



Honeybee industry survey

**A report for the Rural Industries Research and Development Corporation by the
Australian Bureau of Agricultural and Resource Economics**

by Veronica Boero Rodriguez, Cid Riley, Walter Shafron and Ray Lindsay

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Researcher Contact Details

Veronica Rodriguez, Cid Riley, Walter Shafron and Ray Lindsay
ABARE
GPO Box 1563
Canberra ACT 2601
Phone: 02 6272 2277, 02 6272 2253, 02 6272 2190 and 02 6272 2215
Fax: 02 6272 2318
Email: veronica.rodriguez@abare.gov.au

In submitting this report, the researcher has agreed to RIRDC publishing this material in its edited form.

RIRDC Contact Details

Rural Industries Research and Development Corporation
Level 1, AMA House
42 Macquarie Street
BARTON ACT 2600
PO Box 4776
KINGSTON ACT 2604

Phone: 02 6272 4539
Fax: 02 6272 5877
Email: rirdc@rirdc.gov.au
Website: <http://www.rirdc.gov.au>

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Foreword

The honeybee industry is an important Australian industry. In common with many other industries, the honeybee industry faces a number of challenges. These include access to native flora and competition in both export and domestic markets. The industry needs to maintain its competitiveness and comparative advantage as a supplier of high quality honey.

Limited information is available to guide industry decision-making. In particular, little information is available on the physical and financial characteristics of honey producing businesses. In addition, very little information is available on the demographic and socioeconomic circumstances of people involved in the industry.

This report, commissioned by the Australian Honeybee Industry Council presents results from the first comprehensive survey of Australian honeybee businesses. Survey results will assist benchmarking to improve the industry's performance and provide information to target industry efforts to improve productivity and profitability.

In addition to providing valuable information on honeybee businesses, survey results also enable calculation of the economic value of the industry and the resources used by the industry. The report will assist the development of industry policy and planning, providing a factual basis for the further development of the honeybee industry.

This project was funded from industry revenue, matched by funds provided by the Federal Government. The survey of honeybee businesses was conducted in close cooperation with the industry.

This report, a new addition to RIRDC's diverse range of over 900 research publications, forms part of our Honeybee R&D program, which aims to improve the productivity and profitability of the Australian beekeeping industry.

Most of our publications are available for viewing, downloading or purchasing online through our website:

- downloads at www.rirdc.gov.au/reports/Index.htm
- purchases at www.rirdc.gov.au/eshop

Simon Hearn

Managing Director

Rural Industries Research and Development Corporation

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Participation in the Honeybee industry survey was voluntary. The success of the survey was due to the cooperation of a large number of beekeepers in providing data and information on their business operations.

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Abbreviations

ABARE – Australian Bureau of Agricultural and Resource Economics

AHBIC – Australian Honey Bee Industry Council

RIRDC – Rural Industries Research and Development Corporation

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Executive summary

Australia has around 9600 registered beekeepers, but the majority of honey is produced by a relatively small number of honeybee businesses. Sixty-two per cent of total honey production is estimated to have been produced by businesses operating more than 500 hives – around 250 businesses. Only 16 per cent of Australian honey production is produced by businesses with 250 hives or less.

Most honeybee operations are small family owned and operated businesses operating fewer than 500 hives and depending on a range of income sources in addition to those related to beekeeping. Typically, smaller operations, particularly those with less than 250 hives, derive the majority of the income for the operator's family from other enterprises, other businesses, investment or government sourced income. Larger operations, those with more than 500 hives, are mainly dependent on the honeybee business as the source of family income.

Australian honeybee businesses produced an average of 17 300 kilograms of honey per business in 2000-01. Businesses received an average of \$32 800 for honey sales in the 2000-01 financial year. Prices received for honey averaged \$1.80 per kilogram nationally, but average prices received by Tasmanian producers almost double this price at \$3.40 per kilogram. Total cash receipts per business averaged \$46 000, including receipts from the sale of bees, wax, propolis, honeycomb and paid pollination services.

Cash costs per business averaged \$30 600 per business, around 67 per cent of total cash receipts, leaving a cash operating surplus of \$15 400 per business.

The most important cost items are labour and motor vehicle expenses including fuel. Non-cash costs, in particular, depreciation on motor vehicles, were high relative to other agricultural sector industries. When non-cash costs including depreciation and the value of the operator, partner and family labour are taken into consideration, the return to capital and management was an average loss of \$13 700 per business.

On average, businesses had an estimated \$236 400 worth of capital invested at 30 June 2001. The average rate of return was estimated to be minus 5 per cent.

Average rates of return were small for honeybee businesses because of their small size. In fact, rates of return are similar to those recorded for small farms. However, rates of return are relatively high for larger honeybee businesses. Around 10 per cent of honeybee businesses, mainly larger businesses, generated rates of return of more than 10 per cent, which is high, particularly for agricultural sector businesses.

Equity ratios for honeybee businesses were relatively high, averaging 89 per cent at 30 June 2000-01. Average total business debt was only \$25 400 and 40 per cent of businesses had no debt.

Over 60 per cent of beekeepers used public land for honey production in the last five years. Larger operations produced more of their honey from public lands than smaller businesses in 2000-01. The proportion of large honeybee businesses using public land was 90 per cent, but only 53 per cent of small businesses used public land.

Nationally, more businesses reported their use of public land to have decreased than reported use to have increased in the past five years. Around 19 per cent of honeybee businesses reported their use of public land to have decreased. However, use increased for 10 per cent of businesses and these were mainly larger businesses producing large quantities of honey. Around one third of honeybee businesses reported their use of public land had not changed in the past five years.

The average age of the operators of Australian honeybee businesses is similar to that of many other agricultural industries. In 2000-01, the average age of operators was 54 and these operators had 25 years of experience in the industry on average. Just over 50 per cent of operators of honeybee businesses attained less than year 11 as their highest level of education.

The majority of beekeepers obtain information for their honeybee business from industry magazines, newsletters, producer bodies and State Department Apiary Officers. Less than 40 per cent obtain information from general media sources.

The survey results lead to an estimate of total Australian honey production in 2000-01 of approximately 27 800 tonnes. In addition, the total gross value of the honeybee industry in 2000-01 is estimated to have been around \$63 million. This estimate is comprised of around \$53 million for honey production, \$3.3 million for paid pollination services, \$3.3 million for queenbee sales and around \$2.5 million for propolis, wax and honeycomb production.

Total industry employment, excluding casual employees and family labour below 16 years of age, is estimated to be around 3000 people.

1. Introduction

1.1. The Australian honey industry

The honeybee industry is an important Australian industry. However, only limited information is available on the industry. In particular, little information is available on the physical, financial and socioeconomic characteristics of honey producing businesses.

The majority of Australia's honey production is consumed domestically. In addition, Australia is one of the world's largest honey exporters, with Australian honey enjoying a reputation as a premium quality product on world markets. Australian honey exports have fluctuated over recent years. In 2001-02, 8082 tonnes of honey was exported, valued at \$26 million (Table 1).

Australia normally imports a relatively small quantity of honey. However, in 2001-02 Australian honey production dropped markedly due to widespread drought, particularly in the eastern states Australian honey imports increased with most of these imports subsequently being re-exported by processors to fill export contracts. Honey imported from Singapore in 2001-02, was most likely sourced from China and, along with other direct imports from China, was mostly re-exported to the United States.

Australian honey production was estimated by Gibbs and Muirhead (1998) to be around 31 000 tonnes a year with an estimated gross value of production of \$49 million. Overall, Gibbs and Muirhead estimated the gross value of production, including queen and package bees, beewax, pollen and paid pollination, is \$65 million. In addition, the overall value of pollination to the Australian economy has been estimated to be between \$600 million and \$1.2 billion (Gill 1997).

Table 1: Australian honey trade, by major export destination and import source

	1999-00		2000-01		2001-02	
	Volume t	Value \$million	Volume t	Value \$million	Volume t	Value \$million
Export markets						
Germany	1634	3.3	715	1.5	214	0.6
Indonesia	656	1.5	574	1.5	126	0.4
Malaysia	1061	3.2	870	2.8	648	2.4
Saudi Arabia	1774	4.7	1167	4.0	794	3.0
Singapore	890	2.3	859	2.4	635	2.1
United Kingdom	1601	3.1	1477	3.5	1608	5.4
United States	108	0.3	168	0.6	2344	5.5
Other	2481	7.6	1821	6.6	1713	6.5
Total	10204	25.9	7651	23.0	8082	26.0
Imports (country of origin) (a)						
Argentina	0	0.0	81	0.2	242	0.6
China	6	0.1	2	0.1	751	1.4
New Zealand	57	0.5	173	1.5	259	2.7
Singapore	0	0	0	0	1477	3
United States	68	0.2	36	0.1	0	0.0
Other	6	0.0	14	0.1	301	0.7
Total	137	0.7	305	2.1	3030	8.3

(a) Natural honey, in containers exc. 4kg (bulk) (excl. light amber, pale amber and medium amber)

Honey is produced over a large geographical area from a wide variety of flowering plants. Plants tend to flower irregularly due to Australia's fluctuating rainfall patterns and the extended budding cycles of much of honey producing flora. Most beekeepers do not own the land where they place their hives. The industry depends on floral resources, nectar and pollen of which about 80 per cent are produced from native flora (Gibbs and Muirhead 1998). A large proportion of this resource is produced on public land and it is produced irregularly. Often beekeepers follow available flora, sometimes over large distances to be successful. In recent years, beekeepers' traditional access to conserved forests has been questioned because honeybees are not native to Australia.

1.2. Survey objectives

Currently the Australian honeybee industry faces a number of challenges including competition on export and domestic markets and access to native flora. The industry needs to maintain its competitiveness and its comparative advantage as a supplier of high quality honey.

To assist the industry to better understand the performance of honeybee businesses and provide detailed information to enhance discussion of industry issues, the Australian Honey Bee Industry Council (AHBIC) and the Rural Industries Research and Development Corporation (RIRDC) commissioned the Australian Bureau of Agricultural and Resource Economics (ABARE) to conduct a survey of honeybee businesses.

The primary aim of the survey was to provide information about honeybee businesses. In addition, the survey design also enables estimates of industry aggregate production, economic value and employment. The specific information sought included: physical characteristics of honey producing business, receipts, costs, financial performance, investment, debt, capital and resources used by beekeepers.

The survey also collected information on the age, education and socioeconomic circumstances of people operating honeybee businesses. Data were also collected on the information sources used by honeybee business operators and the informational needs of operators. This information will assist the industry to target future education, training and information programs.

2. Survey methodology

2.1. Honey producers

There are around 9600 registered beekeepers in Australia. Of those, only 17 per cent have 50 hives or more, but these beekeepers operate 85 per cent of the total number of hives (Table 2). There are very few beekeepers operating in the Northern Territory and Australian Capital Territory.

