Source: ABS (2001). Population Census.

<sup>19</sup> BARR, N. (2004) The micro-dynamics of change in Australian agriculture 1976 – 2001. IN STATISTICS, A. B. O. (Ed.), Commonwealth of Australia.

Table 3: Tasmanian Farming Employees with Post-Secondary Qualifications by all Levels by LGA (2001)

| LGA                  | Not Stated | InDesc    | PG-No Desc | Doctorate | Masters   | GDip/GC ert (NS) | Gdip      | Gcert    | Bach Degree | Total HE   | Adv Dip/Dip (NS) | Adv Dip    | Dip        | Cert (NS) | Cert III & IV | Cert I & II | Total VET Level | Total Secondary Level | Grand Total Each LGA |
|----------------------|------------|-----------|------------|-----------|-----------|------------------|-----------|----------|-------------|------------|------------------|------------|------------|-----------|---------------|-------------|-----------------|-----------------------|----------------------|
| Break O'Day          | 6          | 1         | 0          | 0         | 1         | 0                | 3         | 0        | 8           | 12         | 0                | 5          | 2          | 0         | 10            | 2           | 19              | 106                   | 144                  |
| Brighton             | 6          | 0         | 0          | 0         | 0         | 0                | 0         | 0        | 4           | 4          | 0                | 0          | 4          | 0         | 3             | 3           | 10              | 42                    | 62                   |
| Burnie               | 9          | 2         | 0          | 0         | 0         | 0                | 0         | 0        | 6           | 6          | 0                | 5          | 3          | 0         | 22            | 2           | 32              | 113                   | 162                  |
| Central Coast        | 23         | 6         | 0          | 1         | 0         | 0                | 1         | 0        | 14          | 16         | 0                | 7          | 10         | 1         | 101           | 6           | 125             | 414                   | 584                  |
| Central Highlands    | 17         | 6         | 0          | 0         | 2         | 0                | 5         | 0        | 15          | 22         | 0                | 15         | 10         | 0         | 20            | 4           | 49              | 209                   | 303                  |
| Circular Head        | 34         | 8         | 0          | 0         | 1         | 0                | 1         | 0        | 12          | 14         | 0                | 18         | 9          | 3         | 82            | 8           | 120             | 501                   | 677                  |
| Clarence             | 8          | 1         | 0          | 0         | 3         | 0                | 0         | 0        | 12          | 15         | 0                | 2          | 2          | 0         | 13            | 2           | 19              | 97                    | 140                  |
| Denwent Valley       | 7          | 2         | 0          | 0         | 0         | 0                | 1         | 0        | 4           | 5          | 0                | 4          | 2          | 0         | 15            | 2           | 23              | 82                    | 119                  |
| Devonport            | 11         | 3         | 0          | 0         | 0         | 0                | 0         | 0        | 13          | 13         | 0                | 4          | 4          | 0         | 36            | 0           | 44              | 187                   | 258                  |
| Dorset               | 36         | 3         | 0          | 0         | 1         | 0                | 0         | 0        | 22          | 23         | 0                | 22         | 9          | 2         | 84            | 11          | 128             | 403                   | 593                  |
| Flinders             | 6          | 0         | 0          | 0         | 0         | 0                | 0         | 0        | 7           | 7          | 0                | 3          | 1          | 0         | 19            | 2           | 25              | 82                    | 120                  |
| George Town          | 4          | 0         | 0          | 0         | 1         | 0                | 0         | 0        | 7           | 8          | 0                | 5          | 2          | 0         | 10            | 0           | 17              | 80                    | 109                  |
| Glamorgan/Spring Bay | 8          | 1         | 0          | 0         | 1         | 0                | 0         | 0        | 6           | 7          | 0                | 6          | 6          | 1         | 8             | 5           | 26              | 94                    | 136                  |
| Glenorchy            | 3          | 0         | 0          | 0         | 0         | 0                | 0         | 0        | 2           | 2          | 0                | 1          | 2          | 0         | 8             | 0           | 11              | 49                    | 65                   |
| Hobart               | 3          | 0         | 0          | 2         | 2         | 0                | 1         | 0        | 14          | 19         | 1                | 5          | 4          | 0         | 13            | 1           | 24              | 45                    | 91                   |
| Huon Valley          | 26         | 6         | 0          | 1         | 0         | 4                | 1         | 1        | 29          | 35         | 0                | 11         | 7          | 1         | 65            | 10          | 94              | 407                   | 568                  |
| Kentish              | 15         | 4         | 0          | 0         | 0         | 0                | 2         | 0        | 3           | 5          | 0                | 13         | 4          | 1         | 32            | 3           | 53              | 211                   | 288                  |
| King Is              | 17         | 3         | 0          | 0         | 0         | 0                | 1         | 0        | 11          | 12         | 1                | 10         | 6          | 0         | 29            | 3           | 49              | 137                   | 218                  |
| Kingborough          | 9          | 2         | 0          | 0         | 3         | 0                | 0         | 0        | 14          | 17         | 1                | 6          | 3          | 1         | 29            | 3           | 43              | 91                    | 162                  |
| Latrobe              | 22         | 10        | 0          | 0         | 1         | 0                | 1         | 0        | 11          | 13         | 0                | 12         | 9          | 0         | 69            | 5           | 95              | 221                   | 361                  |
| Launceston           | 13         | 3         | 0          | 1         | 1         | 0                | 1         | 0        | 13          | 16         | 0                | 16         | 4          | 1         | 61            | 6           | 88              | 213                   | 333                  |
| Meander Valley       | 37         | 6         | 0          | 0         | 1         | 0                | 4         | 0        | 27          | 32         | 1                | 36         | 13         | 1         | 101           | 10          | 162             | 479                   | 716                  |
| Nth Midlands         | 26         | 11        | 0          | 1         | 2         | 0                | 0         | 0        | 25          | 28         | 0                | 42         | 30         | 2         | 80            | 12          | 166             | 435                   | 666                  |
| Sorell               | 3          | 4         | 0          | 0         | 0         | 0                | 1         | 0        | 6           | 7          | 1                | 3          | 7          | 0         | 25            | 7           | 43              | 119                   | 176                  |
| Sth Midlands         | 17         | 5         | 0          | 1         | 0         | 0                | 0         | 0        | 23          | 24         | 0                | 12         | 7          | 0         | 39            | 5           | 63              | 339                   | 448                  |
| Tasman               | 7          | 0         | 0          | 1         | 0         | 0                | 0         | 0        | 3           | 4          | 0                | 2          | 2          | 0         | 8             | 1           | 13              | 56                    | 80                   |
| War/Wynyard          | 26         | 2         | 0          | 0         | 1         | 0                | 3         | 0        | 19          | 23         | 1                | 9          | 3          | 0         | 49            | 6           | 68              | 219                   | 338                  |
| West Tamar           | 12         | 1         | 0          | 1         | 1         | 0                | 2         | 0        | 10          | 14         | 0                | 13         | 5          | 1         | 29            | 8           | 56              | 108                   | 191                  |
| <b>Totals</b>        | <b>411</b> | <b>90</b> | <b>0</b>   | <b>8</b>  | <b>23</b> | <b>0</b>         | <b>31</b> | <b>1</b> | <b>340</b>  | <b>403</b> | <b>6</b>         | <b>287</b> | <b>170</b> | <b>15</b> | <b>1,060</b>  | <b>127</b>  | <b>1,665</b>    | <b>5,539</b>          | <b>8,108</b>         |

Source: ABS (2001). Population Census.

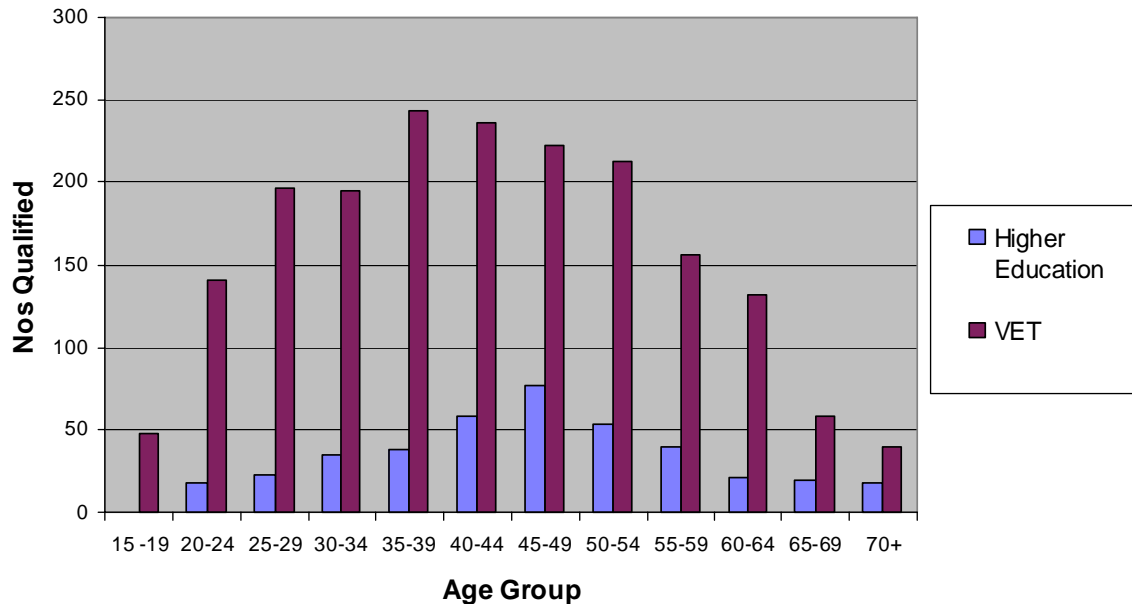
Table 4: Tasmanian Farming Employees with Post-Secondary Qualifications by Field of Study by Local Government Area (2001)

| Local Government Area | Agriculture nfd | Agricultural Science | Wool Science | Animal Husbandry | Agriculture, nec | Horticulture & Viticulture | Forestry Studies | Environmental Studies | Other Agriculture, Environmental & Related Studies | TOTALS       |
|-----------------------|-----------------|----------------------|--------------|------------------|------------------|----------------------------|------------------|-----------------------|--|--------------|
| Break O'Day           | 0               | 20                   | 3            | 0                | 0                | 6                          | 8                | 3                     | 0  | 40           |
| Brighton              | 0               | 3                    | 0            | 0                | 0                | 7                          | 5                | 0                     | 3  | 18           |
| Burnie                | 0               | 21                   | 0            | 3                | 0                | 33                         | 14               | 6                     | 0  | 77           |
| Central Coast         | 0               | 82                   | 3            | 3                | 0                | 49                         | 10               | 3                     | 3  | 153          |
| Central Highlands     | 0               | 31                   | 8            | 0                | 0                | 3                          | 6                | 0                     | 0  | 48           |
| Circular Head         | 0               | 83                   | 0            | 3                | 3                | 13                         | 8                | 0                     | 0  | 110          |
| Clarence              | 0               | 35                   | 0            | 0                | 3                | 87                         | 20               | 30                    | 0  | 175          |
| Denwent Valley        | 0               | 19                   | 0            | 0                | 0                | 20                         | 7                | 3                     | 0  | 49           |
| Devonport             | 0               | 50                   | 6            | 0                | 0                | 25                         | 14               | 0                     | 3  | 98           |
| Dorset                | 0               | 63                   | 6            | 0                | 0                | 10                         | 32               | 3                     | 0  | 114          |
| Flinders              | 0               | 3                    | 9            | 0                | 0                | 0                          | 0                | 0                     | 0  | 12           |
| George Town           | 0               | 10                   | 6            | 0                | 0                | 15                         | 6                | 3                     | 0  | 40           |
| Glamorgan/Spring Bay  | 0               | 13                   | 3            | 0                | 0                | 12                         | 7                | 15                    | 0  | 50           |
| Glenorchy             | 0               | 9                    | 3            | 3                | 0                | 57                         | 9                | 9                     | 3  | 93           |
| Hobart                | 0               | 78                   | 9            | 0                | 0                | 81                         | 39               | 133                   | 0  | 340          |
| Huon Valley           | 0               | 36                   | 6            | 0                | 0                | 37                         | 16               | 8                     | 0  | 103          |
| Kentish               | 0               | 25                   | 6            | 0                | 0                | 6                          | 3                | 6                     | 0  | 46           |
| King Is               | 0               | 31                   | 3            | 0                | 0                | 6                          | 0                | 6                     | 0  | 46           |
| Kingborough           | 0               | 44                   | 0            | 12               | 0                | 76                         | 26               | 42                    | 3  | 203          |
| Latrobe               | 3               | 47                   | 0            | 3                | 0                | 23                         | 0                | 0                     | 3  | 79           |
| Launceston            | 3               | 94                   | 29           | 12               | 0                | 134                        | 59               | 20                    | 0  | 351          |
| Meander Valley        | 3               | 113                  | 12           | 6                | 0                | 32                         | 14               | 3                     | 0  | 183          |
| Nth Midlands          | 0               | 83                   | 48           | 3                | 0                | 26                         | 0                | 3                     | 3  | 166          |
| Sorell                | 0               | 13                   | 6            | 0                | 0                | 28                         | 6                | 6                     | 0  | 59           |
| Sth Midlands          | 0               | 27                   | 13           | 3                | 3                | 6                          | 0                | 0                     | 0  | 52           |
| Tasman                | 0               | 11                   | 3            | 0                | 0                | 6                          | 3                | 7                     | 0  | 30           |
| War/Wynyard           | 0               | 48                   | 0            | 0                | 0                | 31                         | 24               | 12                    | 0  | 115          |
| West Tamar            | 0               | 23                   | 16           | 3                | 0                | 60                         | 13               | 12                    | 3  | 130          |
| <b>TOTALS</b>         | <b>9</b>        | <b>1,115</b>         | <b>198</b>   | <b>54</b>        | <b>9</b>         | <b>889</b>                 | <b>349</b>       | <b>333</b>            | <b>24</b>  | <b>2,980</b> |

Source: ABS (2001). Population Census.