Table 2: Number of registered apiarists, by state 2002

		AUS	NSW	VIC	QLD	SA	WA	TAS
Apiarists with less than 50 hives								
	Unit							
Apiarists	no	8 015	2624	1126	2659	587	810	209
Hives	no	76 026	22582	10084	31583	4536	5583	1658
Apiarists	%	83.3	83.2	76.8	87.8	74.3	87.0	82.0
Hives	%	15.5	13.8	10.6	27.5	7.0	16.0	9.3
Apiarists with 50 hives or more								
Apiarists	no	1 607	529	340	368	203	121	46
Hives	no	414 827	140 967	84 728	83 277	60 451	29 231	16 173
Apiarists	%	16.7	16.8	23.2	12.2	25.7	13.0	18.0
Hives	%	84.5	86.2	89.4	72.5	93.0	84.0	90.7
Total registered apiarists								
Apiarists	no	9 622	3 153	1 466	3 027	790	931	255
Hives	no	490 853	163 549	94 812	114 860	64 987	34 814	17 831
Apiarists	%	100	33	15	31	8	10	3
Hives	%	100	33	19	23	13	7	4

Northern Territory and Australian Capital Territory not included

2.2. Survey design

The Australian honeybee industry survey was designed and the sample selected on a framework based on lists from each state's regulatory body. This framework includes beekeepers in each state classified by number of hives as a measure of size. Estimates in this report cover registered beekeepers with 50 hives or more, accounting for 85 per cent of the total number of registered hives.

The Australian Bureau of Statistics (ABS) Business Register was also considered as a source of the sample list for the survey. This list uses estimated value of agricultural operations (EVAO), an ABS derived measure of size reflecting all agricultural activity. However, this list appeared to have undercoverage of smaller units and a disproportionate number of beekeepers on the list were classified to the horticultural industry. Therefore, the decision was made to use state registration lists.

The list of registered beekeepers was divided into regions, northern New South Wales (north of the parallel of latitude passing through Bathurst), southern New South Wales, Victoria, Queensland, South Australia, Western Australia and Tasmania. A sample of 152 was drawn from a population of 1607 keeping in total 414 827 hives (Table 3). These regions were divided into strata according to size based on number of hives kept. The sample was selected randomly within strata and, as the survey was voluntary, additional selections were made for each primary selection. This ensured that the realised sample size was the same as the designed sample size.

As more than fifty businesses were included in the survey, the sampling methodology and questionnaire were cleared by the Commonwealth Statistical Clearing House (SCH). This ensures that the survey met the rigorous requirements of the SCH for surveys conducted by Commonwealth agencies.

Table 3: Number of registered apiarists with more than 50 hives and sample numbers, 2002

	Population	Number of hives	Sample
Australia	1 607	414 827	152
New South Wales	529	140 967	44
North	376	96 679	26
South	153	44 288	18
Victoria	340	84 728	26
Queensland	368	83 277	32
South Australia	203	60 451	17
Western Australia	121	29 231	19
Tasmania	46	16 173	14

Northern Territory and Australian Capital Territory not included

2.3. Collection, eligibility and response

The survey collected detailed financial, physical and socioeconomic information from beekeepers across Australia for the 2000-01 financial year. Information was collected by telephone interviews, with supporting financial data being submitted by mail or fax.

The registration lists used to select the survey sample were current for 2002. Therefore, even though some producers were eligible to participate at the time the survey was conducted, they were ineligible in the survey period of 2000-01. Of the beekeepers approached, approximately 12 per cent were ineligible (had less than 50 hives in 2001) and another 9 per cent were no longer operating. These statistics also provide an indication of how many producers enter or exit the industry over time. In addition, since participation in the survey was voluntary, around 21 per cent of the beekeepers approached were unwilling to cooperate. The final response rate was 48 per cent.

2.4. Definition of items

Owner manager: The primary decision maker for the honeybee business. This person is identified by discussion between interviewer and interviewee as (one of) the key decision maker(s) in the business. This person is usually responsible for the day to day operation of the business and may own or have a share in the honeybee business.

Area of land at business premises: Includes all land operated by the honeybee business, whether owned or rented by the business.

Labour: Measured in work-weeks, as estimated by the owner manager. It includes all work on the business by the owner manager, partners, family, hired permanent and casual workers, but excludes work done by contractors.

Hired labour: Excludes the owner manager, partners and family labour, and work undertaken by contractors. Expenditure on contract services appears as a cash cost.

Capital: The value of capital employed by the honeybee business is the market value of all the assets used including leased items but excluding machinery and equipment either hired or used by contractors.

Market valuations were provided by the owner manager of surveyed businesses and included the market value of operating hives, honeybee on hand, stocks of other bee products, quotas and contracts. The value of honey on hand at the end of the financial year was calculated by multiplying the closing quantity of honey by the average price received by the surveyed honeybee business for honey sold during the year.

Capital also includes the market value of land and fixed improvements used by the surveyed honeybee business, excluding the value of the owner manager's house. The house value deducted from the total value of land and fixed improvements was the present day replacement cost, depreciated for age.

Debt: Estimated as honeybee business debt. Includes all debts attributable to the honeybee business, excluding personal debt and underwritten loans. Information collected at the survey interview was supplemented by information in the business accounts.

Total cash receipts: Total of revenues received by the honeybee business during the financial year, including revenues from the sale of honey and bee related products. It includes revenue received from royalties, rebates, refunds, plant hire, contracts, insurance claims and compensation, and government assistance payments.

Total cash costs: Payments made by the honeybee business for materials and services and for permanent and casual hired labour (excluding beekeeper, partner and other family labour). It includes the value of any lease payments on capital, produce purchased for resale, rent, interest, bee related purchases. Capital and household expenditures are excluded from total cash costs. Handling and marketing expenses include commission, levies etc. for business produce sold. Administration costs include accountancy fees, banking and legal expenses, postage, stationery, subscriptions and telephone. Other cash costs include stores, electricity, advisory services, motor vehicle expenses, travelling expenses and insurance. While 'other cash costs' may comprise a relatively large proportion of total cash costs, individually the components are relatively small overall and, as such, have not been listed.

Cash operating surplus: The difference between total cash receipts and total cash costs.

Depreciation: Estimated by applying the diminishing value depreciation method to the market value of capital items at the 30 June 2001. Capital items are categorised into several groups and relevant depreciation rates are applied. The capital groups include vehicles; handling, harvesting and packing equipment; cultivation and sowing equipment; computers, electronic and communications equipment; other plant and equipment; and buildings on the business premises.

Imputed labour cost: Payments for owner manager and family labour may bear little relationship to the actual work input. An estimate of the labour input of the owner manager, partners and their families is calculated in work-weeks and a value is imputed at the relevant Federal Pastoral Industry Award rates.

Return to capital and management: Cash operating surplus plus buildup in trading stocks, less depreciation, less the imputed value of the owner manager, partner(s) and family labour.

Return at full equity to capital and management: Return to capital and management plus interest, rent and finance lease payments. It is the return produced by all the resources used in the beekeeping business.

Rate of return: Computed by expressing return to equity and management as a percentage of the total opening capital of the beekeepers business.

Equity ratio: Calculated as honeybee business equity as a percentage of owned ratio capital at 30 June.

Non-honeybee business income: Collected for the owner manager and spouse only, including income from wages, other businesses, investment and social welfare payments. The results shown are averages for those businesses for which non-honeybee business income information for both the owner manager and spouse is available.

3. Survey results

Key results are discussed below and detailed tabulations by state and by business size are presented in the appendix tables.

3.1. Physical characteristics

3.1.1. Size of operations

Beekeepers in the target population operated an average 258 hives during the 2000-01 financial year. On average, the largest operations were in Tasmania, with an estimated 352 hives, while the smallest were in Queensland, with 226 hives.

The majority of beekeepers operated from small holdings of land. The average area of land at the business premises was 42 hectares. This average was quite different across the states. New South Wales had the largest area of land with an average of 89 hectares, while Western Australia had the smallest with only 9 hectares.

The average number of queenbee mating nuclei operated was 81. The state with the largest estimated average number operated was Queensland with 101 and the state with the smallest was South Australia with 46.

Table 4: Physical characteristics of Australian honeybee businesses, average per farm, 2000-01

Average per business

	Unit	Estimate	RSE
Size of operation			
Area of land at business premises	<i>ha</i>	42	(60)
Queenbee mating nuclei operated	<i>no</i>	81	(21)
Hives operated during year	<i>no</i>	258	(5)
Hives operated at 30 June	<i>no</i>	252	(5)
Honey production			
Opening stock of honey	<i>kg</i>	2 006	(20)
Honey purchased	<i>kg</i>	828	(31)
Honey produced	<i>kg</i>	17 312	(7)
Honey sold during year	<i>kg</i>	17 917	(7)
Quantity honey given away	<i>kg</i>	205	(8)
Closing stock of honey	<i>kg</i>	2 025	(20)
Bee related activities			
Queenbees purchased	<i>no</i>	88	(11)
Queenbees sold	<i>no</i>	237	(44)
Royal jelly sold	<i>kg</i>	0.1	(81)
Propolis/wax/honeycomb sold	<i>kg</i>	308	(16)

Figures in parentheses are relative standard errors expressed as percentages of the estimate provided.

To obtain information on how the characteristics of honeybee businesses vary depending on the size of their operations, beekeepers were divided in four groups by number of hives operated: less than 250 (small); from 250 to 500 (small-medium); from 500 to 1 000 (medium-large); and more than 1000 hives (large).

On average, the group of smallest businesses operated 101 hives during the survey year compared with 1324 hives operated by the group of large businesses. The small-medium group operated on average 337 hives and the medium-large operated on average 628 hives.

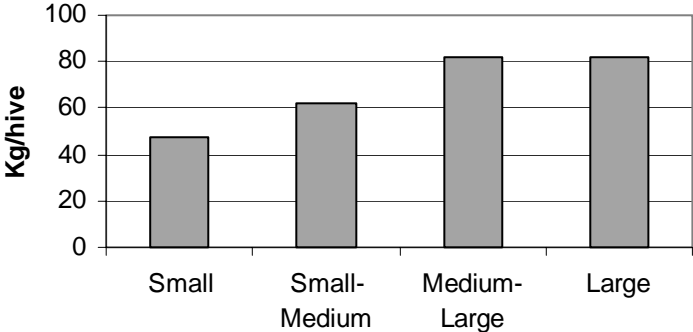
The smallest businesses generally operated from premises located on larger land areas and were generally more dependent on income from sources other than honeybee.

3.1.2. Honey production

Australian beekeepers produced an estimated average of 17 312 kilograms of honey per business in 2000-01. The state with the largest production was Tasmania with an average of 27 028 kilograms per business, while the smallest was Queensland with 13 030 kilograms per business. The smallest businesses produced an average 4 212 kilograms of honey, in contrast the largest businesses produced an average 108 515 kilograms per business during 2000-01.

At the national level beekeepers produced an average of 67 kilograms of honey per hive operated in 2000-01. Queensland beekeepers had the lowest average yield at 58 kilograms per hive operated and Western Australia the highest at 80 kilograms per hive operated. Small businesses produced an average of only 48 kilograms of honey per hive operated while the medium-large and large groups produced around 82 kilograms per hive operated (Figure 1).

Figure 1: Honey production per hive, by size of operations



Around 62 per cent of beekeepers reported conditions for honey production in 2000-01 in the regions where hives were located to be below average. The proportion of businesses reporting below average honey production conditions was highest in Queensland and Western Australia, with 81 and 83 per cent of businesses respectively reporting below average conditions.

Based on the survey results, the estimated total honey production by Australian commercial beekeepers in 2000-01 was approximately 27 800 tonnes. Of this, 34 per cent was produced by beekeepers registered in New South Wales, 20 per cent in Victoria, 17 per cent in Queensland, 16 per cent in South Australia, 8 per cent in Western Australia and 5 per cent in Tasmania (Figure 2).

In aggregate, honey production is dominated by larger operations. Sixty-two per cent of total honey production was produced by businesses operating more than 500 hives in 2000-01. Medium-large operators produced 33 per cent of the Australian production. Large operators produced 29 per cent of production (Figure 3).

Figure 2: Distribution of honey production, by registered location of business

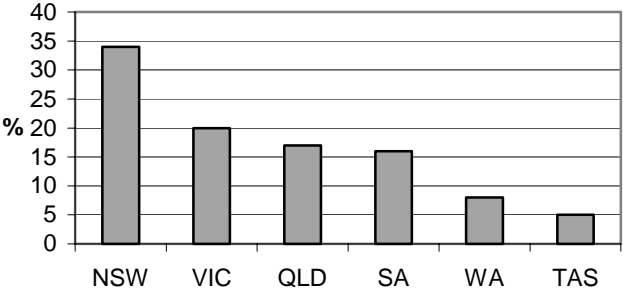
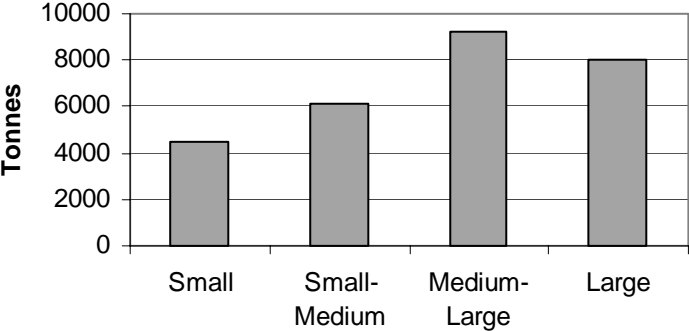


Figure 3: Aggregate honey production, by size of operations



3.1.3. Other bee products

During the survey year, Australian beekeepers sold, on average, 308 kilograms of propolis, wax and honeycomb, 237 queenbees and 100 grams of royal jelly. Businesses in Western Australia sold the largest average amount of propolis/wax/honeycomb, around 800 kilograms per business (Appendix table 5.2.1).

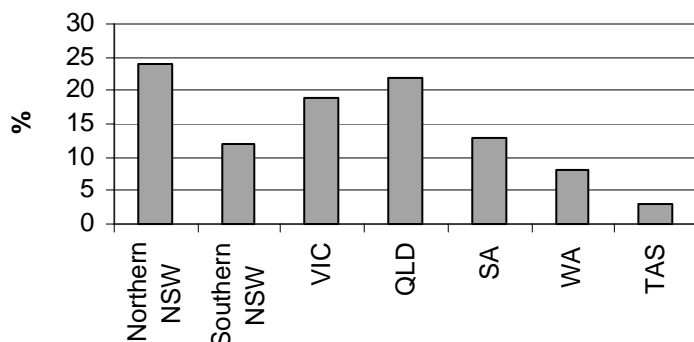
3.2. Source of flora for honey production

3.2.1. Regional

Beekeepers often source flora from states other than the one in which they are registered. For example, the proportion of total honey production sourced from flora in New South Wales is even higher than the proportion of production by the registered business location (see Figure 2).

In 2000-01, the most important region as a source of honey flora was northern New South Wales. Around 36 per cent of Australian honey was sourced from flora in New South Wales, 24 per cent and 12 per cent in the northern and southern New South Wales respectively. Around 22 per cent was sourced from Queensland, 19 per cent from Victoria, 13 per cent from South Australia, 8 per cent from Western Australia and 3 per cent from Tasmania (Figure 4).

Figure 4: Share of honey production from regional flora resources, 2000-01



3.2.2. Use of public land

Around 62 per cent of beekeepers reported that they had used public land for honey production in the past five years. This proportion was 100 per cent in Tasmania while in South Australia it was only 33 per cent.

Nationally, an estimated 33 per cent reported that their use of public land for honey production had not changed in the past five years. Around 19 per cent reported their use to have decreased and 10 per cent reported use to have increased (Figure 5).

An estimated 92 per cent of operators in the large businesses group used public land in the past five years. In contrast, only 53 per cent of beekeepers in the small businesses group used public land. In addition, 36 per cent of large businesses reported an increase in use of public land, compared with only 7 per cent of the small businesses increasing use (Figure 6).

The proportion of honey produced from state forests in Australia was estimated to be 23 per cent in 2000-01. Estimates of production from national parks and other public land were 3 and 4 per cent respectively. However, the proportion produced from state forests and national parks was higher for Tasmania at 58 and 13 per cent respectively (Appendix table 5.2.2).

Larger operations produced more of their honey from public lands than smaller businesses in 2000-01 (Appendix table 5.2.2).

The estimated national average number of hives contributing to honey production from public land in 2000-01 was 142, while in Tasmania this average was 300 hives (Appendix table 5.2.2).

Figure 5: Use of public land for honey production in the last 5 years, by state

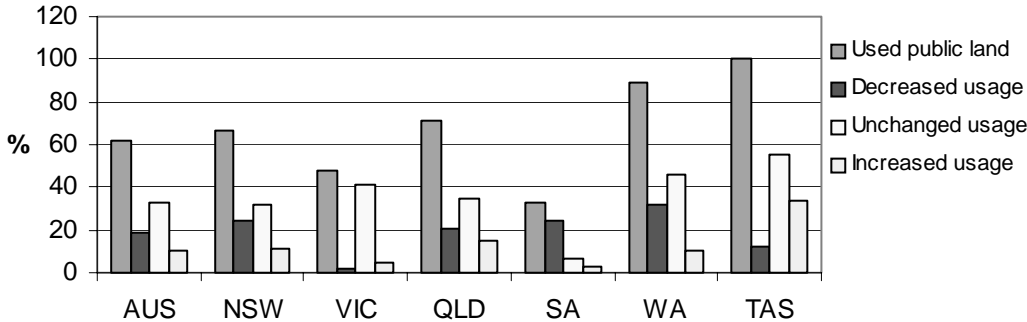
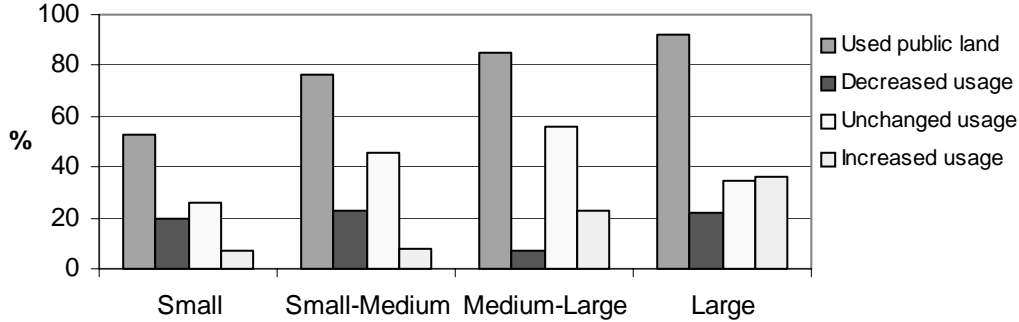


Figure 6: Use of public land for honey production in the last 5 years, by size of operations



3.3. Financial characteristics

3.3.1. Receipts and costs

On average, Australian beekeepers received an estimated \$32 804 per business for honey sales in 2000-01. This translates to an estimated total gross value of honey sales nationally of around \$53 million. Tasmania was the state with the highest average honey receipts \$106 544 per business, while Queensland had the lowest receipts of \$23 838 per business.

In the survey year, producers received an average \$1.8 per kilogram of honey sold. Tasmanian producers received almost double this price, \$3.4 per kilogram of honey sold (figure 7).

Small honeybee industry businesses are more diversified than larger businesses. For small businesses, honey sales represented only about 43 per cent of total cash receipts per business (Figure 8). This proportion increased as size of the operations increased, reaching 84 per cent for large producers. Also, for small producers total bee related receipts were only 54 per cent of total cash receipts per business. For large producers, this proportion was 96 per cent.

Figure 7: Average price received per kilogram of honey sold, by state

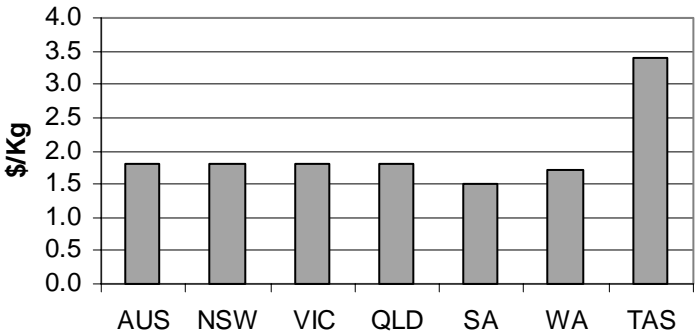
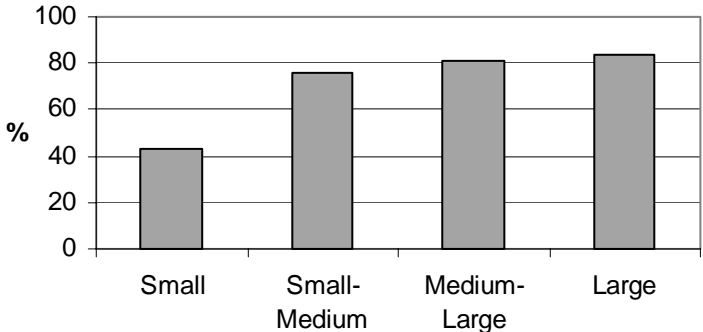


Figure 8: Proportion of total cash receipts from honey, by size of operations



Nationally bee related receipts other than from honey averaged \$5797 per business. Of this, about 35 per cent or \$2052 was from pollination services. Around 36 per cent was from queenbees sales or \$2069 per business and about 27 per cent was from the sale of propolis/wax/honeycomb (or \$1583 per business).

Total cash costs for Australian producers averaged \$30 604. Tasmania had the largest total cash costs average with \$116 662 while Victoria had the lowest with \$24 431. In 2000-01 the estimated average total cash costs for the group of small producers was \$12 177, for the small-medium group \$32 732, for the medium-large group \$75 796 and for the large group \$178 467.

At the national level, the most significant cash costs were: hired labour accounting for 14 per cent of total cash cost; fuel, oil and grease accounting for about 12 per cent; motor vehicles expenses about 7 per cent; bee supplies for 7 per cent; and, honey purchases 5 per cent of total cash costs.

3.3.2. Financial performance

Cash operating surplus, total cash receipts less total cash costs, averaged \$15 398 per business in 2000-01 (Table 5). The cash operating surplus of large businesses, at \$82 325, was more than fifteen times that of small businesses which averaged \$5 341. When allowance is made for the value of family and partner labour used in the business and the requirement to replace the businesses' operating assets over time (depreciation), together with adjusting for change in the quantity of honey and other tradable stocks, the average return to capital and management was a loss of \$13 719 (Table 5).

Adjusting return to capital and management to a full equity basis adding in interest paid, leasing costs and rents so that all businesses are compared on an equal basis regardless of their financing arrangement, leads to a return at full equity to capital and management of minus \$11 816. Expressing this return as a percentage of the total capital used in the business results in an average rate of return of minus 5 per cent in 2000-01.