Figure 5 combines the age profile of Tasmanian farmers with agricultural qualifications by the sector of those qualifications. This demonstrates the relatively younger profile of farmers with VET level qualifications.

Figure 5: Tasmanian Farming Employees with Post-Secondary Qualifications by Age and Broad Level of Study (2001)



## Nature of the training required

Farmers have historically relied on informal, non-accredited learning, largely in the form of extension from departments of agriculture and workshops, discussion groups etc. There is not a tradition of accessing formal training courses, which are generally quite low on their list of sources of information and learning. The introduction of farm apprenticeships (as they were) and agricultural traineeships have made significant inroads into changing the learning culture of farmers as there is now a large proportion of the farmers and farm workers in Tasmania who have participated in these (see Table 3 and Figure 5).

In the farming sub-culture, learning is socially embedded and developmental, occurring over a lifetime rather than occurring solely in a training precinct. An emphasis on formal qualifications in training for farming largely overlooks the social embeddedness of the learning process and is common to many types of small business, not just farmers.<sup>20</sup>

It also overlooks a number of other critical issues. Firstly, the literacy/numeracy level of young people entering farming is relatively low. In the first 10 years of the farming apprenticeship operation in Tasmania, comprehensive testing indicated that the average reading age was 10.6 years. This is not to say that the young people concerned were not intelligent, but simply that they had not acquired a high level of literacy skilling during their formal schooling and that ANY form of education and training MUST consider this. Secondly, the social context of rural people and, in particular their family attitudes and culture, are important determinants of their attitude to learning and their learning styles.

<sup>20</sup> KILPATRICK, S., JOHNS, S., MURRAY-PRIOR, R. & HART, D. (1999) Managing farming: How farmers learn. Canberra, ACT, Aust., Rural Industries Research and Development Corporation.

The discussion of skill shortages in Part 2 highlighted the importance of the nature and quantum of entry and exit rates to determining the level of training provision for farming. **It indicated that even relative to the historical reliance on informal and short course learning, the future will require a greater emphasis on short, flexible, high level in-service training courses to service the new, middle-aged owners and the employees who work either for them or for highly specialised labour hire services.**

Generally, farmers will make their decisions about their own participation in training on some or all of the following factors:

- *Informal, continuous learning:* Australian farmers have a cultural tradition of using a wide range of sources of informal learning. It is self-directed, highly interactive, experiential and action-oriented.
- *Price:* Farmers believe that they do not have the capability to pay for training and have had a long experience with the 'free' extension services of the former departments of agriculture. To some extent that is currently being maintained by the FarmBis program which pays up to 60% of the cost of approved courses, generally in-service 'commercial' training. As evidenced by the 2004 hiatus between funding approvals of FarmBis, very little training will be undertaken without FarmBis. There is little recognition that it may be quite directly connected to profit improvements and no tradition of training as in other industries.
- *Flexibility:* Training courses conducted for farmers and their employees MUST be conducted within the lower periods of work intensity on farms. They are largely one-person small businesses and are biological systems that cannot be delayed in their cycle of needs. In common with other small business areas, back-filling staff at short courses is a significant issue. Therefore, trainee or student absences from the farm must be carefully timed and short course training usually scheduled for the May to August period of each year.
- *Practicality:* Education programs per se are likely to stimulate action only if they complement existing action intentions. This is often expressed, as 'training for farmers must have immediate application to their business.'
- *Linkage into the social context:* Farmers are social network oriented. Action is more likely to be stimulated by expectations within a person's community of practice than by external ones—for example, for a farmer, expectations within his or her communities of practice, which are likely to differ from those a commercial or government agent belongs to.
- *Participative, action learning methodologies:* Facilitative leadership is essential for building and maintaining a pattern of reflective practice among farmers in a joint effort to improve a problematic situation.<sup>21, 22</sup>

The implications of this are:

1. There must be more of an emphasis on the provision of single units of competence at the higher levels, delivered flexibly in a manner suited to farmers and their

<sup>21</sup> MACADAM, R., DRINAN, J., INNALL, N. & MCKENZIE, B. (2004) Growing the capital of rural Australia: The task of capacity building Canberra, ACT, Rural Industries Research and Development Corporation.

<sup>22</sup> BAMBERRY, G., DUNN, T. & LAMONT, A. (1997) A pilot study of the relationship between farmer education and good farm management. Kingston, ACT, Rural Industries Research and Development Corporation.

employees. That is, in groups (because they are social and experiential learners) off-the-job, using expert facilitators and practical application.

2. The implementation of the training package for the farming industry per se will require more of an emphasis on off-the-job training. Whilst this is not a new message, having been the subject of industry liaison and system modifications to delivery over the last several years, the point is particularly critical for the delivery of higher-level skills. *There is no base of high level skilling in the farming sector, particularly in the emerging skill sets identified in this report*, and therefore, off-the-job training strongly coupled with on-the-job application is very important.
3. Specialisation in a 'cluster' of appropriate skills relevant to local areas and specific industries must be provided.

[\(Click to return to Part 3 Industry demand for training\)](#)

## Characteristics of the Horticultural Workforce<sup>23</sup>

- Overall it appears from Table 5 that between censuses the numbers in the industry fell quite significantly. However, because of the small numbers in each industry sector and even more so at each occupational level, definitive statements cannot be made with any certainty and this census data should be triangulated with other available data. Notwithstanding this, the overall downward trend in employment is significant and substantiated when compared with VET enrolment/completion data.
- When individual occupational levels are considered, it appears that Parks and Gardens Managers and Tradespersons were more in demand.
- It would appear that the downturn in Nurseries referred to earlier has had an effect on the numbers of qualified Managers working in the industry, but has resulted in the numbers of Nursery Assistants being employed.
- It should be noted that these industry sectors appear to employ few 'Labourers' and respondents clearly regarded themselves as skilled, perhaps because of achieving some form of VET qualification.
- The graph in Appendix C provides an insight into the age and gender profile of those people enrolling in VET Horticultural courses. Most people appear to be enrolled in Certificate II or III courses and have a large proportion of 25 – 49 year old participants. This substantiates anecdotal information that the industry tends to put current employees through at least a basic course of training as a condition of employment. It also appears that approximately 75% of employees in any age group are male.
- Table 8 indicates that people undertaking Horticultural courses have a greater range of ages at which they undertake training than do those in Agriculture. As expected Certificate II enrolments are around 20 years, Certificate III are somewhat older in the Nursery Industry (32 years) and Certificate IVs are undertaken by those in their mid-40s.

<sup>23</sup> It should be noted that the ABS data analysis was undertaken prior to the 2006 Census data being available. Also note that 'Farmers and Farm Managers' have been included in Table 5 due to an overlap in occupational definitions, however, workers in the Production Horticulture and Fruit Industries have been **excluded** by the cross-tabulation of occupations with industry sectors.

Table 5: Number of Persons Working in Tasmanian Amenity Horticulture Occupations by Industry (1996 - 2001)

| Occupations<br>Industry Sector                                   | Totals     |            | Variance<br>% |
|--|------------|------------|---------------|
|  | 1996       | 2001       |               |
| <b>131 Farmers and Farm Managers</b>                             |            |            |               |
| 0111 Plant Nurseries   | 26         | 11         | -58%          |
| 4251 Landscaping Services  | 0          | 0          |               |
| 9230 Parks and Gardens, undefined                                | 0          | 0          |               |
| 9231 Zoological and Botanic Gardens                              | 6          | 0          | -100%         |
| 9239 Recreational Parks and Gardens                              | 0          | 0          |               |
| <b>Total Industry</b>  | <b>32</b>  | <b>11</b>  | <b>-66%</b>   |
| <b>129917 Environment, Parks and Land Care Manager</b>           |            |            |               |
| 0111 Plant Nurseries   | 0          | 0          |               |
| 4251 Landscaping Services  | 0          | 0          |               |
| 9230 Parks and Gardens, undefined                                | 3          | 0          | -100%         |
| 9231 Zoological and Botanic Gardens                              | 0          | 3          |               |
| 9239 Recreational Parks and Gardens                              | 7          | 11         | 57%           |
| <b>Total Industry</b>  | <b>10</b>  | <b>14</b>  | <b>40%</b>    |
| <b>2114 Environmental and Agricultural Science Professionals</b> |            |            |               |
| 0111 Plant Nurseries   | 0          | 3          |               |
| 4251 Landscaping Services  | 0          | 0          |               |
| 9230 Parks and Gardens, undefined                                | 3          | 3          | 0%            |
| 9231 Zoological and Botanic Gardens                              | 0          | 3          |               |
| 9239 Recreational Parks and Gardens                              | 40         | 32         | -20%          |
| <b>Total Industry</b>  | <b>43</b>  | <b>41</b>  | <b>-5%</b>    |
| <b>212113 Landscape Architect</b>                                |            |            |               |
| 0111 Plant Nurseries   | 0          | 0          |               |
| 4251 Landscaping Services  | 0          | 0          |               |
| 9230 Parks and Gardens, undefined                                | 0          | 0          |               |
| 9231 Zoological and Botanic Gardens                              | 0          | 0          |               |
| 9239 Recreational Parks and Gardens                              | 0          | 0          |               |
| <b>Total Industry</b>  | <b>0</b>   | <b>0</b>   |               |
| <b>462 Horticultural Tradespersons</b>                           |            |            |               |
| 0111 Plant Nurseries   | 108        | 82         | -24%          |
| 4251 Landscaping Services  | 146        | 129        | -12%          |
| 9230 Parks and Gardens, undefined                                | 4          | 0          | -100%         |
| 9231 Zoological and Botanic Gardens                              | 14         | 13         | -7%           |
| 9239 Recreational Parks and Gardens                              | 11         | 16         | 45%           |
| <b>Total Industry</b>  | <b>283</b> | <b>240</b> | <b>-15%</b>   |
| <b>992200 Nursery and Garden Labourers, nfd</b>                  |            |            |               |
| 0111 Plant Nurseries   | 0          | 0          |               |
| 4251 Landscaping Services  | 0          | 0          |               |
| 9230 Parks and Gardens, undefined                                | 0          | 0          |               |
| 9231 Zoological and Botanic Gardens                              | 0          | 0          |               |
| 9239 Recreational Parks and Gardens                              | 0          | 0          |               |
| <b>Total Industry</b>  | <b>0</b>   | <b>0</b>   |               |
| <b>992211 Horticultural Nursery Assistant</b>                    |            |            |               |
| 0111 Plant Nurseries   | 53         | 62         | 17%           |
| 4251 Landscaping Services  | 0          | 0          |               |
| 9230 Parks and Gardens, undefined                                | 0          | 0          |               |
| 9231 Zoological and Botanic Gardens                              | 3          | 0          | -100%         |
| 9239 Recreational Parks and Gardens                              | 0          | 0          |               |
| <b>Total Industry</b>  | <b>56</b>  | <b>62</b>  | <b>11%</b>    |
| <b>992213 Garden Labourer</b>                                    |            |            |               |
| 0111 Plant Nurseries   | 3          | 3          | 0%            |
| 4251 Landscaping Services  | 3          | 9          | 200%          |
| 9230 Parks and Gardens, undefined                                | 0          | 0          |               |
| 9231 Zoological and Botanic Gardens                              | 0          | 0          |               |
| 9239 Recreational Parks and Gardens                              | 8          | 6          | -25%          |
| <b>Total Industry</b>  | <b>14</b>  | <b>18</b>  | <b>29%</b>    |
| <b>9929 Other Agricultural and Horticultural Labourers</b>       |            |            |               |
| 0111 Plant Nurseries   | 0          | 0          |               |
| 4251 Landscaping Services  | 0          | 0          |               |
| 9230 Parks and Gardens, undefined                                | 0          | 0          |               |
| 9231 Zoological and Botanic Gardens                              | 0          | 0          |               |
| 9239 Recreational Parks and Gardens                              | 0          | 0          |               |
| <b>Total Industry</b>  | <b>0</b>   | <b>0</b>   |               |
| <b>Total Occupations</b>   |            |            |               |
| 0111 Plant Nurseries   | 190        | 161        | -15%          |
| 4251 Landscaping Services  | 149        | 138        | -7%           |
| 9230 Parks and Gardens, undefined                                | 10         | 3          | -70%          |
| 9231 Zoological and Botanic Gardens                              | 23         | 19         | -17%          |
| 9239 Recreational Parks and Gardens                              | 66         | 65         | -2%           |
| <b>Total Industry</b>  | <b>438</b> | <b>386</b> | <b>-12%</b>   |

Source: Commissioned Data run from the ABS Census' 2001, 1996.

## Nature of the training required

The employment demand appears to be contracting slightly overall (although the 2006 Census statistics will provide a more accurate view) and therefore there is a stable demand for skilled workers from the available labour pool. Without an accurate picture of the destinations (career versus casual/part time versus hobby outcomes) of those who have been trained over the last decade or so, it is difficult to estimate the size of the skilled labour pool in the various sectors and for the levels of employment.

Therefore, it is probably reasonable to conclude from the various sources of information that:

- The employment need is contracting but the demands are for a higher quality of employee
- There are quite high levels of turnover in the employment base of the industry
- Turnover is highest in the Nursery and Landscaping sectors (Turf being difficult to identify)
- A proportion of the new entrants will have to be trained to maintain the base quality of those in the industry. However, because there is no information of the likely participation rates, we will have to estimate the likely rate and perhaps 10% – 20 % of new entrants would be a reasonable figure for maintenance.
- It is likely that the need for short in-service type training will increase

[\(Click to return to Part 3 Industry demand for training\)](#)

## Changes occurring in demand for training

Whilst there is a growing recognition amongst farmers that training can assist the changes that must take place in the structure and mode of operation, it is still not high on their agenda. Culturally, they do not immediately turn to training as a prime support of their business capability in times of crisis. Whilst the qualitative research conducted for this report, which is outlined in Part 1, has shown a high degree of consensus between independent experts, the advisors and service agents who support the industry as well as the farmers themselves, there is not yet a widespread personal commitment to training, either in the short or the medium term.

For these reasons, it is important that the immediate and continuing responses to the needs of the industry are measured and progressively increased over time. The current labour supply situation will accelerate the rate of change in the industry over the next 3 – 5 years and probably continue for the next 10 years. Government funded training support must therefore provide for:

- The skilling of the farmers who are willing and able to restructure their enterprises in the management of change;
- The skilling of new mature-aged, farmers with few farming skills;
- Re-skilling existing farm employees in either the new skills needed for more professional farming techniques;
- Re-skilling farm employees for careers with farm contractors OR on how to form farm sub-contracting businesses;
- The preparation of young people to enter the industry.

The analysis of OPCET historical traineeship completion statistics in Table 6 reveals that the provision in recent times has been declining significantly in Agriculture and Related courses. Further, historically the mix of traineeships has been predominantly in amenity horticulture (65%) with Agriculture only 35%.<sup>24</sup>

Table 6: Traineeship Completions in Agriculture and Related Courses 1998 - 2005

| Qualification  | 1998      | 1999      | 2000       | 2001       | 2002      | 2003      | 2004      | 2005       | Grand Total |
|--|-----------|-----------|------------|------------|-----------|-----------|-----------|------------|-------------|
| <b>Agriculture &amp; Related</b>                             |           |           |            |            |           |           |           |            |             |
| Certificate II in Agriculture                                | 1         | 18        | 30         | 21         | 39        | 15        | 12        | 48         | 184         |
| Certificate II in Agriculture (Dairy)                        |           | 6         | 3          |            |           |           |           |            | 9           |
| Certificate II in Agriculture (Rural Merchandising)          |           |           |            | 1          | 1         |           |           |            | 2           |
| Certificate II in Production Horticulture                    |           |           |            |            |           |           |           | 2          | 2           |
| Certificate II in Irrigation                                 |           |           |            |            |           |           |           | 4          | 4           |
| Certificate II in Rural Operations                           |           |           |            |            | 1         | 2         |           |            | 3           |
| Certificate III in Agriculture                               |           | 14        | 22         | 33         | 9         | 14        | 7         | 36         | 135         |
| Certificate III in Agriculture (Dairy)                       | 1         |           | 2          | 1          |           | 2         |           |            | 6           |
| Certificate III in Agriculture (Rural Merchandising)         |           | 40        | 15         | 1          |           |           |           | 6          | 62          |
| Certificate III in Agriculture (Rural Merchants)             |           | 9         |            |            |           |           |           |            | 9           |
| Certificate III in Irrigation                                |           |           |            |            |           |           |           | 24         | 24          |
| Certificate IV in Agriculture                                |           |           |            |            |           | 1         | 3         | 3          | 7           |
| Certificate IV in Agriculture (Rural Merchandising)          |           |           | 1          |            |           | 2         |           |            | 3           |
| <b>Agriculture &amp; Related Sub-Totals</b>                  | <b>2</b>  | <b>87</b> | <b>73</b>  | <b>57</b>  | <b>50</b> | <b>36</b> | <b>22</b> | <b>123</b> |             |
| <b>Horticulture</b>  |           |           |            |            |           |           |           |            |             |
| Certificate II in Horticulture                               |           | 27        | 34         | 43         | 32        | 42        | 23        |            | 201         |
| Certificate II in Horticulture (Landscape)                   |           |           |            |            |           |           | 2         |            | 2           |
| Certificate II in Horticulture (Turf)                        |           |           |            |            |           |           | 1         |            | 1           |
| Certificate III in Horticulture                              | 25        | 31        | 84         | 58         | 33        | 20        | 4         |            | 255         |
| Certificate III in Horticulture (Floriculture)               |           | 4         | 1          | 1          |           |           |           |            | 6           |
| Certificate III in Horticulture (Landscape)                  |           |           | 2          | 2          |           |           |           |            | 4           |
| Certificate III in Horticulture (Nursery)                    | 2         | 2         | 2          | 1          |           |           |           |            | 7           |
| <b>Horticulture Sub-Totals</b>                               | <b>27</b> | <b>64</b> | <b>123</b> | <b>105</b> | <b>65</b> | <b>62</b> | <b>30</b> | <b>0</b>   |             |
| <b>Veterinary &amp; Animal Studies</b>                       |           |           |            |            |           |           |           |            |             |
| Certificate II in Animal Studies                             |           | 2         | 3          | 4          | 10        | 4         | 6         |            | 29          |
| Certificate III in Animal Studies                            |           | 23        | 5          | 6          | 9         | 9         | 2         |            | 54          |
| Certificate IV in Veterinary Nursing (Critical Care & Emerg) |           |           |            |            | 3         | 2         |           |            | 5           |
| Certificate IV in Veterinary Nursing (Surgical)              |           |           |            |            | 7         | 4         |           |            | 11          |
| <b>Veterinary &amp; Animal Studies Sub-Totals</b>            | <b>0</b>  | <b>25</b> | <b>8</b>   | <b>10</b>  | <b>29</b> | <b>19</b> | <b>8</b>  | <b>0</b>   |             |

Source: VET Provider Collection, 2006

The lack of uptake of Traineeships by the farming community generally is probably due to declining profitability and the growing tendency of many farms to outsource operations to contractors.

<sup>24</sup> It should be noted that there is very little cross-over between amenity horticulture and either production horticulture or agriculture. Some related courses e.g. Veterinary Nursing have been excluded due to negligible cross-over to farming.

Table 7: Agricultural Course Completions 2002 - 2005

| <b>COURSES</b>                                       | <b>2002</b> | <b>2003</b> | <b>2004</b> | <b>2005</b> |
|--|-------------|-------------|-------------|-------------|
| <b>AGRICULTURE &amp; RELATED</b>                     |             |             |             |             |
| CERTIFICATE I IN AGRICULTURE                         | 19          | 23          | 9           |             |
| CERTIFICATE I IN AGRICULTURE (MILK HARVESTING)       |             | 2           |             |             |
| CERTIFICATE I IN RURAL OPERATIONS                    |             |             | 3           |             |
| CERTIFICATE II IN AGRICULTURE                        | 23          | 65          | 52          |             |
| CERTIFICATE II IN AGRICULTURE (SHEARING)             | 1           |             |             |             |
| CERTIFICATE II IN PRODUCTION HORTICULTURE            |             |             | 9           |             |
| CERTIFICATE II IN RURAL OPERATIONS                   |             |             | 2           |             |
| CERTIFICATE III IN AGRICULTURE                       | 20          | 20          | 11          |             |
| CERTIFICATE III IN PRODUCTION HORTICULTURE           |             |             | 8           | 6           |
| CERTIFICATE III IN SHEARING                          |             |             | 7           | 15          |
| CERTIFICATE III IN WOOL CLIP PREPARATION             |             |             |             | 11          |
| CERTIFICATE IV IN AGRICULTURE                        | 2           | 13          | 2           | 4           |
| DIPLOMA OF AGRICULTURE                               | 3           | 6           | 6           | 14          |
| ADVANCED DIPLOMA OF AGRICULTURE                      | 3           |             | 4           | 7           |
| <b>Agriculture &amp; Related Sub-Total</b>           | <b>71</b>   | <b>129</b>  | <b>113</b>  | <b>57</b>   |
| <b>CONSERVATION &amp; LAND MANAGEMENT</b>            |             |             |             |             |
| CERTIFICATE I IN CONSERVATION AND LAND MANAGEMENT    |             |             | 1           | 1           |
| CERTIFICATE II IN AUSTRALIAN LAND CONSERV'N & REST'N | 12          | 9           |             |             |
| CERTIFICATE II IN CONSERVATION AND LAND MANAGEMENT   |             | 9           | 9           | 24          |
| CERTIFICATE III IN CONSERVATION AND LAND MANAGEMENT  |             |             | 3           | 13          |
| CERTIFICATE IV IN ENVIRONMENTAL MANAGEMENT           | 2           |             |             |             |
| DIPLOMA OF CONSERVATION AND LAND MANAGEMENT          |             |             | 1           | 1           |
| <b>Conservation &amp; Land Management Sub-Total</b>  | <b>14</b>   | <b>18</b>   | <b>14</b>   | <b>39</b>   |
| <b>HORTICULTURE &amp; RELATED</b>                    |             |             |             |             |
| CERTIFICATE I IN HORTICULTURE                        | 41          | 37          | 34          | 23          |
| CERTIFICATE II IN HORTICULTURE                       | 91          | 89          | 74          | 83          |
| CERTIFICATE II IN HORTICULTURE (NURSERY)             | 1           |             |             |             |
| CERTIFICATE II IN HORTICULTURE (PRODUCTION)          |             | 3           | 1           |             |
| CERTIFICATE II IN FLORISTRY                          |             |             |             | 1           |
| CERTIFICATE II IN HORTICULTURE (LANDSCAPE)           |             |             |             | 2           |
| CERTIFICATE II IN HORTICULTURE (TURF)                |             |             |             | 3           |
| CERTIFICATE III IN HORTICULTURE                      | 59          | 118         | 62          | 58          |
| CERTIFICATE III IN FLORISTRY                         | 2           |             |             |             |
| CERTIFICATE III IN HORTICULTURE (ARBORICULTURE)      |             |             | 3           | 1           |
| CERTIFICATE III IN HORTICULTURE (LANDSCAPE)          |             |             | 1           |             |
| CERTIFICATE III IN HORTICULTURE (NURSERY)            |             |             |             | 2           |
| CERTIFICATE IV IN HORTICULTURE                       | 3           | 11          | 22          | 8           |
| DIPLOMA OF HORTICULTURE                              | 11          | 12          | 17          | 5           |
| ADVANCED DIPLOMA OF HORTICULTURE                     | 1           | 2           | 2           |             |
| <b>Horticulture &amp; Related Sub-Total</b>          | <b>209</b>  | <b>272</b>  | <b>216</b>  | <b>186</b>  |
| <b>ANIMAL &amp; VETERINARY NURSING</b>               |             |             |             |             |
| CERTIFICATE II IN ANIMAL STUDIES                     | 23          | 26          | 14          | 13          |
| CERTIFICATE III IN ANIMAL STUDIES                    | 9           | 12          | 11          | 8           |
| CERTIFICATE IV IN VETERINARY NURSING                 |             | 1           |             |             |
| CERTIFICATE IV IN VETERINARY NURSING (SURGICAL)      |             | 3           | 5           | 3           |
| CERTIFICATE IV IN VETERINARY NURSING (CRITICAL CARE) |             | 1           | 4           |             |
| <b>Animal &amp; Veterinary Sub-Total</b>             | <b>32</b>   | <b>43</b>   | <b>34</b>   | <b>24</b>   |
| <b>GRAND TOTAL</b>                                   | <b>326</b>  | <b>462</b>  | <b>377</b>  | <b>306</b>  |

Source: VET Provider Collection (2006).

Table 9: Trends in Completions in Agriculture and Related Courses (2002 - 05)

| Type                    | Level                | Field           | 2002 | 2003 | 2004 | 2005 |
|-------------------------|----------------------|-----------------|------|------|------|------|
| <b>Non-Traineeships</b> | <b>Certs I - III</b> | Agriculture     | 63   | 110  | 101  | 32   |
|                         |                      | Cons & Land Mgt | 12   | 18   | 13   | 38   |
|                         |                      | Horticulture    | 194  | 247  | 175  | 173  |
|                         |                      | Vet & Animal    | 32   | 38   | 25   | 21   |
|                         | <b>Certs IV +</b>    | Agriculture     | 8    | 19   | 12   | 25   |
|                         |                      | Cons & Land Mgt | 2    | 0    | 1    | 1    |
|                         |                      | Horticulture    | 15   | 25   | 41   | 13   |
| <b>Traineeships</b>     | <b>Certs I-III</b>   | Agriculture     | 50   | 33   | 19   | 120  |
|                         |                      | Horticulture    | 65   | 62   | 30   | 0    |
|                         |                      | Vet & Animal    | 19   | 13   | 8    | 0    |
|                         | <b>Certs IV</b>      | Agriculture     | 0    | 3    | 3    | 3    |
|                         |                      | Horticulture    | 0    | 0    | 0    | 0    |
|                         |                      | Vet & Animal    | 10   | 6    | 0    | 0    |

Source: VET Provider Collection, 2006

Table 8: Age of Enrolments to Agriculture and Horticulture Traineeships

| Course                         | Median | Mean  | Mode |
|--------------------------------|--------|-------|------|
| <b>Agriculture</b>             |        |       |      |
| Certificate II                 | 17.5   | 19.12 | 17   |
| Certificate III                | 21     | 26.81 | 18   |
| Certificate IV                 | 30.5   | 31.25 | 24   |
| <b>Agriculture (Dairy)</b>     |        |       |      |
| Certificate II                 | 17     | 21.03 | 17   |
| Certificate III                | 19     | 20.73 | 19   |
| <b>Rural Merchandising</b>     |        |       |      |
| Certificate II                 | 18     | 18.00 | #N/A |
| Certificate III                | 33     | 34.57 | 33   |
| <b>Animal Studies</b>          |        |       |      |
| Certificate II                 | 22     | 25.14 | 19   |
| Certificate III                | 23     | 24.61 | 20   |
| <b>Horticulture Group</b>      |        |       |      |
| <b>Certificate 1</b>           |        |       |      |
| Horticulture                   | 40     | 37.86 | #N/A |
| <b>Certificate II</b>          |        |       |      |
| Horticulture                   | 20     | 23.96 | 18   |
| Turf                           | 19.5   | 20.38 | 17   |
| Landscape                      | 22     | 25.11 | 19   |
| <b>Certificate III</b>         |        |       |      |
| Horticulture                   | 32     | 33.44 | 20   |
| Nursery                        | 23.5   | 27.00 | 20   |
| Landscape                      | 21     | 24.24 | 18   |
| Floriculture                   | 31     | 33.90 | 26   |
| <b>Certificate IV</b>          |        |       |      |
| Horticulture                   | 44     | 41.00 | #N/A |
| <b>Irrigation</b>              |        |       |      |
| Certificate II                 | 21     | 21.00 | 21   |
| Certificate III                | 32     | 33.83 | 31   |
| <b>Production Horticulture</b> |        |       |      |
|                                | 20     | #N/A  | #N/A |
| <b>Veterinary Nursing</b>      |        |       |      |
|                                | 24     | 26.52 | 21   |

Note: #N/A = Insufficient numbers to calculate

Source: VET Provider Collection (2006).