This is a poor rate of return, but is similar to the rates of return generated by small farm businesses, which are, typically, negative also.

Depreciation costs for honey producing businesses are relatively high, particularly when compared to those for other agricultural sector businesses. This is because of the high proportion of business capital comprised by vehicles and other items that depreciate quickly.

Returns for larger honey producing businesses were much more attractive. Around 10 per cent of honey producing businesses had rates of return exceeding 6 per cent (Appendix table 5.2.18). Medium-large and large businesses had positive rate of return of 1.4 and 4.4 per cent respectively (Appendix table 5.2.14).

Table 5: Financial performance measures, Australian honeybee businesses, 2000-01

Average per business

	Unit	Estimate	RSE
Total cash receipts	\$	46 002	(7)
Total cash costs	\$	30 604	(7)
Cash operating surplus	\$	15 398	(12)
less: depreciation	\$	7 572	(5)
less: total imputed labour	\$	22 645	(5)
plus: buildup in trading stocks	\$	1 101	(90)
Return to capital and management	\$	- 13 719	(17)
Return at full equity to capital and management	\$	- 11 816	(20)
Rate of return	%	-5.0	(19)

Figures in parenthesis are relative standard errors expressed as percentages of the estimate provided.

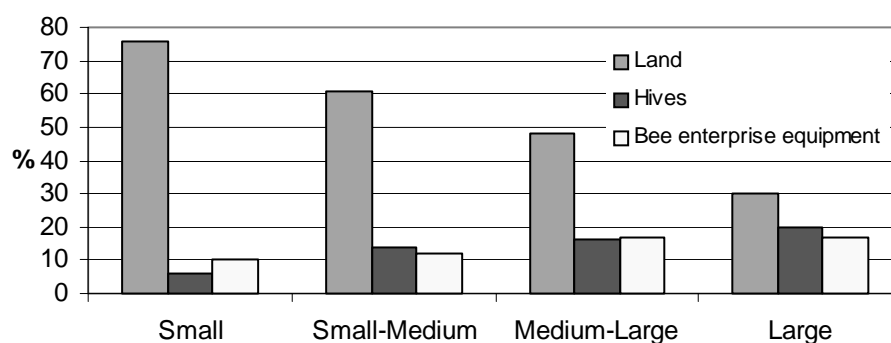
3.3.3. Capital and debt

The value of capital invested averaged \$236 420 per honeybee businesses at 30 June 2001. Large businesses had an average capital value at 30 June 2001 of \$715 829. Medium-large businesses averaged \$402 398 and small-medium and small businesses \$272 664 and \$165 324 respectively.

The land and fixed improvements, excluding the operator's house, constitute the largest proportion of the total capital, 61 per cent on average. However, for Tasmanian producers this proportion is only 39 per cent. Tasmanian businesses surveyed also had a high proportion of capital as packing and handling equipment (22 per cent compared with 7 per cent nationally). This reflects a higher proportion of Tasmanian businesses involved in packing honey.

More capital is invested in the hives and bee enterprise equipment for larger operations and less is invested in land (Figure 9).

Figure 9: Proportion of total capital value, by size of operation



Equity ratios for honeybee businesses were relatively high. Equity ratios averaged 89 per cent and business debt \$25 357 in 2000-01. This is similar to the 88 per cent equity recorded for Australian broadacre farms in 2000-01. Large businesses had an average total debt of \$105 064, with an equity ratio of 85 per cent. Higher debt and lower equity ratios for larger businesses is generally consistent with the greater capacity of these businesses to service debt.

3.4. Socioeconomic and business structure

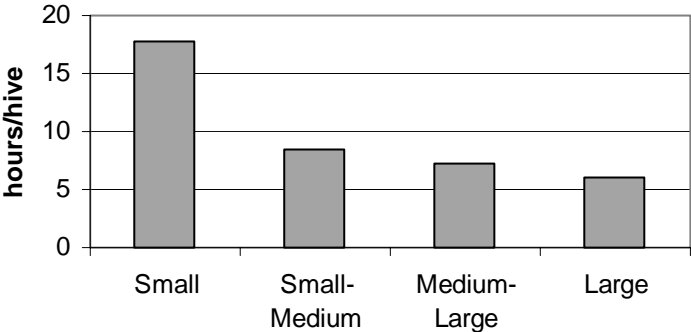
Australian beekeepers were, on average, 54 years old, with 25 years of experience as apiarists in 2000-01. Their spouses were 48 years old with 10 years experience as apiarists. The majority of beekeepers attained less than year 11 as their highest level of education (51 per cent) and 13 per cent had tertiary qualifications (Appendix table 5.2.7).

Wages and salaries earned outside the honeybee business by operators were estimated to average \$12 899 in 2000-01. Earnings for small operators were high as was government sourced income (Appendix table 5.2.7).

On average, family and other non-hire labour worked a total of 59 weeks a year in the business, while hired labour, permanent and casual, worked 6 weeks. Small businesses were run almost entirely by family and non-hired labour while for large enterprises non-hired labour provided about 70 per cent of the total labour input.

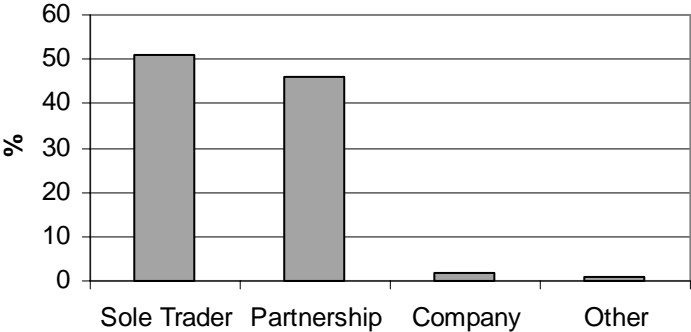
Small businesses worked almost three times the number of hours per operated hive compared to large business. Hours worked per operated hive decreased as the business size increased (figure 10).

Figure 10: Hours worked per operated hive, by size of operations



Around 51 per cent of Australian honeybee producers are sole traders. Another 46 per cent are partnerships (Figure 11), with partnerships being more common among larger businesses.

Figure 11: Business structure of honeybee businesses



3.5. Importance and availability of information for beekeepers

The majority of beekeepers (82 per cent) get at least some of their information from the Australian Beekeeper Magazine and other beekeeping industry newsletters and magazines. In addition, most beekeepers get at least some information from state department apiary officers and the Australian Honey Bee Industry Council (85 and 60 per cent respectively). In contrast, most beekeepers, around 62 per cent, get no information from the media.

The majority of beekeepers consider information about bee diseases and honey flora very important. In addition, most consider information about nutrition, pesticides and queenbee raising to also be very important (66, 60 and 54 per cent respectively).

4. Estimates of economic value

Based on the average per business estimates generated by the 2000-01 honeybee industry survey, the estimated total gross value of production of the honeybee industry was around \$63 million in 2000-01.

The gross value of honey production was around \$52.7 million; the gross value of paid pollination services around \$3.3 million; the gross value of queenbee sales around \$3.3 million; and the gross value of propolis, wax and honeycomb production around \$2.5 million. These estimates generally align with those published in Gibbs and Muirhead in 1998.

The survey results also lead to an estimate of total employment in the industry. For businesses with more than 50 hives the total number of people employed is estimated to be around 3000. This estimate excludes casual employees and family labour less than 16 years of age.

5. Appendices

5.1. Reliability of estimates

The reliability of the estimates of population characteristics presented in this report depends on the design of the sample and the accuracy of the measurement of characteristics for the individual sample businesses.

5.1.1. Sampling errors

Only a proportion of businesses in a state are surveyed. The data collected from each sample business are weighted to calculate population estimates. Estimates derived from these businesses are likely to be different from those that would have been obtained if information had been collected from a census of all businesses. Any such differences are called 'sampling errors'.

The size of the sampling error is most influenced by the survey design and the estimation procedures, as well as the sample size and the variability of businesses in the population. The larger the sample size, the lower the sampling error is likely to be. So state estimates are likely to have greater sampling errors than national estimates.

To give a guide to the reliability of the survey estimates, sampling errors have been calculated for the estimates. These estimated errors, expressed as percentages of the survey estimates and termed 'relative standard errors', are given next to each estimate in parentheses and italics.

5.1.2. Comparing estimates

When comparing estimates between different states and size groups, it is important to recognise that the differences are subject to sampling error. As a rough rule of thumb, a conservative estimate (an overestimate) of the standard error of the difference can be constructed by adding the squares of the estimated standard errors of the component estimates and then taking the square root of the result. An example is given below.

Suppose the estimates of total cash receipts were \$100 000 in Victoria and \$125 000 in Tasmania — a difference of \$25 000 — and the relative standard error is given as 6 per cent for each estimate. The standard error of the difference can be estimated as

$$\sqrt{(0.06 * \$100000)^2 + (0.06 * \$125000)^2} = \$9605$$

so the relative standard error of the difference is:

$$(\$9605 / \$25 000) \times 100 = 38\%.$$

5.1.3. Data quality

ABARE's survey system is designed to produce data of a quality suitable for research and analysis at the unit level. This involves a set of quality controls, with procedures being tailored to the specific requirements of individual surveys. The key to the success of the system is employing specialist highly experienced survey officers and statisticians to guide the design and operation of the data collection and estimation process.

With voluntary surveys, the first critical control point is maximising the response rate of the selected survey sample. Having staff with appropriate people skills is essential. Nevertheless, low response rates can be unavoidable in some surveys. Problems of data quality arising from this source are reduced by the use of procedures to guide the selection of replacement businesses, and the use of statistical modelling in the estimation process.

Data quality is also enhanced by checks against available external data sources and by internal consistency checks. The first of these checks takes place at the time of collection. With expert survey staff and training in the specific survey topic, much of the checking for internal consistency of data is done most effectively and efficiently as part of the interview. After the collection of the survey information, the data are passed through a series of automated and manual edits to check against any data collected at the unit level from other sources and as a final check for internal consistency. Extreme observations are also identified and, if necessary, checked by a second contact with the survey respondent.