Table 7 outlines the non-traineeship course completions for Agriculture and related courses from 2002 to 2005. Table 8 summarises the trends in traineeships and non-traineeship courses in agriculture, horticulture and veterinary/animal courses.

The most significant points from Tables 6, 7, 8 and 9 are:

- Non-Traineeship Certificates and Diplomas:
  - The historical and continuing dominance of Non-Traineeship Certificates I – III in Amenity Horticulture in the profile.
  - Demand for Horticulture at Certificate I-III Level is still high, although it appears from Table 5 that actual employment at that level is waning.
  - The relatively small numbers of students completing the higher-level courses; over 80% of the provision has been at or below Certificate III level.
  - The apparent decline in demand for Certificates I – III in Agriculture.
  - Non-Traineeship completions in Agriculture and Horticulture at Certificate IV, Diploma and Advanced Diploma (designated “Certificate IV+” in Table 9) appear to be sustainable although numbers fluctuate significantly from year to year.
  - In Animal Care/Veterinary Nursing, completions are waning at all levels and it would appear that they are viable at only Certificate II and III levels. Very few complete courses at the Certificate IV level.
  - Completions in the Conservation and Land Management (CLM) courses have been growing in recent years although enrolments are very dependant on the annual employment plans for the Department of Tourism, Arts and Environment (DTAE).
- Traineeships:
  - Continuing but fluctuating demand for the traineeship in Agriculture.
  - Diminished demand for horticultural traineeships.
- The relative ages of those entering agricultural and related traineeships (Table 8) indicates that most people enrolling in Certificate II traineeships are in their late teens because these, as expected, are entry-level courses. However, surprisingly there is then a significant age jump when people enter Certificate III courses, with the exception of Dairy Trainees.<sup>25</sup>

In Amenity Horticulture, the age cohort is considerably older, probably reflecting the tendency for many smaller businesses, such as nurseries, bowling clubs and golf courses to recruit adults or older young people and enter a traineeship agreement in order to provide some training and gain the employer subsidy.

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<sup>25</sup> The **median** is a number that separates the higher half of a sample from the lower half. The **mean** is often called the average in ordinary English, which is more correctly called the arithmetic mean. The **mode** is the value that has the largest number of observations, namely the most frequent value or values.

A further significant issue is highlighted in Table 10, derived from the summary in Table 9 which indicates that over time, the mix of courses in this field has been predominantly in Amenity Horticulture (63%) with Agriculture only 37%.<sup>26</sup>

This begs the question of whether this provision is aligned with the state's economic development needs.

Table 10: Relative Historical Completions in Agriculture and Amenity Horticulture

| Course        | 2002       | 2003       | 2004       | 2005       | Totals       |
|---------------|------------|------------|------------|------------|--------------|
| Agriculture   | 121        | 165        | 135        | 180        | 601          |
| %             | 31%        | 33%        | 35%        | 49%        | 37%          |
| Horticulture  | 274        | 334        | 246        | 186        | 1,040        |
| %             | 69%        | 67%        | 65%        | 51%        | 63%          |
| <b>Totals</b> | <b>395</b> | <b>499</b> | <b>381</b> | <b>366</b> | <b>1,641</b> |

There are two main perspectives when attempting to answer that question:

1. A contribution to Gross State Product perspective, and
2. A contribution to Tasmanian employment.

The first is very hard to calculate because whilst it is reasonably well established for Agriculture (approximately \$3 billion), it is very difficult to do so for Amenity Horticulture due to its size and complexity, not the least of which is the complexity of employment arrangements. Amenity Horticulture's indirect contribution to GSP of the Tourism and Recreation Industries would be considerable but very difficult to quantify.

The second would clearly favour Agriculture, however, probably not as clearly as reference to Table 5 and Section 2 might indicate at first glance. That indicates that there are 10,600 people employed in Agriculture, the Farm Dependant Economy indirectly employs over 40,000 people, whilst Amenity Horticulture directly employs about 400 people. However, for the reasons stated in the previous paragraph, it is very difficult to determine the multiplier effect on employment for Amenity Horticulture. Even so, it is unlikely to be as great as that for Agriculture.

The statistics gathered for this TDP would appear to indicate that a significant number of enrolments in Amenity Horticulture may not have a vocational outcome.

This is a significant question that needs to be investigated and strategic decisions made regarding the relative impact on GSP of the two industries, however it is one that is well beyond the scope of this TDP.

## Conclusions about changes in training demand

The important points from this analysis for the focus of this report are:

1. The decline in the field of study per se is due probably to the industry's economic environment and the structural change that is occurring.
2. The small numbers of higher level course output when this is the strategic need of the industry and Tasmania.

<sup>26</sup> It should be noted that there is very little cross-over between amenity horticulture and either production horticulture or agriculture.

3. The apparent decline in young people entering the agricultural industry.
4. The decline of horticultural career opportunities in Tasmania.
5. The apparent historical imbalance between Agriculture and Amenity Horticulture.

[\(Click to return to Part 3 Industry demand for training\)](#)

## Changes required to the nature of training

This requires:

1. The redesign of the RTE03 Rural Production Training Package content to enable the changed skill emphasis, particularly at AQF levels 4, 5 and 6, emphasising the management and human resource management areas. This will require the inclusion of units of competence from other training packages; probably the most likely will be Business Services and Horticulture. Where competencies do not exist that are appropriate or can be adapted, they should be developed as specific to Tasmania's farm sector.
2. The development of AQF level 5/6 courses suitable for flexible delivery in the newly targeted skill components is essential. The emphasis MUST be on quality delivery.
3. An increase in the provision of short course training customised to **support the immediate skill needs for farmers undertaking change** processes or exiting farming.
4. Increasing the proportion of places available for 'training for farming' or for 'services to Agriculture'. Particularly in the early stages of farm sector restructuring only one state centre for farmer training can be supported because it is unlikely that numbers will be sufficient to maintain viable numbers across several centres.
5. Given the current crisis in the farm sector, the future of flexible training for farming and short course output needs to be broadened to focus on strategic training needs. The effort must also be increased considerably to meet both the short and long-term need. As indicated earlier, the future need for training will be in the form of flexible, customised, high level, in-service short courses.
6. These changes may require a review of the capability of providers to deliver the quality of training needed. The concept of capability includes:
  - a. The learning resources available.
  - b. The mode of delivery.
  - c. The training methods employed.
  - d. The credibility of trainers.
7. The review of the balance of delivery between Agriculture and Amenity Horticulture. This may result in positive discrimination in funding decisions and constraints in enrolments in certain fields of study being regarded as appropriate.

[\(Click to return to Part 3 Industry demand for training\)](#)

## The target markets for training

### Agriculture

The training needs should be phased in over time:

- *Short Term (1 – 2 years)*
- High quality, targeted short courses for farmers who are undertaking structural and operational changes, planning generational succession or exiting from the industry.
- Recruitment of high quality young people into traineeships. The capability of these recruits and incentives to continue through the hierarchy of courses need to be considered.
- The places available for AQF level 5/6 courses should be increased and coupled with an industry-supported marketing campaign to recruit high quality younger people into production horticulture and agriculture.
- *Medium Term (3 – 5 years)*
- High quality, targeted in-service short courses for farmers and employees that can be converted into a qualification should be increased. This facilitates the opportunities for and the development of a culture of 'learning while you work' that will parallel that in other industries.
- Recruitment of high quality young people into traineeships. The capability of these recruits and incentives to continue through the hierarchy of courses need to be considered.
- The places available for flexible, higher-level courses should be increased.

### Amenity Horticulture

- Men and women, 17 to 45 years of age

### Conservation and Land Management

- Men and women, 17 to 40 years of age
- School Leavers, Unemployed, Green Corps Volunteers
- Existing Parks and Wildlife employees

### Veterinary Nursing

- Young women, 17 – 30 years of age.

[\(Click to return to Part 3 Industry demand for training\)](#)

## Numbers of people that need to be trained

As indicated earlier, the ABS data has severe limitations, particularly when attempting to interpret information down to geographical area, industry or occupation (See Appendix B for an explanation). The data in Tables 11 and 12 are derived from ABS Census data for 1996 and 2001 using Neil Barr's formulae explained in Appendix B and is probably the best basis for making conservative estimates. However, because there are slight differences in the base ABS data, namely that for Agriculture it is a much more

complicated data set, different levels of detail are provided in the two tables which explains the visual differences between the two tables.

Identifying exits is the problematic issue, however, new entrants are much easier to gauge. Whilst the Exit data and 'churn' is important for broader industry policy, **the statistics that are important for VET planning are the New Entrants because, logically, they are the personnel that require training, even in a declining employment base.** Unfortunately, without an industry-wide survey or even a large representative sample (approximately 600), the critical question for estimating the numbers to be trained cannot be answered because it is neither practical nor acceptable to the industry: that is, "What are the likely participation rates amongst new industry entrants?" Agriculture and Horticulture are comprised of small to micro businesses that have been 'over-surveyed' and are resistant to participation in such exercises. Probably more importantly, contact databases are not available from industry associations due to the constraints of the Privacy Act.

Never-the-less, estimates can be made and for **Agriculture** in Table 11, it can be seen that the new entrants are highest at the managerial and labouring levels, therefore:

1. Train more people at the managerial end of the spectrum, probably between 120 to 300 AQF Levels 4 – 6 in a five year period.
2. Train perhaps half that number at the AQF level 2 – 3 skilled worker level because the state has relatively high base of skilled workers and the demand from the enrolments statistics appears to be at the higher levels.

*However, because the industry has changed since 2001 and has entered a period of rapid change, it is likely that these are the base levels of need and that output should be increased over time.* Following the 2006 ABS Census data collection, more up-to-date information will be able to be analysed for the next TDP.

The specific details of the numbers of people that need training **in addition to the current provision** are summarised in Table 13<sup>27</sup>. However, the detailed mapping of the stakeholder feedback about the training needs against accredited units appears in Appendix D. These projections recognise that the re-skilling of the industry requires a medium term effort and that demand will show little change in the short term due to economic circumstances.

For **Amenity Horticulture** we can see from Table 12 that the numbers of new entrants are highest for Landscaping, Nurseries and Parks and Gardens.<sup>28</sup> Whilst the raw numbers of entrants are quite high, because we cannot identify how many already have qualifications and how many of those who are unqualified would actually participate in VET, it is impossible to be precise about how many people will enter training.

However, what we can say is that the New Entrants are the potential market for training. Anecdotal evidence suggests that between 1% – 10% of these will participate in training.

<sup>27</sup> Based on Neil Barr's method described in Appendix E

<sup>28</sup> Note that because of the structure of ABS data collection, Turf employees are hidden within other categories and cannot be identified. These categories include "Farmers and Farm Managers", Nurseries and Parks and Gardens.

Table 11: Numbers of New Entrants into Tasmanian Agricultural Workforce by Occupational Level (1996 - 2001)

| Occupational Classification                              | Entrants<br>1996 | Entrants<br>2001 |
|--|------------------|------------------|
| <b>13 Farmers and Farm Managers</b>                      |                  |                  |
| 010 Agriculture, undefined                               | 206              | 11               |
| 011 Horticulture and Fruit Growing                       | 151              | 189              |
| 012 Grain, Sheep and Beef Cattle Farming                 | 201              | 269              |
| 013 Dairy Cattle Farming                                 | 346              | 290              |
| 014 Poultry Farming                                      | 13               | 5                |
| 015 Other Livestock Farming                              | 31               | 15               |
| 016 Other Crop Growing                                   | 9                | 15               |
| Other industry   | 185              | 267              |
| <b>total all industries</b>                              | <b>1,142</b>     | <b>1,061</b>     |
| <b>46 Skilled Agricultural and Horticultural Workers</b> |                  |                  |
| 010 Agriculture, undefined                               | 27               | 3                |
| 011 Horticulture and Fruit Growing                       | 36               | 29               |
| 012 Grain, Sheep and Beef Cattle Farming                 | 25               | 59               |
| 013 Dairy Cattle Farming                                 | 3                | 0                |
| 014 Poultry Farming                                      | 0                | 0                |
| 015 Other Livestock Farming                              | 0                | 0                |
| 016 Other Crop Growing                                   | 0                | 0                |
| Other industry   | 627              | 455              |
| <b>total all industries</b>                              | <b>718</b>       | <b>546</b>       |
| <b>992 Agricultural and Horticultural Labourers</b>      |                  |                  |
| 010 Agriculture, undefined                               | 128              | 15               |
| 011 Horticulture and Fruit Growing                       | 171              | 274              |
| 012 Grain, Sheep and Beef Cattle Farming                 | 83               | 157              |
| 013 Dairy Cattle Farming                                 | 117              | 107              |
| 014 Poultry Farming                                      | 14               | 11               |
| 015 Other Livestock Farming                              | 22               | 7                |
| 016 Other Crop Growing                                   | 36               | 47               |
| Other industry   | 328              | 441              |
| <b>total all industries</b>                              | <b>899</b>       | <b>1,059</b>     |
| <b>Total 'farmers'</b>                                   |                  |                  |
| 010 Agriculture, undefined                               | 361              | 29               |
| 011 Horticulture and Fruit Growing                       | 358              | 492              |
| 012 Grain, Sheep and Beef Cattle Farming                 | 309              | 485              |
| 013 Dairy Cattle Farming                                 | 466              | 397              |
| 014 Poultry Farming                                      | 27               | 16               |
| 015 Other Livestock Farming                              | 53               | 22               |
| 016 Other Crop Growing                                   | 45               | 62               |
| <b>Other industry</b>                                    | <b>1,140</b>     | <b>1,163</b>     |
| <b>total all industries</b>                              | <b>2,759</b>     | <b>2,666</b>     |

Source: ABS Census, 1996 and 2001.

Table 12: Numbers of Entries/Exits into the Tasmanian Amenity Horticulture Workforce by Occupational Level (1996 - 2001)

| Occupations/Industries   | Entries    | Exits      | Net        |
|--|------------|------------|------------|
|  | 1996-01    | 1996-01    |            |
| <b>131 Farmers and Farm Managers</b>                             |            |            |            |
| 0111 Plant Nurseries   | 7          | 9          | -2         |
| 4251 Landscaping Services  | 0          | 0          | 0          |
| 9230 Parks and Gardens, undefined                                | 0          | 0          | 0          |
| 9231 Zoological and Botanic Gardens                              | 3          | 6          | -3         |
| 9239 Recreational Parks and Gardens                              | 0          | 0          | 0          |
| <b>Total Industries</b>  | <b>10</b>  | <b>15</b>  | <b>-5</b>  |
| <b>129917 Environment, Parks and Land Care Manager</b>           |            |            |            |
| 0111 Plant Nurseries   | 0          | 0          | 0          |
| 4251 Landscaping Services  | 0          | 0          | 0          |
| 9230 Parks and Gardens, undefined                                | 3          | 3          | 0          |
| 9231 Zoological and Botanic Gardens                              | 0          | -3         | 3          |
| 9239 Recreational Parks and Gardens                              | 10         | 8          | 2          |
| <b>Total Industries</b>  | <b>13</b>  | <b>8</b>   | <b>5</b>   |
| <b>2114 Environmental and Agricultural Science Professionals</b> |            |            |            |
| 0111 Plant Nurseries   | 3          | 3          | 0          |
| 4251 Landscaping Services  | 0          | 0          | 0          |
| 9230 Parks and Gardens, undefined                                | 0          | 0          | 0          |
| 9231 Zoological and Botanic Gardens                              | 0          | 0          | 0          |
| 9239 Recreational Parks and Gardens                              | 34         | 32         | 2          |
| <b>Total Industries</b>  | <b>37</b>  | <b>35</b>  | <b>2</b>   |
| <b>212113 Landscape Architect</b>                                |            |            |            |
| 0111 Plant Nurseries   | 0          | 0          | 0          |
| 4251 Landscaping Services  | 0          | 0          | 0          |
| 9230 Parks and Gardens, undefined                                | 0          | 0          | 0          |
| 9231 Zoological and Botanic Gardens                              | 0          | 0          | 0          |
| 9239 Recreational Parks and Gardens                              | 0          | 0          | 0          |
| <b>Total Industries</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |
| <b>462 Horticultural Tradespersons</b>                           |            |            |            |
| 0111 Plant Nurseries   | 46         | 64         | -18        |
| 4251 Landscaping Services  | 97         | 104        | -7         |
| 9230 Parks and Gardens, undefined                                | 4          | 4          | 0          |
| 9231 Zoological and Botanic Gardens                              | 12         | 12         | 0          |
| 9239 Recreational Parks and Gardens                              | 10         | 5          | 5          |
| <b>Total Industries</b>  | <b>169</b> | <b>189</b> | <b>-20</b> |
| <b>992211 Horticultural Nursery Assistant</b>                    |            |            |            |
| 0111 Plant Nurseries   | 44         | 40         | 4          |
| 4251 Landscaping Services  | 0          | 0          | 0          |
| 9230 Parks and Gardens, undefined                                | 0          | 0          | 0          |
| 9231 Zoological and Botanic Gardens                              | 3          | 3          | 0          |
| 9239 Recreational Parks and Gardens                              | 0          | 0          | 0          |
| <b>Total Industries</b>  | <b>47</b>  | <b>43</b>  | <b>4</b>   |
| <b>992213 Garden Labourer</b>                                    |            |            |            |
| 0111 Plant Nurseries   | 3          | 6          | -3         |
| 4251 Landscaping Services  | 7          | 2          | 5          |
| 9230 Parks and Gardens, undefined                                | 0          | 0          | 0          |
| 9231 Zoological and Botanic Gardens                              | 0          | 0          | 0          |
| 9239 Recreational Parks and Gardens                              | 7          | 8          | -1         |
| <b>Total Industries</b>  | <b>17</b>  | <b>16</b>  | <b>1</b>   |
| <b>9929 Other Agricultural and Horticultural Labourers</b>       |            |            |            |
| 0111 Plant Nurseries   | 0          | 0          | 0          |
| 4251 Landscaping Services  | 0          | 0          | 0          |
| 9230 Parks and Gardens, undefined                                | 0          | 0          | 0          |
| 9231 Zoological and Botanic Gardens                              | 0          | 0          | 0          |
| 9239 Recreational Parks and Gardens                              | 0          | 0          | 0          |
| <b>Total Industries</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |
| <b>Total Occupations</b>   |            |            |            |
| 0111 Plant Nurseries   | 103        | 122        | -19        |
| 4251 Landscaping Services  | 104        | 106        | -2         |
| 9230 Parks and Gardens, undefined                                | 7          | 7          | 0          |
| 9231 Zoological and Botanic Gardens                              | 18         | 18         | 0          |
| 9239 Recreational Parks and Gardens                              | 61         | 53         | 8          |
| <b>Total Industries</b>  | <b>293</b> | <b>306</b> | <b>-13</b> |

Source: Commissioned data run from ABS Census' 1996, 2001

Note: Minor Occupation with zero returns have been omitted

Table 13: Summary of the Numbers of People that need to be Trained

| Year   | Qualification  | Nos required  |  |
|--|--|---|--|
| 2007   | <b>Agricultural Short Courses</b> <ul style="list-style-type: none"> <li>• Certificate III or IV Units</li> <li>• Diploma or Advanced Diploma Units</li> </ul>   | <ul style="list-style-type: none"> <li>• 400 Unit Enrolments</li> <li>• 400 Unit Enrolments</li> </ul>  |  |
|  | <b>Agriculture (Traineeships)</b> <ul style="list-style-type: none"> <li>• Certificate II in Rural Operations</li> <li>• Certificate II in Agriculture</li> <li>• Certificate III in Agriculture</li> <li>• Certificate III in Irrigation</li> <li>• Certificate IV in Agriculture</li> </ul>                              | <ul style="list-style-type: none"> <li>• 15 places</li> <li>• 35 places</li> <li>• 35 places</li> <li>• 25 places</li> <li>• 15 places</li> </ul>   |  |
|  | <b>Agriculture (Non-Traineeship)</b> <ul style="list-style-type: none"> <li>• Certificate II in Rural Operations</li> <li>• Certificate II in Agriculture</li> <li>• Certificate III in Agric. in Prod Hort</li> <li>• Certificate IV in Agriculture</li> <li>• Diploma Units</li> <li>• Advanced Diploma Units</li> </ul> | <ul style="list-style-type: none"> <li>• Nil places</li> <li>• 15 places</li> <li>• 15 places</li> <li>• 15 places</li> <li>• Additional 16 places (Total 30)</li> <li>• Additional 15 places (Total 22)</li> </ul> |  |
|  | <b>Amenity Horticulture (Traineeships)</b> <ul style="list-style-type: none"> <li>• Certificate II in Horticulture</li> <li>• Certificate III in Horticulture</li> </ul>   | <ul style="list-style-type: none"> <li>• Nil places (annually reviewed)</li> <li>• Nil places</li> </ul>  |  |
|  | <b>Amenity Horticulture (Non-Traineeship)</b> <ul style="list-style-type: none"> <li>• Certificate II in Horticulture</li> <li>• Certificate III in Horticulture</li> <li>• Certificate IV in Horticulture</li> <li>• Diploma Units</li> <li>• Advanced Diploma Units</li> </ul>   | <ul style="list-style-type: none"> <li>• 45 places</li> <li>• 45 places</li> <li>• 15 places</li> <li>• 15 places (every 2<sup>nd</sup> year)</li> <li>• Nil places (every 2<sup>nd</sup> year)</li> </ul>          |  |
|  | <b>2008</b>  | <b>Agricultural Short Courses</b> <ul style="list-style-type: none"> <li>• Certificate III or IV Units</li> <li>• Diploma or Advanced Diploma Units</li> </ul>  | <ul style="list-style-type: none"> <li>• 600 Unit Enrolments</li> <li>• 600 Unit Enrolments</li> </ul> |
|  | <b>Agriculture (Traineeships)</b> <ul style="list-style-type: none"> <li>• Certificate II in Rural Operations</li> <li>• Certificate II in Agriculture</li> <li>• Certificate III in Irrigation</li> <li>• Certificate IV in Agriculture</li> </ul>  | <ul style="list-style-type: none"> <li>• 15 places</li> <li>• 25 places</li> <li>• 15 places</li> <li>• 15 places</li> </ul>  |  |
| <b>Agriculture (Non-Traineeship)</b> <ul style="list-style-type: none"> <li>• Certificate II in Rural Operations</li> <li>• Certificate II in Agriculture</li> <li>• Certificate III in Agriculture</li> <li>• Certificate IV in Agriculture</li> <li>• Diploma Units</li> <li>• Advanced Diploma Units</li> </ul> | <ul style="list-style-type: none"> <li>• 15 places</li> <li>• 15 places</li> <li>• 15 places</li> <li>• 15 places</li> <li>• Additional 15 places (Total 45)</li> <li>• Additional 25 places</li> </ul>  |   |  |
| <b>Amenity Horticulture (Non-Traineeship)</b> <ul style="list-style-type: none"> <li>• Certificate II in Horticulture</li> <li>• Certificate III in Horticulture</li> <li>• Certificate IV in Horticulture</li> <li>• Diploma Units</li> <li>• Advanced Diploma Units</li> </ul>                                   | <ul style="list-style-type: none"> <li>• 45 places</li> <li>• 45 places</li> <li>• 15 places</li> <li>• Nil places (every 2<sup>nd</sup> year)</li> <li>• 15 places (every 2<sup>nd</sup> year)</li> </ul>   |   |  |

Note: Proposed number of Horticultural places subject to recommended review of relativities between Agriculture and Horticulture.

Courses in **CALM** should be maintained or increased annually as determined following liaison with the largest employers.

[\(Click to return to Part 3 Industry demand for training\)](#)

## Recommendations for the appropriate response by the training system

Specific recommendations appear in Table 13 above, however, a summary of strategies for the field of study are:

1. Provide immediate, practical, high quality agricultural short courses to facilitate and support change or exit from the industry over the next 2 years.
  - a. The demand for this will change over time as more processing vegetable farmers make their decisions, so it is likely that year 2 of the program should be the largest outputs.
  - b. The content of these courses was identified by the qualitative research undertaken for this TDP and a (non-exhaustive) list of units of competency is detailed in Appendix D.
2. Conduct a review of the mix of traineeship and non-traineeship courses in Agriculture and Amenity Horticulture to ensure the balance of training effort is appropriate according to industry need.
3. Tighten up enrolment policies in Horticulture to focus delivery on persons wishing to enter employment, either part time or full time, in the industry.
4. Conduct a review of the appropriateness of the RTE03 Rural Production Training Package for the future characteristics of Tasmania's Agriculture identified in this TDP, and:
  - a. Modify the packaging rules for the training package to allow the use of a broader range of units of competence identified in other training packages.
  - b. Modify existing units or develop new units of competence specifically for this state's needs.
  - c. Identify new mix of delivery strategies to increase access and participation in training by the agricultural industry and meet the need for new higher order skills that largely do not yet exist within the industry. That is, a new appropriate mix of on-the-job and off-the-job learning strategies.
5. Identify the needs of TAFE Tasmania in implementing these new delivery strategies
  - a. The impediments to providing increased flexible, high quality delivery short courses.
  - b. The needs for additional physical, human and learning resources in the light of point 3.
  - c. The professional development needs of staff.
6. Develop a Five Year Plan for supporting the revitalising of Tasmanian Agriculture. This plan will:

- a. Facilitate and resource the change in the nature of TAFE's provision.
- b. Phase this development to prepare the managers and employees required in 3 to 5 years time.

[\(Click to return to Part 3 Industry demand for training\)](#)

## Information on training demand being met outside the Tasmanian public system

Regarding the Agricultural education provision outside of Tasmania, two informal, unpublished surveys have been conducted over the last 20 years in an attempt to identify the number of young people undertaking courses at interstate institutions. The results in these surveys were nearly identical and they found:

- Approximately 35 young people leave the state every year for training elsewhere in Australia or New Zealand.
- The majority of those are for higher education.
- Most will do so regardless of opportunities in this state for traditional reasons or perceptions about leaving the state to gain 'new ideas.'

However, it must be remembered that this will have changed significantly with the fortunes of the industry and the changed attitudes of young people to agricultural careers. **The sharp drop in agricultural post-secondary enrolments Australia-wide suggests that the figures quoted above may be at least half of what they have previously been.**

The amount of commercial training being provided is minimal outside of the FarmBis Program conducted by the Department of Primary Industry and Water (DPIW). The FarmBis Program is extending the quality requirements of its providers and now requires a Certificate IV in Assessment & Workplace Training and RTO status, or, suitable auspice arrangements with an RTO. FarmBis funding is only planned to June 2008 and beyond that further funding is very doubtful. Experience shows that few commercially funded courses will be conducted in the short term without the FarmBis subsidy. However, by 2008 significant structural changes in the Agricultural industry will be emerging including cultural change with respect to training.

*No information is available for Amenity Horticulture, CALM or Veterinary Nursing.* [\(Click to return to Part 3 Industry demand for training\)](#)

## Additional industry advice not directly related to industry demand for training

### Agriculture

The industry is in a classic 'Catch 22'; there is a serious shortage of appropriate employees available for Agriculture and those that are do not have sufficient basic literacy, technology or work skills. Consultation with farmers for this TDP frequently raised this issue and it would appear that they regard the quality of employees as being more of an issue than the overall shortage. This raises the issue of whether the entrance standards of all courses relevant to Agriculture should be raised to eventually elevate the individual standard of employee capability to meet the need of the farms of the future to cope with higher technology and standards of management. This is a

particularly important consideration for the VET in Schools and School-Based New Apprenticeships.