5.2. Appendix tables

5.2.1. Physical estimates for honeybee businesses, 2000-01

Average per business

		Australia		NSW		Victoria		Queensland		South Australia		Western Australia		Tasmania	
		Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE
Population	<i>no</i>	1 607		529		340		368		203		121		46	
Sample	<i>no</i>	152		44		26		32		17		19		14	
Area of land at business premises	<i>ha</i>	42	(60)	89	(85)	16	(47)	30	(76)	12	(85)	9	(63)	17	(51)
Queenbee mating nucs operated	<i>no</i>	81	(21)	84	(42)	83	(39)	101	(45)	46	(18)	56	(22)	86	(29)
Hives operated during year	<i>no</i>	258	(5)	267	(8)	250	(11)	226	(13)	298	(12)	243	(6)	352	(16)
Hives operated at 30 June	<i>no</i>	252	(5)	261	(8)	248	(10)	217	(13)	298	(12)	222	(7)	353	(16)
Honey production															
Opening stock of honey	<i>kg</i>	2 006	(20)	1 071	(38)	3 570	(41)	956	(39)	2 624	(56)	739	(42)	10 219	(33)
Honey purchased	<i>kg</i>	828	(31)	851	(74)	386	(71)	239	(67)	208	(96)	1 882	(67)	8 514	(42)
Honey produced	<i>kg</i>	17 312	(7)	17 992	(11)	16 184	(18)	13 030	(21)	21 773	(18)	19 359	(19)	27 028	(28)
Honey sold during year	<i>kg</i>	17 917	(7)	18 289	(10)	16 523	(16)	13 151	(20)	22 844	(18)	21 352	(18)	31 283	(30)
Quantity honey given away	<i>kg</i>	205	(8)	237	(11)	160	(26)	173	(23)	233	(20)	229	(26)	219	(34)
Closing stock of honey	<i>kg</i>	2 025	(20)	1 387	(39)	3 457	(42)	901	(46)	1 528	(73)	385	(48)	14 258	(28)
Bee related activities															
Queenbees purchased	<i>no</i>	88	(11)	89	(18)	66	(25)	128	(22)	78	(33)	37	(24)	89	(23)
Queenbees sold	<i>no</i>	237	(44)	313	(75)	123	(89)	466	(63)	0	(0)	11	(89)	1	(76)
Royal jelly sold	<i>kg</i>	0.1	(81)	0.0	(0)	0.0	(0)	0.0	(0)	0.0	(0)	0.7	(81)	0.0	(0)
Propolis/wax/honeycomb sold	<i>kg</i>	308	(16)	223	(16)	206	(27)	276	(28)	496	(65)	800	(29)	182	(42)
Number Operating and spare hives purchased	<i>no</i>	5	(32)	9	(48)	2	(107)	4	(83)	6	(94)	3	(96)	16	(58)
Number Operating and spare hives sold	<i>no</i>	1	(89)	0	(0)	0	(0)	0	(100)	5	(95)	0	(0)	0	(0)
Conditions for honey production in 2000-01 in the region where hives were located															
- Above average	%	8	(41)	4	(49)	23	(65)	2	(69)	10	(60)	0		7	(93)
- Average	%	30	(15)	41	(22)	13	(40)	16	(58)	54	(32)	17	(63)	54	(25)
- Below average	%	62	(9)	55	(17)	65	(24)	81	(12)	36	(45)	83	(13)	39	(33)
Honey production in a normal year	<i>kg</i>	24 331	(6)	24 162	(10)	22 046	(15)	19 110	(17)	30 276	(14)	31 187	(11)	40 673	(27)
Number hives in a normal year	<i>no</i>	276	(5)	296	(9)	259	(11)	241	(13)	302	(12)	273	(9)	354	(16)

5.2.2. Sources of flora for honeybee businesses, 2000-01

Source of flora for honey production	Australia		NSW		Victoria		Queensland		South Australia		Western Australia		Tasmania		
	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	
Regional															
Proportion of honey in 2000-01 from:															
- Northern NSW	%	24	(3)	70	(3)	0	(0)	6	(34)	0	(0)	0	(0)	0	(0)
- Southern NSW	%	12	(14)	27	(6)	15	(52)	0	(71)	0	(0)	0	(0)	0	(0)
- Victoria	%	19	(9)	1	(49)	85	(9)	1	(100)	1	(70)	0	(0)	0	(0)
- Queensland	%	22	(3)	2	(46)	0	(0)	93	(2)	0	(0)	0	(0)	0	(0)
- South Australia	%	13	(1)	0	(0)	0	(101)	0	(0)	100	(0)	0	(0)	0	(0)
- Western Australia	%	8	(0)	0	(0)	0	(0)	0	(0)	0	(0)	100	(0)	0	(0)
- Tasmania	%	3	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	100	(0)
Producers use of Public land															
Used public land in last 5 years	%	62	(9)	67	(17)	48	(26)	71	(15)	33	(61)	89	(10)	100	(0)
Use of public land for honey production in last 5 years has:															
- decreased		19	(24)	24	(39)	2	(67)	21	(41)	24	(84)	32	(42)	12	(61)
- unchanged		33	(16)	32	(35)	41	(31)	35	(32)	7	(65)	46	(31)	55	(24)
- increased		10	(22)	11	(36)	5	(56)	15	(41)	3	(101)	10	(97)	34	(37)
Proportion of honey in 2000-01 from:															
- state forests		23	(14)	20	(24)	26	(39)	26	(26)	1	(112)	40	(23)	58	(10)
- national parks		3	(23)	4	(43)	5	(39)	2	(80)	1	(70)	4	(62)	13	(44)
- other public land		4	(27)	5	(46)	2	(75)	4	(55)	0	(65)	8	(34)	3	(76)
Number of hives contributing to honey production from public lands in 2000-01	<i>no</i>	142	(8)	150	(15)	167	(17)	137	(20)	35	(62)	179	(12)	300	(13)
Proportion of honey production sourced from public lands 5 years ago	%	29	(11)	24	(21)	33	(31)	35	(23)	3	(70)	53	(16)	76	(2)
Number of hives contributing to honey production from public lands 5 years ago	<i>no</i>	170	(11)	199	(25)	180	(20)	169	(18)	15	(84)	209	(11)	349	(18)

5.2.3. Receipts for honeybee businesses, 2000-01

Average per business

		Australia		NSW		Victoria		Queensland		South Australia		Western Australia		Tasmania	
		Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE
Honey contract quantity	\$	12 850	(10)	13 809	(18)	11 838	(23)	13 848	(24)	17 856	(18)	4 545	(56)	1 081	(73)
Price received for honey in 2000-01	\$/kg	1.8	(3)	1.8	(4)	1.8	(5)	1.8	(3)	1.5	(6)	1.7	(5)	3.4	(13)
Value of:															
Honey given away	\$	392	(9)	481	(13)	289	(29)	305	(23)	446	(24)	398	(27)	564	(35)
Honey produced in 2000-01	\$	30 919	(7)	31 428	(10)	28 984	(17)	23 580	(20)	32 475	(18)	33 171	(19)	85 293	(30)
Receipts															
Honey sales	\$	32 804	(7)	32 770	(10)	30 074	(14)	23 838	(20)	34 497	(19)	37 024	(17)	106 544	(32)
Queenbees	\$	2 069	(44)	2 834	(73)	1 317	(93)	3 662	(64)	0	(0)	242	(61)	10	(76)
Royal jelly	\$	33	(81)	0	(0)	0	(0)	0	(0)	0	(0)	434	(81)	0	(0)
Bee venom	\$	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Propolis/wax/honeycomb	\$	1 583	(23)	1 008	(17)	954	(27)	1 185	(28)	2 925	(84)	5 055	(37)	964	(43)
Operating and spare hives	\$	60	(92)	0	(0)	0	(0)	10	(100)	459	(95)	0	(0)	0	(0)
Pollination services	\$	2 052	(20)	1 762	(45)	2 739	(39)	1 051	(52)	2 444	(51)	3 281	(39)	3 364	(28)
Total bee related receipts	\$	38 601	(7)	38 374	(10)	35 084	(14)	29 744	(17)	40 325	(21)	46 036	(14)	110 882	(31)
Wool	\$	156	(76)	171	(92)	440	(114)	0	(0)	51	(90)	0	(0)	0	(0)
Other livestock	\$	332	(41)	106	(66)	605	(72)	601	(68)	0	(0)	0	(0)	1 078	(93)
Other farm products	\$	53	(81)	0	(0)	179	(107)	68	(94)	0	(0)	0	(0)	0	(0)
Crops	\$	1 012	(113)	2 790	(125)	0	(0)	0	(0)	745	(79)	0	(0)	0	(0)
Government assistance	\$	38	(59)	0	(0)	11	(101)	0	(0)	0	(0)	0	(0)	1 226	(63)
Interest and dividends	\$	582	(18)	655	(34)	712	(37)	505	(33)	615	(43)	170	(61)	336	(76)
Other cash receipts	\$	5 228	(27)	4 573	(61)	5 177	(64)	4 728	(42)	6 570	(71)	2 657	(69)	17 974	(60)
Total cash receipts	\$	46 002	(7)	46 670	(13)	42 209	(15)	35 647	(15)	48 306	(19)	48 863	(14)	131 497	(23)

5.2.4. Costs for honeybee businesses, 2000-01

Average per business

Costs	Australia		NSW		Victoria		Queensland		South Australia		Western Australia		Tasmania		
	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	
Administration	\$	1 798	(9)	1 486	(21)	1 605	(16)	1 628	(18)	2 184	(32)	2 633	(16)	4 258	(33)
Purchases															
- honey	\$	1 623	(32)	1 752	(75)	518	(69)	453	(66)	521	(96)	3 569	(65)	17 412	(41)
- Queenbees	\$	700	(10)	643	(17)	633	(25)	951	(19)	671	(34)	394	(22)	767	(26)
- operating and spare hives	\$	341	(36)	735	(47)	58	(107)	0	(83)	340	(81)	232	(96)	936	(58)
- Non bee related	\$	15	(92)	0	(0)	0	(0)	0	(0)	0	(0)	3	(93)	515	(93)
- TOTAL	\$	2 679	(20)	3 130	(43)	1 209	(30)	1 404	(22)	1 531	(39)	4 197	(56)	19 629	(35)
Marketing expenses															
- honey	\$	40	(71)	89	(89)	51	(113)	0	(0)	0	(0)	6	(78)	0	(0)
- TOTAL	\$	82	(41)	115	(71)	51	(113)	106	(63)	26	(133)	76	(71)	0	(0)
Electricity	\$	432	(12)	434	(28)	306	(21)	320	(17)	294	(32)	696	(16)	2 161	(34)
Apiary and other chemicals	\$	73	(78)	135	(124)	11	(69)	38	(43)	10	(101)	197	(104)	57	(59)
Freight	\$	623	(17)	851	(31)	136	(45)	466	(29)	820	(24)	244	(33)	2 985	(41)
Fuel, oil and grease	\$	3 735	(8)	3 700	(12)	3 940	(17)	3 604	(22)	3 600	(26)	3 945	(17)	3 713	(16)
Insurance (inc Workcover)	\$	1 100	(9)	1 112	(18)	959	(19)	622	(19)	1 247	(20)	1 697	(24)	3 614	(39)
Interest	\$	1 653	(13)	984	(26)	1 558	(40)	1 812	(23)	1 443	(38)	2 008	(22)	8 771	(24)
Lease on plant and equipment	\$	979	(21)	1 765	(25)	1 029	(56)	686	(50)	0	(0)	160	(81)	381	(76)
Beehive supplies	\$	2 060	(11)	2 322	(17)	1 589	(32)	1 376	(22)	3 113	(31)	2 613	(24)	1 906	(34)
Motor vehicle expenses	\$	2 197	(10)	2 070	(19)	1 776	(21)	2 294	(16)	2 536	(28)	3 324	(30)	1 511	(19)
Packing materials	\$	1 024	(31)	1 002	(63)	531	(69)	507	(52)	26	(82)	555	(42)	14 684	(50)
Repairs and maintenance															
- plant and equipment	\$	2 458	(9)	2 178	(14)	1 983	(21)	2 215	(23)	3 292	(30)	3 158	(23)	5 612	(36)
- building structures	\$	877	(17)	706	(22)	869	(31)	912	(53)	936	(38)	977	(32)	2 083	(38)
Rent on buildings, structures and land	\$	183	(29)	237	(47)	135	(53)	140	(98)	51	(101)	332	(57)	454	(73)
Rent of bee sites	\$	694	(12)	653	(19)	1 020	(21)	590	(39)	253	(37)	986	(18)	752	(30)
Total rates	\$	490	(11)	575	(20)	376	(34)	457	(21)	316	(26)	613	(18)	1 057	(21)
Superannuation	\$	356	(20)	117	(66)	559	(46)	307	(42)	322	(38)	233	(50)	2 458	(31)
Entomology fees	\$	18	(47)	1	(54)	51	(72)	21	(71)	1	(91)	0	(0)	69	(65)
Hired labour	\$	4 351	(16)	3 558	(42)	2 836	(34)	3 882	(38)	4 203	(36)	4 589	(31)	28 458	(32)
Other cash costs	\$	2 745	(25)	3 535	(55)	1 905	(35)	1 929	(22)	1 873	(32)	2 054	(23)	12 052	(40)
Total cash costs	\$	30 604	(7)	30 666	(15)	24 431	(16)	25 317	(14)	28 075	(17)	35 287	(11)	116 662	(24)