The recommendations in the previous section will require very strong liaison with the Agricultural industry and the farmer associations. The industry as outlined earlier is very strongly **relationship** and **network** based. **Trust** is built not on provider rhetoric but on **understanding**, **'walking the talk'** and mutual **respect**. For the farmers in this industry, now and into the future, the performance will have to be flexible, multimodal and high quality, regardless of whether it is short courses, full time or traineeship training.

Unfortunately, the VET system does not have a high standing in the farming sub-culture. There are perceptions that it is expensive and inflexible, the content is of very ordinary quality, there have been incidents of 'tick and flick' on-farm assessments and lecturers/assessors who had little local knowledge or industry standard skills.

Notwithstanding such emotive views, there are many employers who appreciate many of the changes brought about by the implementation of training packages. In addition, there are also many former apprentices and trainees, now in their 30s and 40s who voluntarily acknowledge their success is in large part due to the high quality of training provided by the VET system. These testimonies should be used to assist the re-branding of TAFE in training for farming.

## Amenity Horticulture

### Green keepers and turf specialists

- The VET system, with apprenticeships, has worked well for them in the past, and the public training content is relevant. However, with the benefit of hindsight they can see that the work-place learning approach when used on an established golf course has its limitations as the apprentices do not get practical experience in some skills a skilled, qualified operator should be able to demonstrate (e.g. construction of drains and tees). Therefore they now recommend a return to the 'old' system of block release (and its issue of being away from the workplace) or blending blocks with work-place approaches.
- Usual industry strategy is to not recruit qualified persons, but to train available suitable persons through providing quality job-specific training on the course (informally). This is more cost-effective.

### Parks, Reserves, Gardens, Sports Grounds

- However with respect to getting the best results from training, the comment was made that quality needs to be driven by the trainees themselves as TAFE 'do not do much' to clarify training and assessment for trainees, and that assessment in particular can be confusing because of two factors, firstly the candidates not being sure what they are being assessed on and secondly the jargon used. The jargon is not familiar to workers.
- The present vocational training system can meet much of the skills training need; however usually additional on-the-ground training is necessary. This is because people with 'college' certificates and diplomas are entering employment without essential basic-level practical skills expected in those with certification of their skills, and require training: **cited inadequate knowledge and experience in machine operations** (e.g. safe use and operation of brush-cutters, hand mowers and so forth). The issue, said to be curricular and related to competency-based

training practices that seem to have 'nobody fail', raises questions about assessment and what competency means. It devalues credentials when applicants who have certification cannot use basic equipment nor do basic tasks, and inadequate awareness of work dangers, risks and safe operation. The levels of training are not adequate for employment. Training providers have been alerted to the issues (without effect). **Required change:** Training providers to give appropriate emphasis in training and assessment to ensure the acquisition of practical knowledge and skills, and in particular for new entrants: 'Reasonable' level of practical knowledge and skills in the safe use and handling of chemicals; safe use and operation of basic machinery; and basic principles of pruning.

### Nursery

- Public training is not currently meeting the need for two reasons: What is delivered and the way it is delivered; and industry attitude to taking up public training. This is being addressed by establishing a closer relationship between nursery and garden industry Tasmania and TAFE (Horticulture) to enable a more informed connection of training to employers' needs.
- Short term (and longer term) skills needs from public training not currently met:
  - Employers/managers: management skills (business planning, marketing, finance and budgeting; human resource management, training and audit-related skills) – incrementally from Cert IV, Diploma and some higher.
  - Employees – same demands as at present content *plus* address the following gaps (ensuring an applied emphasis in training and assessment):
    - Plant identification
    - Pests and diseases
    - Safe use and operation of equipment and machinery
    - Safe use of chemicals
    - Soil science and plant nutrition
    - Basic pruning
- Current training skills levels available through formal vocational training are pitched too low to satisfy employment needs.
- Standards of assessment need to be appropriate - at all levels. Example issue – apprentices, who do not get required training and experience in their workplace due to its limitations (e.g. in what the organisation does or understanding) but are 'ticked off' as competent.

### Landscaping

- Present system of traineeships/apprenticeship with on-site training works very well for this industry sector. Recommend same courses, same level of funding, same model.
- Non-public system training is available, including regular opportunities for those in the landscaping industries to network, and participate in industry-specific forums, and address workplace safety – so not seeing a need for employer training support.

### **Arborists and Floriculturalists**

- Trainees have ready access to information and can repeat it for assessment purposes, but the employer's concern is whether trainees actually learn (understand, retain and apply the knowledge and skills on the job). The issue relates to the present system of training and reliability of assessment methods.

[\(Click to return to Part 3 Industry demand for training\)](#)

## Part 4 Assessment of infrastructure needs

### The ability of the existing building, plant and equipment infrastructure (in the publicly funded training system) to meet current and anticipated needs

The existing agricultural assets are mainly at the Burnie campus of TAFE Tasmania and there are Amenity Horticulture facilities at Burnie, Launceston and Hobart.

To maintain credibility with the agricultural industry for the courses in Agriculture, the Burnie facilities should remain the centre of any effort by TAFE Tasmania. They should be maintained at an adequate level to support the industry restructuring that is occurring.

Similarly, Amenity Horticulture facilities should be maintained until there is the recommended review of the relativities between the two disciplines. This will indicate the level of physical facilities and staff that must be maintained around the state.

However, having facilities focused on a particular part of the state should not restrict the provision of training in other locations to suit the needs of the industry. The delivery philosophy should be based on **quality of training** and the **participant needs**, not the location of staff, physical resources or industrial relations constraints.

### Recommendations

Following the reviews recommended in the latter section of Part 3, *'Recommendations for the appropriate response by the training system,'* a review must be undertaken of the physical infrastructure needs based on the future modes of delivery. The training system can no longer afford to maintain expensive but under-utilised infrastructure.

### Additional information on human and systems aspects of training infrastructure

The VET staff that are likely to be tasked with delivering the recommended courses may need re-training because:

- Many who have been in the VET system for a number of years will not have the skills required to deliver in the content areas nominated. Many will not have been trained by their basic discipline training for the type of agriculture that is emerging. This will have to be redressed by re-training, co-opting staff from disciplines other than agriculture (ensuring that they too have context), 'buying in' skilled staff on short term contracts or by hiring new medium term contract staff.
- The last 15 years of training package delivery have not been conducive to maintaining some of the skill sets involved in flexible delivery and in particular, short course delivery. This will need to be redressed.
- Industrial Agreements may not support the flexible mode of delivery recommended in this TDP. Where necessary they should be renegotiated, even for a small number of staff, to facilitate the delivery modes recommended in this report.
- Standardised Performance Agreements and organisational targets are not necessarily compatible with the modes of delivery recommended. The emphasis in implementing this report should be on **enabling the recommendations**, not being beholden to state or national reporting arrangements. Neither, for that

matter, should changes be made to accommodate higher costs; if these are required decisions to proceed or otherwise should be made on the strategic merits of the new strategies for state development.

## Part 5 Information on VET in schools, including school based new apprenticeships

### Qualifications and pathways appropriate for delivery through a VET in Schools program including school based new apprenticeships

VET in Schools participants currently comprise about 5% of the state funded effort and this equates to 145 qualifications. The continuation of coordination and promotion of VET in Schools is essential to underpin the emerging industry developments. The qualifications and pathways as they currently exist are appropriate for the short term.

In recent years, demand for the Certificate I in Horticulture has been strong however demand for the Certificate I in Agriculture, Certificate I in Agriculture (Milk Harvesting), Certificate I in Rural Operations and the Certificate I in Conservation and Land Management has diminished significantly.

Sadly, it is unlikely that the uptake of the School-based New Apprenticeships (SBNA) will change markedly in the short term due to the cost structures and employment trends in the industry and while the national mining industry boom continues. SBNAs approved by the Tasmanian Training Agreements Committee (TTAC) include:

|          |  |
|----------|--|
| RTE20103 | Certificate II in Agriculture                      |
| RTE30103 | Certificate III in Agriculture                     |
| RTE30403 | Certificate III in Agriculture (Dairy Production)  |
| RUV20104 | Certificate II in Animal Studies                   |
| RTF20103 | Certificate II in Horticulture                     |
| RTF30103 | Certificate III in Horticulture                    |
| RTF20403 | Certificate II in Horticulture (Landscape)         |
| RTF20703 | Certificate II in Horticulture (Parks and Gardens) |
| RTF20503 | Certificate II in Horticulture (Retail Nursery)    |
| RTF20803 | Certificate II in Horticulture (Turf)              |
| RTF20603 | Certificate II in Horticulture (Wholesale Nursery) |
| RTE20703 | Certificate II in Rural Operations                 |
| RUV40404 | Certificate IV in Veterinary Nursing               |

### Development and support for VET in Schools programs including school based new apprenticeships

The higher education sector has, through the DEST Primary Industry Science Program, an innovative and multi-focus approach to recruiting high quality entrants for the University of Tasmania's School of Agricultural Science. This has identified and employed highly successful recruitment strategies of Year 11 and 12 students into undergraduate Agricultural Science through a holistic approach to changing the cultural attitudes of Senior Secondary students, teachers and parents towards agriculture. Its success has

been highlighted by a Commonwealth Government report<sup>29</sup> and the prestigious Business and Higher Education Round Table (BHERT) Awards program.

A similar type of program to change the views of high school teachers and parents regarding the VET level opportunities for agriculturalists should be considered. However, it should be noted that the strategies will necessarily be different as the premise of the higher education program is fundamentally different, and in any event, should not be duplicated, as it will confuse the market.

### **Emerging opportunities**

In the mid-term future as career opportunities and remuneration structures change, particularly with the likely increase in highly professional labour hire firms and agricultural contractors, the opportunity for marketing SBNA's more strongly will improve.

### **Issues in implementing VET in Schools including school based new apprenticeships**

The agricultural industry is facing a future that involves growing professionalisation in management and technological input. The very low entrance standards of the VIS and SBNA do not reflect this need and should be re-assessed.

No other systemic issues were found however, as previously indicated, the economic conditions within the industry and current structural adjustments being made will work against the expansion of the SBNA and VET in Schools Program.

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<sup>29</sup> STONE, G., COUTTS, J., CASEY, M. & COUTTS, A. (2004) Evaluation of higher education innovation program: Science lectureship initiative. IN DEST (Ed.), Department of Education, Science and Technology.

## Part 6 Industry's top priorities for the public training system<sup>30</sup>

### 1 Units of Competency as Accredited Short Courses relevant to Agriculture

#### How many people require training and when (if relevant)?

As indicated earlier, a phased approach to implementation is recommended:

- 2007:
  - Certificate III or IV:  
200 persons x 2 units
  - Diploma or Advanced Diploma:  
200 persons x 2 units
- 2008:
  - Certificate III or IV:  
300 persons x 2 units
  - Diploma or Advanced Diploma:  
300 persons x 2 units

#### What will meeting this priority achieve?

- Provision of the knowledge and skills in key competencies required to implement farm business change.
- An increasing support over time to match the growing pace of change.
- An increasing emphasis on higher level skills.
- Establishment of the VET system as a provider of a broader base of industry relevant short courses.

#### What current action is in place to address this priority?

None.

#### What further action is required and what are the consequences of not taking it?

- *Further Action Required:*
  - OPCET and TAFE (as the major RTO servicing the Industry) should ensure they maintain a close and regular liaison with key industry bodies and persons. For example, regular liaison with the Chief Executive of the TFGA, regular attendance at the TFGA Commodity Council Meetings.

<sup>30</sup> For a list (non-exhaustive) of training needs mapped to units of competency see Appendix F.

- Promotion of the program through processing companies and Tasmanian Agricultural Productivity Group (TAPG).
- **Consequences of Not Taking Action:**
  - Industry restructuring is restricted due to a lack of appropriate skills.
  - Increased business and social dislocation.
  - VET system irrelevancy to the agricultural industries.

## 2 Certificate II – IV in Agriculture, Rural Operations or Production Horticulture

### How many people require training and when (if relevant)?

The demand for lower level operatives is adequately being met by the current provision.

### What will meeting this priority achieve?

Not applicable.

### What current action is in place to address this priority?

OPCET monitors demand through the Certificate II - IV Trainee statistics to determine market need over the next two years.

### What further action is required and what are the consequences of not taking it?

- **Further Action Required:**
  - Increased liaison with the industry and individual growers.
  - Promotion of the program through processing companies and Tasmanian Agricultural Productivity Group (TAPG).
  - Promotional campaign through other industry specific methods.
- **Consequences of Not Taking Action:**
  - Industry restructuring is restricted due to a lack of appropriate skills.
  - Increased business and social dislocation.
  - Growing VET system irrelevancy to the agricultural industries.

## 3 Diploma of Agriculture/Advanced Diploma of Agriculture

### How many people require training and when (if relevant)?

- 2007:
  - Diploma - An additional 16 places on the previous year (Total 30).
  - Advanced Diploma - An additional 15 places on the previous year (Total 22).
- 2008:
  - Diploma - An additional 15 places on the previous year (Total 45).

- Advanced Diploma - 25 places.

### **What will meeting this priority achieve?**

- Commence the development of a base of highly skilled Production Horticulture managers and supervisors for the future.
- Provide a base of some employees who may articulate on to the University of Tasmania's Undergraduate degree in Applied Science (Agriculture).
- Increase the supply of modern agricultural business managers.

### **What current action is in place to address this priority?**

Minimal engagement by the industry.