5.2.5. Financial performance for honeybee businesses, 2000-01

Average per business

		Australia		NSW		Victoria		Queensland		South Australia		Western Australia		Tasmania	
		Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE
Total cash receipts	\$	46 002	(7)	46 670	(13)	42 209	(15)	35 647	(15)	48 306	(19)	48 863	(14)	131 497	(23)
Total cash costs	\$	30 604	(7)	30 666	(15)	24 431	(16)	25 317	(14)	28 075	(17)	35 287	(11)	116 662	(24)
Cash operating surplus	\$	15 398	(12)	16 004	(21)	17 778	(24)	10 329	(31)	20 231	(31)	13 576	(37)	14 835	(24)
less: depreciation	\$	7 572	(5)	7 860	(10)	7 168	(9)	6 075	(12)	8 154	(19)	7 478	(11)	16 906	(36)
less: total imputed labour	\$	22 645	(5)	24 152	(9)	23 591	(11)	19 067	(9)	21 328	(17)	24 053	(9)	29 069	(8)
plus: buildup in trading stocks	\$	1 101	(90)	3 856	(39)	813	(174)	524	(137)	- 1 731	(89)	- 11 105	(95)	20 767	(50)
Return to capital and management	\$	- 13 719	(17)	- 12 152	(37)	- 12 167	(48)	- 14 289	(24)	- 10 982	(42)	- 29 060	(40)	- 10 373	(119)
Return at full equity to capital and management	\$	- 11 816	(20)	- 10 841	(41)	- 10 475	(57)	- 12 337	(28)	- 9 203	(52)	- 26 720	(44)	- 1 119	(1208)
Rate of return	%	-5.0	(19)	-4.4	(41)	-4.3	(57)	-6.7	(27)	-3.8	(53)	-11.4	(41)	-0.3	(1203)

5.2.6. Capital and debt estimates for honeybee businesses, 2000-01

Average per business

	Australia		NSW		Victoria		Queensland		South Australia		Western Australia		Tasmania		
	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	
Capital (Market values)															
Capital at 1 July	\$	234 610	(6)	247 095	(14)	242 065	(14)	183 898	(7)	242 745	(16)	234 539	(8)	405 925	(23)
Capital at 30 June -															
- Land and fixed improvements exc house	\$	145 107	(9)	155 540	(20)	153 070	(19)	117 951	(9)	154 440	(23)	136 625	(12)	164 632	(17)
- Honey stocks	\$	4 520	(20)	2 453	(39)	6 704	(41)	1 790	(45)	2 491	(77)	1 075	(59)	52 018	(35)
- Honey contract	\$	3 876	(27)	7 067	(36)	4 223	(62)	1 048	(101)	2 679	(46)	1 027	(87)	0	(0)
- bee related products	\$	1 043	(19)	798	(42)	1 154	(40)	835	(44)	1 741	(46)	1 305	(39)	938	(52)
- hives	\$	26 512	(5)	27 894	(8)	26 413	(10)	20 719	(14)	26 333	(15)	30 970	(12)	46 743	(21)
- vehicles	\$	29 757	(7)	33 165	(13)	30 767	(12)	24 676	(14)	25 777	(25)	32 094	(15)	35 150	(21)
- handling, harvesting and packing equipment used in honey/apiary enterprise	\$	17 425	(10)	16 793	(10)	16 546	(23)	10 854	(13)	16 162	(23)	15 499	(14)	94 389	(51)
- handling, harvesting and packing equipment used non bee enterprise	\$	2 579	(33)	896	(116)	686	(83)	3 388	(61)	4 543	(57)	1 731	(93)	23 006	(72)
- computers, electronic and communication equipment	\$	1 068	(16)	884	(40)	1 074	(33)	1 223	(24)	1 115	(40)	1 204	(21)	1 326	(35)
- other plant and equipment	\$	4 535	(12)	5 234	(22)	3 037	(22)	2 951	(30)	6 989	(32)	4 605	(27)	9 238	(35)
Total capital 30 June	\$	236 420	(6)	250 723	(13)	243 674	(14)	185 434	(7)	242 269	(16)	226 135	(7)	427 440	(22)
Total additions	\$	4 401	(39)	9 548	(53)	1 339	(49)	1 567	(58)	1 802	(57)	4 432	(44)	1 902	(63)
Total disposals	\$	3 692	(72)	9 776	(83)	543	(67)	554	(62)	547	(63)	1 731	(93)	1 155	(76)
Debt (responding farms)															
Finance lease	\$	2 719	(19)	4 803	(25)	2 882	(44)	1 533	(47)	846	(133)	701	(98)	937	(76)
Hire purchase	\$	2 360	(22)	1 645	(45)	2 501	(56)	2 495	(45)	3 372	(45)	3 353	(49)	1 182	(64)
Honey packers	\$	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Bank overdraft	\$	3 563	(19)	3 430	(46)	2 088	(39)	1 089	(57)	2 809	(76)	10 670	(33)	21 223	(20)
Other bank loans	\$	7 839	(15)	3 361	(48)	6 648	(41)	13 294	(25)	2 169	(49)	11 490	(31)	39 679	(36)
Building society	\$	2 310	(61)	3 400	(68)	5 111	(107)	0	(0)	0	(0)	1 370	(88)	0	(0)
Finance companies	\$	12	(72)	0	(0)	0	(0)	18	(100)	65	(96)	0	(0)	0	(0)
Pastoral or insurance companies	\$	36	(91)	0	(0)	166	(91)	0	(0)	0	(0)	0	(0)	0	(0)
Government agency	\$	179	(77)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	6 554	(77)
Trade creditors	\$	230	(45)	48	(84)	149	(101)	258	(71)	0	(0)	107	(81)	4 195	(77)
Other amounts owing	\$	811	(68)	0	(0)	126	(101)	0	(0)	4 967	(86)	2 161	(87)	0	(0)
Non apiary debt in business accounts	\$	5 298	(74)	10 888	(106)	0	(0)	4 078	(100)	2 244	(105)	7 098	(85)	0	(0)
Total debt	\$	25 357	(17)	27 576	(42)	19 672	(35)	22 765	(24)	16 472	(35)	36 950	(20)	73 771	(23)
Equity ratio	%	89	(2)	89	(4)	92	(3)	88	(4)	93	(3)	84	(4)	83	(4)

5.2.7. Socioeconomic and business structure estimates for honeybee businesses, 2000-01

Average per business

		Australia		NSW		Victoria		Queensland		South Australia		Western Australia		Tasmania	
		Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE
Socioeconomic indicators															
Age of owner manager	yrs	54	(3)	57	(5)	53	(5)	50	(7)	56	(6)	56	(5)	58	(5)
- years experience as an apiarist	yrs	25	(7)	26	(14)	22	(16)	23	(9)	31	(17)	28	(15)	30	(12)
Age of spouse	yrs	48	(4)	46	(9)	44	(3)	51	(3)	51	(19)	50	(6)	55	(6)
- years experience as an apiarist	yrs	10	(14)	5	(29)	10	(42)	13	(23)	11	(29)	15	(36)	17	(28)
Highest level of education attained:															
<i>Operator</i>															
- university education	%	13	(29)	10	(61)	21	(57)	14	(59)	0		25	(53)	17	(52)
- trade apprenticeship/technical/vocational	%	23	(20)	6	(51)	30	(49)	45	(27)	13	(76)	31	(42)	16	(63)
- Year 11 or 12	%	13	(30)	15	(60)	11	(34)	14	(64)	9	(62)	6	(69)	15	(63)
- less than year 11	%	51	(25)	69	(55)	38	(41)	27	(45)	78	(69)	39	(55)	52	(63)
<i>Spouse</i>															
- university education	%	22	(27)	25	(60)	17	(57)	26	(49)	14	(57)	28	(48)	0	(0)
- trade apprenticeship/technical/vocational	%	8	(35)	2	(89)	3	(104)	17	(65)	4	(92)	15	(43)	13	(90)
- Year 11 or 12	%	20	(35)	7	(49)	43	(58)	17	(58)	15	(205)	13	(45)	33	(44)
- less than year 11	%	51	(35)	66	(69)	37	(81)	40	(62)	67	(149)	44	(44)	55	(67)
Total non-honeybee business wages and salaries	\$	12 899	(16)	11 585	(33)	21 451	(22)	9 556	(37)	9 330	(78)	11 435	(44)	7 525	(52)
Total other income	\$	4 323	(35)	954	(39)	3 252	(42)	6 500	(55)	10 863	(80)	3 190	(61)	3 023	(61)
Income - government sources	\$	2 638	(24)	1 541	(34)	651	(64)	6 175	(38)	426	(113)	5 409	(61)	5 557	(43)
Labour															
Number of full time weeks worked by:															
- Family and other non hired labour	wks	59	(6)	62	(10)	59	(11)	49	(11)	59	(23)	64	(10)	73	(10)
- permanents	wks	3	(33)	3	(72)	1	(66)	5	(63)	1	(101)	1	(87)	32	(38)
- casuals	wks	3	(35)	3	(99)	2	(55)	1	(54)	3	(39)	2	(51)	18	(54)
- TOTAL	wks	65	(6)	68	(10)	62	(11)	55	(12)	63	(22)	67	(10)	123	(17)
Workers older than 15 years old	no	1.80	(4)	1.55	(6)	1.91	(11)	2.11	(10)	1.45	(12)	1.93	(9)	2.64	(10)
Business structure															
- sole traders	%	51	(10)	55	(19)	32	(43)	63	(16)	64	(7)	29	(47)	50	(27)
- partnership	%	46	(11)	41	(25)	68	(20)	36	(28)	32	(17)	59	(21)	46	(30)
- company	%	2	(57)	4	(81)	1	(101)	1	(101)	3	(99)	0	(0)	0	(0)
- other	%	1	(82)	0	(0)	0	(0)	0	(0)	0	(0)	12	(93)	4	(76)