### **What further action is required and what are the consequences of not taking it?**

- *Further Action Required:*
- Increased liaison with the industry, individual growers and the University of Tasmania.
- Promotion of the program through processing companies and Tasmanian Agricultural Productivity Group (TAPG).
- Promotional campaign through other industry specific methods.
- Reviewing of the articulation arrangements between TAFE and the University.
- *Consequences of Not Taking Action:*
- Industry restructuring is restricted due to a lack of appropriate skills.
- Increased business and social dislocation.
- Growing VET system irrelevancy to the agricultural industries.

## **4 Diploma in Horticulture, Advanced Diploma of Horticulture Certificates II – IV in Horticulture**

### **How many people require training and when (if relevant)?**

- As indicated in previous sections, an in-depth review is required to determine the answer to this question.

### **What will meeting this priority achieve?**

- More effective use of training resources.
- Ensure that the industry receives appropriate balance of training support from the publicly funded training system; that is, ensure that sufficient numbers of appropriate qualifications are produced to provide the skilled employment pool that the industry needs.

### **What current action is in place to address this priority?**

- Nil.

### What further action is required and what are the consequences of not taking it?

- *Further Action Required:*
  - Conduct a review of Amenity Horticulture
- *Consequences of Not Taking Action:*
  - Industry adaptation to change drivers is restricted due to a lack of appropriate skills
  - Public resources are used inefficiently

## 5 Certificates II – IV in Conservation and Land Management

### How many people require training and when (if relevant)?

- 2007:
  - Maintain existing intakes at approximately 40 places
- 2008:
  - Maintain existing intakes at approximately 40 places

### What will meeting this priority achieve?

- Ensure that state authorities have a sufficient skill base to adequately discharge State Government environmental, parks and wildlife and heritage policies.

### What current action is in place to address this priority?

- OPCET maintains a liaison with the state agencies and local governments involved.

### What further action is required and what are the consequences of not taking it?

- *Further Action Required:*
  - Maintenance of the current liaison between OPCET and the specific government agencies concerned
- *Consequences of Not Taking Action:*
  - Government management of the nature based tourism assets will be inadequate

## Part 7 Higher education

### Information on demand by industry for skills that is being met by higher education

The University of Tasmania's School of Agricultural Science is the main Higher Education provider in the state. Tasmania has always been viewed as a rich market for mainland universities and there are always a number of marketing ventures into the state. The most persistent are the University of Central Queensland, University of Southern Queensland, and Charles Sturt University. Whilst they have small numbers of enrolments from the state, the rigours of distance learning and interstate travel for residentials usually produces high attrition rates.

Table 14: University of Tasmania's School of Agricultural Science Enrolments (2000 - 2005)

| Year | Commencing |            |              | Continuing |            |              | All Students |            |              |
|------|------------|------------|--------------|------------|------------|--------------|--------------|------------|--------------|
|      | BAgrSc     | BAppSc(Ag) | BAppSc(Hort) | BAgrSc     | BAppSc(Ag) | BAppSc(Hort) | BAgrSc       | BAppSc(Ag) | BAppSc(Hort) |
| 2000 | 11         | 8          | 6            | 25         | 10         | 20           | 36           | 18         | 26           |
| 2001 | 10         | 3          | 7            | 31         | 12         | 18           | 41           | 15         | 25           |
| 2002 | 13         | 8          | 7            | 22         | 12         | 18           | 35           | 20         | 25           |
| 2003 | 14         | 13         | 1            | 24         | 11         | 13           | 38           | 24         | 14           |
| 2004 | 19         | 12         | 0            | 24         | 14         | 8            | 43           | 26         | 8            |
| 2005 | 20         | 16         | 0            | 35         | 12         | 4            | 55           | 28         | 4            |

Source: School of Agricultural Science (2005)

Table 14 demonstrates the solid growth in the University's new and continuing enrolments in Agricultural Science and Applied Science (Agriculture) between 2000 – 2005. Conversely, the Horticulture program has failed to gain support and is being phased out.

The success in Agriculture is probably due to the School of Agricultural Science's innovative and multi-focus approach to recruiting high quality entrants. The success of recruitment strategies such as the Primary Industry Science in Schools Program has been referred to earlier. This initiative is a holistic approach to changing the cultural attitudes of Senior Secondary students, teachers and parents towards agriculture. In addition, the School's success in attracting significant levels of external post-graduate funding means that undergraduate students have opportunities to continue their studies and develop higher research skills within the School. This is a major benefit to Tasmanian Agriculture and Tasmanian students as the large majority of both under-graduate and post-graduate students are Tasmanians.

However, it is apparent from this that there are two areas where the University is not active; firstly, in the field of farm management or, more to the point, the 'business of agriculture'. This semantic distinction infers the emphasis on 'business' applied in the field of agriculture much as the University emphasises that it focuses on the 'science of agriculture' or the practice of science in the field of agriculture. For the activity of managing the modern farm business, this represents both a philosophical and practical departure from traditional 'farm management' education which, it could be argued, has been left behind by the development of modern management and financing methods in the wider world of business.

Secondly, since the completion of the "DEST Partnership in Tasmanian Primary Industry Science Education Program 2001-2003", the School has found it difficult to sustain the collaborative, multi-partner, science-based short course program that was a successful part of the DEST Program. This has left a vacuum at the higher end of in-service short courses for the industry.

## Information on demand by industry for skills that could be, but is not being met by higher education

The University of Tasmania's School of Agricultural Science has no specialised agricultural business capability and believes that this is difficult to integrate with a 'science in agriculture' capability and maintain the quality of the science effort.

This view has some merit based on experience elsewhere in agricultural education. In addition, the pattern of growth in the projected demand for the undergraduate level 'business in agriculture' provision referred to earlier, is difficult to predict and quantify.

Therefore, it is recommended that the University of Tasmania's School of Agricultural Science:

1. Investigate the feasibility of collaboration with the new Centre of Innovation currently being established within the School of Management and external Agribusiness companies and personnel to establish a **Bachelor of Agricultural Business, Innovation and Entrepreneurship** under the auspices of the School of Agricultural Science. This should be flexibly delivered from the Cradle Coast Campus at Burnie, the geographical centre of the Processing Vegetable Industry.
2. Re-invigorate its program of high level, science-based, fee-for-service short course training for farmers and agribusiness.

## Information on existing, likely or possible articulation from VET to higher education

Articulation from VET diplomas to the School of Agricultural Science is still theoretically possible but is a vexed issue for two reasons. Firstly, the Training Package approach is based on competencies whilst the higher education system is based on the examination of cognitive skills and knowledge. Clearly, competencies incorporate elements of cognitive skills and knowledge however; the higher education system has difficulty assessing equivalence to enable advanced standing and/or articulation. The solution to this problem is for the VET system to conduct special 'knowledge-based' assessments for those students wishing to articulate that can be assessed by the University.

Secondly, VET focuses on training on-the-job which produces a student that is much less oriented to using cognitive learning skills. In terms of Bloom's Taxonomy of learning, the higher order cognitive learning skills of Analysis, Synthesis and Evaluation are the core skills of a higher education student, but are less developed under the VET on-the-job approach that focuses on the higher psychomotor functions of Mechanism, Complex Overt Response, Adaptation and Origination. As a result of this, in recent years, there has been little interest amongst VET students in articulation and so the arrangements with the University of Tasmania have fallen in abeyance.

**Recommendation:** It is therefore recommended that the Articulation Agreement with the University of Tasmania be reviewed and new processes put in place to accommodate articulation that arises from the initiatives recommended in this report.

## Appendices

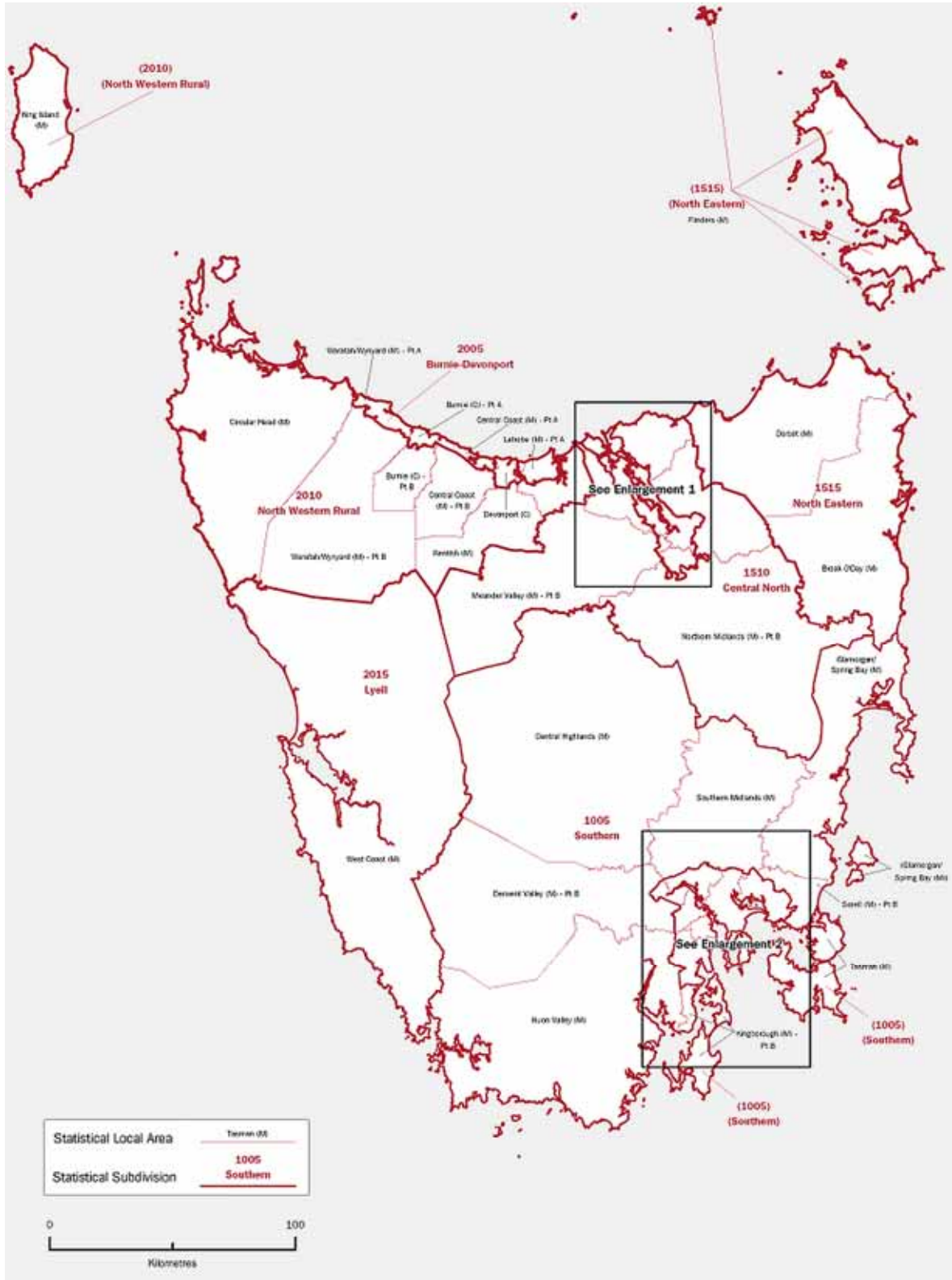
**Appendix A: The ABS Australian Standard Geographical Classification (ASGC) Map – p. 68**

**Appendix B: The Method Used to Deduce the Entry/Exit Rates for Farming – p. 69**

**Appendix C: Agricultural & Related Course Enrolments by Gender and Age (2002) – p. 70**

**Appendix D: Training Needs Mapped to Units of Competency – p. 71**

## Appendix A: The ABS Australian Standard Geographical Classification (ASGC) Map



## Appendix B: The Method Used to Deduce the Entry/Exit Rates for Farming<sup>31</sup>

Use of data from the CPH to calculate Australian farm exit rates are problematic. There is no means of identifying persons who described themselves as farmers in the previous census and who now are coded into another occupational category. The following method has calculated a proxy measure of exit rates for most age groups using the formula:

$$\text{EXITS}_T = \text{FARMERS}_{T-5} - \text{CONTINUING}_T$$

Where

$\text{EXITS}_T$  = Number of farmers exiting farming between year T-5 and year T.

$\text{FARMERS}_{T-5}$  = Number of persons describing themselves as farmers in year T-5.

$\text{CONTINUING}_T$  = Number of persons describing themselves as farmers who did not change their usual address between year T-5 and year T.