5.2.8. Importance of availability of information, by state 2000-01
 Percentage of beekeepers

		Australia		New South Wales		Victoria		Queensland		South Australia		Western Australia		Tasmania	
Honey flora															
Not at all	%	1	(39)	0	(0)	4	(50)	0	(0)	1	(101)	4	(81)	0	(0)
To some extent	%	28	(22)	26	(44)	30	(50)	23	(44)	46	(47)	16	(54)	29	(42)
To a large extent	%	71	(9)	75	(15)	66	(23)	77	(13)	53	(40)	81	(11)	71	(17)
Bee diseases															
Not at all	%	1	(79)	2	(93)	0	(0)	0	(0)	1	(101)	0	(0)	0	(0)
To some extent	%	13	(38)	17	(57)	17	(89)	11	(62)	3	(99)	3	(82)	12	(61)
To a large extent	%	86	(6)	81	(12)	84	(18)	89	(8)	95	(4)	97	(3)	88	(8)
Honey extraction															
Not at all	%	8	(44)	13	(69)	0	(0)	14	(53)	1	(101)	4	(109)	0	(0)
To some extent	%	50	(13)	52	(24)	53	(29)	53	(22)	47	(45)	34	(41)	54	(25)
To a large extent	%	42	(15)	35	(29)	47	(32)	33	(34)	52	(40)	62	(23)	47	(29)
Management systems															
Not at all	%	6	(32)	7	(38)	0	(0)	9	(67)	1	(101)	15	(61)	0	(0)
To some extent	%	53	(11)	51	(19)	53	(29)	63	(16)	58	(36)	41	(34)	16	(63)
To a large extent	%	41	(14)	42	(23)	47	(33)	28	(33)	41	(51)	44	(33)	84	(12)
Pollination															
Not at all	%	16	(29)	11	(42)	16	(81)	18	(48)	33	(61)	0	(0)	4	(77)
To some extent	%	46	(12)	43	(17)	47	(33)	37	(31)	55	(38)	75	(7)	42	(31)
To a large extent	%	38	(12)	46	(15)	37	(37)	45	(26)	13	(42)	25	(22)	53	(25)
Pesticides															
Not at all	%	13	(31)	23	(47)	6	(61)	13	(54)	3	(99)	9	(72)	0	(0)
To some extent	%	28	(20)	29	(37)	35	(45)	24	(42)	13	(38)	37	(37)	29	(42)
To a large extent	%	60	(9)	48	(22)	60	(26)	64	(17)	84	(7)	54	(26)	71	(17)
State regulations															
Not at all	%	6	(36)	2	(93)	3	(89)	11	(63)	1	(101)	21	(54)	0	(0)
To some extent	%	50	(10)	70	(12)	27	(32)	46	(25)	52	(40)	35	(38)	48	(27)
To a large extent	%	45	(11)	28	(30)	70	(11)	43	(26)	46	(45)	43	(29)	52	(26)
Hive equipment															
Not at all	%	7	(45)	14	(65)	0	(0)	7	(69)	1	(101)	4	(109)	16	(81)
To some extent	%	57	(10)	61	(16)	53	(29)	61	(18)	58	(30)	46	(27)	43	(30)
To a large extent	%	35	(15)	25	(27)	47	(33)	32	(33)	41	(42)	49	(27)	42	(32)
Nutrition															
Not at all	%	3	(46)	3	(66)	0	(0)	3	(104)	3	(99)	4	(81)	0	(0)
To some extent	%	32	(16)	46	(21)	12	(31)	38	(28)	33	(64)	13	(79)	17	(46)
To a large extent	%	66	(8)	51	(19)	89	(4)	59	(17)	64	(33)	84	(12)	83	(10)
Seasonal management															
Not at all	%	9	(39)	13	(69)	1	(95)	13	(59)	3	(99)	9	(53)	16	(81)
To some extent	%	48	(13)	59	(18)	46	(34)	48	(24)	43	(49)	25	(38)	23	(41)
To a large extent	%	43	(13)	28	(30)	53	(29)	39	(26)	53	(40)	66	(15)	61	(23)
Commercial beekeeping															
Not at all	%	6	(34)	5	(66)	5	(62)	6	(86)	11	(90)	7	(63)	16	(81)
To some extent	%	54	(11)	56	(19)	40	(39)	74	(11)	49	(43)	34	(41)	27	(42)
To a large extent	%	40	(15)	39	(27)	55	(29)	21	(35)	40	(53)	60	(24)	57	(24)
Queen raising															
Not at all	%	11	(35)	1	(65)	8	(91)	24	(45)	24	(83)	0	(0)	16	(81)
To some extent	%	35	(16)	49	(26)	44	(34)	20	(38)	18	(31)	26	(46)	36	(36)
To a large extent	%	54	(12)	50	(25)	48	(31)	56	(20)	57	(36)	74	(16)	48	(27)
Marketing															
Not at all	%	11	(26)	8	(40)	3	(89)	26	(41)	5	(78)	4	(109)	26	(53)
To some extent	%	48	(12)	49	(19)	55	(28)	48	(24)	43	(49)	31	(44)	58	(24)
To a large extent	%	41	(14)	43	(23)	42	(36)	27	(34)	53	(40)	65	(21)	17	(52)
Other															
Not at all	%	89	(4)	96	(4)	87	(12)	89	(7)	79	(25)	83	(13)	96	(4)
To some extent	%	0	(124)	0	(0)	0	(0)	2	(124)	0	(0)	0	(0)	0	(0)
To a large extent	%	8	(43)	4	(98)	11	(89)	4	(51)	21	(96)	18	(61)	0	(0)

5.2.9. Importance of beekeeping information sources, by state 2000-01
 Percentage of beekeepers

		Australia	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
Australian Beekeeper magazine								
Not at all	%	18 (28)	15 (65)	23 (54)	3 (90)	48 (43)	18 (60)	6 (94)
To some extent	%	34 (14)	21 (31)	51 (31)	51 (22)	8 (58)	39 (35)	21 (36)
To a large extent	%	48 (12)	64 (16)	26 (45)	46 (24)	43 (48)	43 (34)	74 (13)
Other beekeeping industry newsletters/magazines								
Not at all	%	18 (28)	23 (44)	22 (64)	12 (59)	18 (60)	0 (0)	22 (58)
To some extent	%	43 (14)	50 (24)	41 (38)	21 (38)	54 (39)	75 (17)	31 (40)
To a large extent	%	39 (14)	27 (35)	37 (38)	67 (15)	28 (72)	25 (52)	47 (24)
Media (press, radio, TV)								
Not at all	%	62 (8)	63 (15)	77 (11)	61 (18)	56 (37)	39 (31)	51 (26)
To some extent	%	32 (15)	32 (30)	23 (38)	39 (29)	24 (20)	47 (30)	36 (36)
To a large extent	%	6 (52)	5 (87)	0 (0)	0 (0)	21 (96)	15 (74)	13 (66)
Field days								
Not at all	%	10 (36)	1 (96)	22 (64)	14 (55)	7 (74)	3 (98)	26 (52)
To some extent	%	40 (14)	39 (30)	25 (51)	53 (22)	61 (6)	21 (50)	27 (43)
To a large extent	%	50 (12)	61 (19)	54 (29)	34 (33)	31 (21)	76 (15)	48 (29)
Courses								
Not at all	%	39 (15)	42 (28)	28 (43)	52 (22)	34 (49)	23 (49)	42 (33)
To some extent	%	30 (19)	33 (30)	32 (45)	23 (41)	29 (73)	40 (36)	12 (61)
To a large extent	%	31 (19)	25 (41)	41 (38)	25 (42)	37 (55)	37 (38)	46 (29)
State Department Apiary Officers								
Not at all	%	15 (22)	9 (54)	3 (82)	24 (43)	14 (46)	38 (37)	38 (34)
To some extent	%	31 (17)	21 (36)	37 (43)	39 (27)	31 (54)	34 (39)	39 (31)
To a large extent	%	54 (11)	70 (13)	60 (26)	37 (31)	56 (31)	29 (43)	24 (44)
Beekeeping associations								
Not at all	%	18 (25)	21 (52)	4 (61)	35 (31)	8 (124)	13 (51)	20 (65)
To some extent	%	36 (17)	36 (30)	44 (36)	20 (45)	47 (44)	49 (26)	11 (60)
To a large extent	%	46 (13)	43 (23)	53 (30)	45 (26)	45 (46)	38 (34)	68 (20)
Australian Honey Bee Industry Council (AHBIC)								
Not at all	%	40 (13)	57 (16)	23 (64)	52 (23)	8 (124)	31 (43)	34 (40)
To some extent	%	41 (13)	28 (32)	61 (25)	24 (43)	79 (13)	37 (37)	26 (42)
To a large extent	%	19 (20)	15 (51)	16 (39)	24 (43)	14 (37)	32 (41)	40 (33)
Honey packers								
Not at all	%	25 (18)	40 (25)	17 (54)	22 (44)	0 (0)	26 (46)	56 (23)
To some extent	%	39 (13)	21 (39)	64 (16)	45 (24)	37 (55)	39 (36)	30 (42)
To a large extent	%	35 (14)	39 (26)	19 (30)	32 (29)	63 (33)	35 (39)	14 (31)
Manufacturers								
Not at all	%	37 (15)	49 (21)	19 (61)	31 (32)	29 (56)	56 (26)	45 (31)
To some extent	%	44 (13)	30 (34)	53 (29)	51 (23)	60 (28)	34 (41)	46 (30)
To a large extent	%	19 (23)	21 (30)	28 (53)	17 (57)	11 (52)	11 (59)	10 (46)
Other beekeepers								
Not at all	%	2 (50)	0 (0)	1 (95)	0 (0)	0 (0)	15 (77)	20 (65)
To some extent	%	27 (20)	41 (30)	18 (59)	6 (67)	46 (46)	28 (42)	14 (63)
To a large extent	%	71 (8)	59 (21)	81 (13)	95 (4)	54 (39)	56 (25)	65 (21)
Other								
Not at all	%	83 (6)	82 (12)	80 (15)	91 (5)	79 (25)	76 (15)	96 (4)
To some extent	%	7 (57)	10 (85)	1 (101)	3 (87)	21 (96)	0 (0)	0 (0)
To a large extent	%	10 (31)	8 (57)	19 (61)	6 (53)	0 (0)	24 (48)	4 (76)

5.2.10. Physical estimates for honeybee businesses, by size of operations, 2000-01
Average per business

Number of hives		Less than 250		250 to 500		500 to 1000		More than 1000		
		Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	
Population	<i>no</i>	1 062		292		179		73		
Sample	<i>no</i>	48		42		37		25		
Area of land at business premises	<i>ha</i>	55	(69)	14	(40)	23	(32)	15	(39)	
Queenbee mating nucs operated	<i>no</i>	38	(46)	107	(30)	144	(32)	436	(52)	
Hives operated during year	<i>no</i>	101	(7)	337	(3)	628	(3)	1 324	(7)	
Hives operated at 30 June	<i>no</i>	99	(7)	324	(3)	607	(4)	1 317	(7)	
Honey production										
Opening stock of honey	<i>kg</i>	684	(64)	2 413	(40)	5 304	(28)	11 475	(25)	
Honey purchased	<i>kg</i>	348	(46)	712	(54)	1 209	(77)	7 309	(53)	
Honey produced	<i>kg</i>	4 212	(15)	20 986	(14)	51 625	(9)	108 515	(10)	
Honey sold during year	<i>kg</i>	4 365	(14)	21 815	(13)	53 119	(9)	112 580	(9)	
Quantity honey given away	<i>kg</i>	79	(20)	251	(18)	540	(13)	1 027	(16)	
Closing stock of honey	<i>kg</i>	800	(51)	2 039	(43)	4 480	(29)	13 691	(32)	
Bee related activities										
Queenbees purchased	<i>no</i>	32	(19)	109	(22)	276	(17)	344	(24)	
Queenbees sold	<i>no</i>	137	(76)	148	(77)	410	(88)	1 617	(94)	
Royal jelly sold	<i>kg</i>	0.0	(0)	0.3	(83)	0.0	(0)	0.0	(0)	
Propolis/wax/honeycomb sold	<i>kg</i>	62	(31)	297	(27)	1 048	(25)	2 120	(14)	
Number Operating and spare hives purchased	<i>no</i>	4	(53)	2	(62)	7	(58)	39	(61)	
Number Operating and spare hives sold	<i>no</i>	0	(99)	3	(120)	0	(0)	0	(0)	
Conditions for honey production in 2000-01 in the region where hives were located										
- Above average	%	8	(64)	6	(76)	15	(37)	12	(54)	
- Average	%	31	(20)	27	(30)	22	(29)	40	(23)	
- Below average	%	62	(12)	66	(12)	64	(11)	48	(19)	
Honey production in a normal year	<i>kg</i>	7 335	(11)	30 752	(11)	69 509	(6)	134 463	(7)	
Number hives in a normal year	<i>no</i>	118	(9)	348	(4)	666	(3)	1 333	(7)	