Some simple algebra will show that this method of calculating exits is equivalent to the method used in an earlier report in this series (Barr 2001a) and used to create estimates of exit from United States agriculture (Gale 2003).

$$\text{EXITS}_T = \text{FARMERS}_{T-5} - \text{FARMERS}_T + \text{ENTRANTS}_T$$

Where

$\text{FARMERS}_T$  = Number of persons describing themselves as farmers in year T

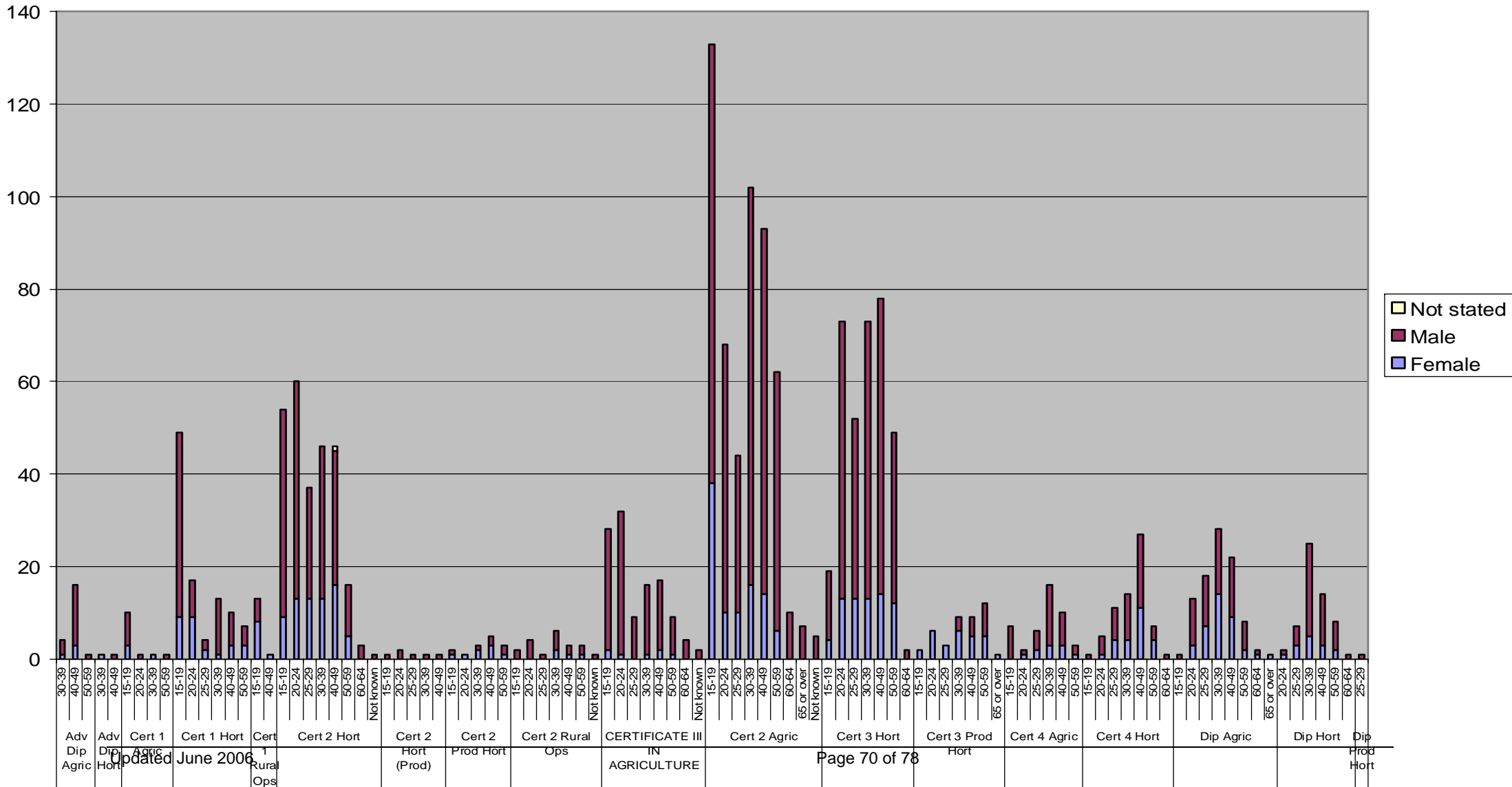
$\text{ENTRANTS}_T$  = Number of persons describing themselves as farmers who changed their usual address between year T-5 and year T. These farmers are assumed to be new entrants to farming.

These estimates rest on the assumption that entries to farming are associated with a change of usual address. Clearly, not all occupational entries or exits are associated with an address change. The estimate of farming exits will count as an exit, a farmer who takes an off-farm job while continuing to work the farm, and change his or her occupational self-description on the census form to something other than a farmer. However, when this same farmer ceases his off-farm job and reverts to farming as his main occupation, he or she will not be detected in our count of entries to farming. Instead, his change in occupation will be counted as a negative exit in our exit estimate. This is most obvious in the counts of exits for farmers aged 20–24 years. Exit counts for this age group are generally negative. The number of exits in this age group is less than the number of persons entering farming after previously being classified as a student. Because of these shortcomings, estimates of exit rates from this measure must be treated with caution. The measure should be seen as a measure of both exits associated with an address change and net change in occupational status of persons who live on a farm and have not changed address in the previous census period.

<sup>31</sup> The author is indebted to Neil Barr from the Victorian DPI for both providing the Tasmanian slice of his data as well as freely providing his advice on running similar calculations for additional Tasmanian data from the ABS. The text for the explanation of the method used has been taken directly from *The Micro-Dynamics of Change in Australian Agriculture*, published by the ABS in 2004.

Note that the information, views and recommendations in this document have been obtained under contract from industry sources as part of Industry Advisory Arrangements; they may include data or information which have not been otherwise verified, and they should not be interpreted as being the views, intentions or policy of OPCET or the Tasmanian Government.

## Appendix C: Agricultural & Related Course Enrolments by Gender and Age (2002)



Updated June 2006

## Appendix D: Training Needs Mapped to Units of Competency

| Skill Needs                            | Units of Competency  |
|--|--|
| Financial management                   | BSBCMN308A Maintain financial records<br>BSBSBM402A Undertake financial planning<br>BSBSBM406A Manage finances<br>RTE5916A Prepare and monitor budgets and financial reports<br>RTE6904A Manage business capital<br>RTE4901A Administer finance, insurance and legal requirements<br>BSBMGT503A Prepare budgets and financial plans<br>BSBSBM405A Monitor and manage business operations |
| Relationships development & management | BSBMGT512A Manage relationships in a family business<br>BSBPUR502A Manage supplier relationships<br>BSBFLM514A Manage people<br>BSBINT404A Implement international client relationship strategies<br>RTE4902A Support and review business structures and relationships<br>RTE4812A Co-ordinate customer service and networking activities<br>WRRS4B Build relationships with customers   |
| Change management                      | BSBHR601A Manage change<br>BSBFLM510B Facilitate and capitalise on change and innovation<br>BSBCMN412A Promote innovation and change<br>BSBCMN312A Support innovation and change<br>SFILEAD04A Plan and achieve change and results   |
| Risk management                        | BSBPM608A Direct risk management of multiple projects/programs<br>BSBPM508A Manage project risk<br>BSBPM407A Apply risk management techniques<br>BSBMGT611A Develop risk management strategy<br>BSBMGT609A Manage risk<br>BSBMGT508A Manage risk management system<br>BSBCMN416A Identify risk and apply risk management processes   |

| Skill Needs               | Units of Competency  |  |
|---------------------------|--|--|
|                           | RTE6905A<br>strategy<br>RTE5523A<br>strategies   | Manage price risk through trading<br>Develop climate risk management   |
| Environmental management  | RTE5524A<br>BSBCMN313A<br>BSBCMN215A<br>BSBCMN413A<br>BSBMGT610A<br>BSBMGT507A                               | Develop and implement sustainable land use strategies<br>Maintain environmental procedures<br>Participate in environmental work practices<br>Implement and monitor environmental policies<br>Manage environmental management systems<br>Manage environmental performance                                   |
| Project management        | BSB60904<br>BSB51504<br>BSB41504   | Advanced Diploma of Project Management<br>Diploma of Project Management<br>Certificate IV in Project Management  |
| Strategic thinking skills |  |  |
| Leasing                   |  |  |
| Workplace safety & OH&S   | BSBOHS603A<br>BSBOHS504A<br>BSBOHS403A<br>BSBMGT505A<br>BSBCMN411A<br>BSBCMN311A<br>BSBCMN211A               | Analyse and evaluate OHS risk<br>Apply principles of OHS risk management<br>Identify hazards and assess OHS risks<br>Ensure a safe workplace<br>Monitor a safe workplace<br>Maintain workplace safety<br>Participate in workplace safety procedures  |
| Customer focus            | BSBMKG406A<br>BSBFLM507B<br>BSBCMN418A<br>BSBCMN417A<br>BSBCMN410A<br>BSBCMN403A<br>BSBCMN310A<br>BSBCMN216A | Build client relationships<br>Manage quality customer service<br>Address customer needs<br>Coordinate customer service activities<br>Coordinate implementation of customer service strategies<br>Establish business networks<br>Deliver and monitor a service to customers<br>Create customer relationship |
| Quality assurance         | RTE4915A   | Implement and monitor quality  |

| Skill Needs                        | Units of Competency   |
|------------------------------------|---|
|                                    | assurance procedures<br>RTE5903A Plan, implement and review a quality assurance program<br>RTE3901A Comply with industry quality assurance requirements<br>RTE2901A Observe enterprise quality assurance procedures   |
| Quality management systems         | RTE6908A Design and manage the enterprise quality management system   |
| Continuous improvement             | BSBMGT608A Manage innovation and continuous improvement<br>BSBFLM509B Facilitate continuous improvement   |
| Marketing                          | RTE5901A Develop a marketing plan<br>BSBCM414A Undertake marketing activities   |
| Innovation                         | BSBMGT608A Manage innovation and continuous improvement<br>BSBFLM510B Facilitate and capitalise on change and innovation<br>BSBCM412A Promote innovation and change<br>BSBCM312A Support innovation and change  |
| International business & marketing | BSBMKG605A Evaluate international marketing opportunities<br>BSBINT508A Promote products and services to international markets<br>BSBINT506A Build international business networks<br>BSBINT505A Build international client relationships<br>BSBINT501A Profile international markets<br>BSBINT409A Plan for international trade<br>BSBINT405A Apply knowledge of import and export international conventions, laws and finance<br>BSBINT403A Research international markets<br>BSBINT402A Market goods and services internationally<br>BSBINT401A Research international business opportunities<br>BSBINT306A Apply knowledge of international finance and insurance to complete work requirements<br>BSBINT305A Prepare business documents for the international trade of goods<br>BSBINT303A Organise the importing and exporting of goods<br>BSBINT302A Apply knowledge of legislation relevant to international trade to complete work |

| Skill Needs                        | Units of Competency  |
|------------------------------------|--|
|                                    | BSBINT301A Apply knowledge of the international trade environment to complete work   |
| Entrepreneurship                   | BSBCMN403A Establish business networks   |
| Negotiation skills                 |  |
| Public speaking                    |  |
| Organise & participate in meetings | BSBADM502A Manage meetings<br>BSBADM405A Organise meetings   |
| Corporate governance               | SRXGOV002A Undertake the role of an individual Director of an organisation<br>SFILEAD07A Provide corporate leadership  |
| Supply chains                      | WRWPL508A Improve supply and distribution chains<br>BSBMKG406A Build client relationships<br>BSBPUR504A Manage a supply chain  |
| Value chains                       | MCMS602A Manage a value chain<br>MCMS601A Analyse and map a value chain  |
| Agronomy                           |  |
| Business law                       | BSBINT405A Apply knowledge of import and export international conventions, laws and finance<br>BSBCMN421A Assist with compliance with OHS and other relevant laws  |
| Internet                           | ICPMM263A Access and use the Internet  |
| Irrigation and water systems       | RTE5605A Establish and maintain an irrigation-related environmental protection program<br>RTE3605A Troubleshoot irrigation systems<br>RTE3610A Operate gravity fed irrigation systems<br>RTE3611A Operate pressurised irrigation systems<br>RTE3612A Implement a maintenance program for an irrigation system<br>RTE4601A Acquire resources for irrigation installation and construction<br>RTE4602A Determine hydraulic parameters for an irrigation system<br>RTE4603A Implement an irrigation-related environmental protection program<br>RTE4607A Plan on-site irrigation system installation and construction work<br>RTE4608A Plan and co-ordinate gravity-fed |

| Skill Needs                  | Units of Competency   |
|------------------------------|---|
|                              | irrigation systems<br>RTE4609A Implement, monitor and adjust irrigation schedules<br>RTE5601A Audit irrigation systems<br>RTE5602A Design irrigation system maintenance and monitoring programs<br>RTE5603A Design irrigation, drainage and water treatment systems<br>RTE5604A Develop an irrigation and drainage management plan<br>RTE4604A Determine seasonal irrigation scheduling tasks<br>RTE4605A Schedule irrigations<br>RTE1601A Support irrigation work<br>RTE2601A Assist with the operation of gravity fed irrigation<br>RTE2602A Assist with the operation of pressurised irrigation<br>RTE2603A Lay irrigation and/or drainage pipes<br>RTE2605A Maintain gravity-fed irrigation systems<br>RTE2606A Maintain pressurised irrigation systems<br>RTE2607A Install micro-irrigation systems<br>RTE3601A Install irrigation systems |
| Vertical integration         |   |
| Logistics & transport        | TDTL1998B Implement and monitor transport logistics   |
| Rural sociology              |   |
| Farming systems              | RTE5606A Manage water systems<br>RTE5516A Develop a whole farm plan   |
| Organic vegetable production |   |
| Job design & analysis        | BSBHR605A Contribute to organisation design   |
| Industrial relations         | BSBMKG406A Build client relationships<br>BSBHR513A Manage industrial relations disputes<br>BSBHR512A Manage industrial relations initiatives<br>BSBHR504A Manage industrial relations policies and processes<br>BSBHR405A Implement industrial relations procedures   |

| Skill Needs                   | Units of Competency   |  |
|-------------------------------|---|--|
| Succession planning           | RTE6909A<br>BSBMGT513A  | Manage estate planning<br>Plan for family business succession  |
| Writing business documents    | BSBADM402A  | Produce complex business documents   |
| Business management software  | BSBEBUS505A<br>business   | Implement new technologies for business  |
| Digital business applications | BSBEBUS505A<br>business   | Implement new technologies for business  |
| Global Positioning Systems    |   |  |
| Training & assessment         | TAA40104<br>Assessment  | Certificate IV in Training & Assessment  |
| Research skills               | BSBINT403A<br>BSBINT401A<br>opportunities<br>BSBSBM301A<br>RTE5525A<br>material<br>RTE6503A<br>research trial<br>BSBADV503A<br>BSBCM405A<br>information<br>BSBCOM601A<br>and issues<br>BSBEBUS401A<br>BSBINT401A<br>opportunities<br>BSBINT403A<br>BSBMKG301A<br>BSBMKG304A<br>BSBMKG408A<br>BSBMKG506A<br>BSBMKG607A<br>BSBSBM301A | Research international markets<br>Research international business opportunities<br>Research business opportunities<br>Manage trial and/or research material<br>Design and conduct a field-based research trial<br>Coordinate advertising research<br>Analyse and present research information<br>Research compliance requirements and issues<br>Conduct online research<br>Research international business opportunities<br>Research international markets<br>Research the market<br>Assist with market research<br>Conduct market research<br>Plan market research<br>Manage market research<br>Research business opportunities |

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