5.2.11. Source of flora for honeybee businesses, by size of operations, 2000-01

Number of hives	Less than 250		250 to 500		500 to 1000		More than 1000		
	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	
Source of flora for honey production									
Regional									
Proportion of honey in 2000-01 from:									
- Northern NSW	%	23	(0)	31	(9)	16	(18)	40	(12)
- Southern NSW	%	12	(19)	10	(36)	16	(16)	13	(24)
- Victoria	%	18	(13)	18	(12)	21	(13)	15	(10)
- Queensland	%	26	(0)	13	(8)	16	(21)	17	(24)
- South Australia	%	12	(0)	7	(0)	28	(1)	9	(9)
- Western Australia	%	7	(0)	15	(0)	2	(39)	0	(0)
- Tasmania	%	3	(0)	5	(0)	1	(77)	6	(0)
Producers use of Public land									
Used public land in last 5 years	%	53	(16)	76	(8)	85	(5)	92	(0)
Use of public land for honey production in last 5 years has:									
- decreased		20	(34)	23	(27)	7	(56)	22	(36)
- unchanged		26	(29)	46	(14)	56	(13)	35	(23)
- increased		7	(45)	8	(55)	23	(29)	36	(25)
Proportion of honey in 2000-01 from:									
- state forests		19	(26)	31	(16)	29	(12)	34	(11)
- national parks		1	(51)	11	(33)	4	(51)	5	(37)
- other public land		3	(49)	6	(31)	4	(30)	8	(24)
Number of hives contributing to honey production from public lands in 2000-01	<i>no</i>	37	(23)	203	(12)	389	(8)	824	(15)
Proportion of honey production sourced from public lands 5 years ago	%	23	(21)	46	(12)	35	(9)	49	(10)
Number of hives contributing to honey production from public lands 5 years ago	<i>no</i>	66	(37)	250	(15)	320	(11)	985	(11)

5.2.12. Receipts for honeybee businesses, by size of operations, 2000-01

Average per business

Number of hives		Less than 250		250 to 500		500 to 1000		More than 1000	
		Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE
Honey contract quantity	\$	1 794	(36)	18 038	(21)	44 329	(12)	75 364	(16)
Price received for honey in 2000-01	\$/kg	1.7	(5)	1.7	(6)	1.9	(5)	1.9	(5)
Value of:									
Honey given away	\$	170	(21)	466	(19)	918	(13)	2 025	(18)
Honey produced in 2000-01	\$	7 278	(13)	34 637	(13)	94 398	(10)	203 276	(10)
Receipts									
Honey sales	\$	7 609	(13)	36 876	(13)	99 596	(10)	218 165	(11)
Queenbees	\$	1 175	(78)	1 633	(78)	2 892	(76)	14 715	(94)
Royal jelly	\$	0	(0)	180	(83)	0	(0)	0	(0)
Bee venom	\$	0	(0)	0	(0)	0	(0)	0	(0)
Propolis/wax/honeycomb	\$	212	(24)	2 176	(34)	5 433	(36)	9 655	(14)
Operating and spare hives	\$	3	(99)	319	(120)	0	(0)	0	(0)
Pollination services	\$	404	(54)	2 915	(37)	7 636	(27)	8 852	(43)
Total bee related receipts	\$	9 403	(14)	44 099	(11)	115 556	(9)	251 387	(10)
Wool	\$	0	(0)	0	(0)	893	(86)	1 232	(80)
Other livestock	\$	250	(60)	103	(95)	1 176	(64)	357	(78)
Other farm products	\$	81	(82)	0	(0)	0	(0)	0	(0)
Crops	\$	1 389	(129)	0	(0)	751	(96)	226	(101)
Government assistance	\$	0	(0)	171	(77)	36	(77)	52	(86)
Interest and dividends	\$	132	(50)	587	(33)	1 903	(29)	3 848	(25)
Other cash receipts	\$	6 262	(34)	3 790	(51)	2 072	(23)	3 690	(23)
Total cash receipts	\$	17 518	(17)	48 751	(11)	122 386	(8)	260 791	(10)

5.2.13. Costs for honeybee businesses, by size of operations, 2000-01

Average per business

Number of hives	Less than 250		250 to 500		500 to 1000		More than 1000		
	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	
Costs									
Administration	\$	869	(23)	2 200	(13)	4 131	(12)	7 938	(24)
Purchases									
- honey	\$	674	(45)	1 158	(46)	2 150	(77)	15 916	(51)
- Queenbees	\$	299	(19)	762	(18)	2 073	(14)	2 894	(21)
- operating and spare hives	\$	145	(66)	102	(65)	754	(61)	3 123	(57)
- Non bee related	\$	22	(98)	1	(86)	0	(0)	0	(0)
- TOTAL	\$	1 141	(29)	2 022	(28)	4 978	(34)	21 932	(37)
Marketing expenses									
- honey	\$	1	(104)	7	(80)	345	(64)	8	(63)
- TOTAL	\$	32	(70)	36	(65)	471	(50)	24	(33)
Electricity	\$	168	(36)	758	(20)	850	(16)	1 941	(17)
Apiary and other chemicals	\$	99	(89)	9	(62)	29	(58)	52	(64)
Freight	\$	230	(53)	355	(20)	1 557	(21)	5 094	(19)
Fuel, oil and grease	\$	1 332	(21)	5 166	(13)	10 139	(10)	17 187	(10)
Insurance (inc Workcover)	\$	396	(24)	1 494	(14)	2 745	(12)	5 714	(9)
Interest	\$	519	(40)	1 972	(27)	4 950	(19)	8 741	(18)
Lease on plant and equipment	\$	63	(106)	1 226	(40)	2 747	(38)	8 927	(26)
Beehive supplies	\$	1 010	(21)	3 058	(18)	4 729	(23)	6 773	(18)
Motor vehicle expenses	\$	1 455	(15)	2 651	(23)	4 814	(15)	4 729	(18)
Packing materials	\$	410	(67)	810	(63)	1 760	(62)	8 954	(52)
Repairs and maintenance									
- plant and equipment	\$	716	(26)	2 880	(16)	7 670	(11)	13 279	(17)
- building structures	\$	349	(49)	1 263	(24)	1 978	(19)	4 280	(20)
Rent on buildings, structures and land	\$	36	(64)	298	(45)	350	(44)	1 436	(52)
Rent of bee sites	\$	182	(28)	997	(24)	1 847	(27)	4 079	(21)
Total rates	\$	307	(24)	630	(10)	877	(15)	1 645	(18)
Superannuation	\$	68	(79)	326	(62)	856	(25)	3 417	(22)
Entomology fees	\$	1	(68)	5	(96)	125	(52)	63	(48)
Hired labour	\$	1 156	(66)	1 953	(25)	12 272	(21)	40 802	(18)
Other cash costs	\$	1 639	(59)	2 624	(36)	5 923	(15)	11 460	(33)
Total cash costs	\$	12 177	(19)	32 732	(11)	75 796	(10)	178 467	(12)

5.2.14. Financial performance for honeybee businesses, by size of operations, 2000-01

Average per business

Number of hives	Less than 250		250 to 500		500 to 1000		More than 1000		
	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	
Total cash receipts	\$	17 518	(17)	48 751	(11)	122 386	(8)	260 791	(10)
Total cash costs	\$	12 177	(19)	32 732	(11)	75 796	(10)	178 467	(12)
Cash operating surplus	\$	5 341	(38)	16 018	(17)	46 591	(13)	82 325	(15)
less: depreciation	\$	3 911	(10)	8 251	(10)	17 346	(9)	33 995	(12)
less: total imputed labour	\$	17 577	(9)	27 546	(6)	34 712	(6)	47 028	(6)
plus: buildup in trading stocks	\$	705	(72)	- 4 359	(93)	5 231	(76)	18 480	(42)
Return to capital and management	\$	- 15 443	(19)	- 24 138	(22)	- 236	(99)	19 782	(61)
Return at full equity to capital and management	\$	- 14 886	(19)	- 21 708	(24)	5 395	(131)	29 960	(39)
Rate of return	%	-9.0	(20)	-7.9	(25)	1.4	(132)	4.4	(40)

5.2.15. Capital and debt estimates for honeybee businesses, by size of operations, 2000-01

Average per business

Number of hives	Less than 250		250 to 500		500 to 1000		More than 1000		
	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	
Capital (Market values)									
Capital at 1 July	\$	165 628	(11)	275 497	(14)	391 094	(10)	688 136	(9)
Capital at 30 June -									
- Land and fixed improvements exc house	\$	126 433	(13)	166 134	(17)	191 729	(20)	217 873	(13)
- Honey stocks	\$	1 511	(50)	4 399	(47)	12 294	(41)	29 581	(28)
- Honey contract	\$	0	(0)	2 153	(58)	10 682	(46)	50 188	(33)
- bee related products	\$	818	(32)	999	(34)	1 378	(57)	3 652	(24)
- hives	\$	9 171	(7)	37 026	(6)	65 171	(5)	141 222	(6)
- vehicles	\$	15 775	(15)	32 218	(10)	70 053	(10)	123 931	(10)
- handling, harvesting and packing equipment used in honey/apiary enterprise	\$	6 940	(12)	22 829	(25)	35 360	(8)	103 842	(27)
- handling, harvesting and packing equipment used non bee enterprise	\$	1 328	(64)	765	(80)	4 740	(60)	22 617	(46)
- computers, electronic and communication equipment	\$	668	(31)	1 338	(18)	2 223	(19)	2 960	(21)
- other plant and equipment	\$	2 681	(23)	4 803	(29)	8 770	(23)	19 965	(20)
Total capital 30 June	\$	165 324	(11)	272 664	(14)	402 398	(10)	715 829	(9)
Total additions	\$	3 544	(71)	3 154	(40)	9 055	(34)	10 400	(36)
Total disposals	\$	4 553	(88)	1 627	(54)	2 982	(66)	1 187	(84)
Debt (responding farms)									
Finance lease	\$	0	(0)	2 595	(50)	11 354	(33)	20 322	(24)
Hire purchase	\$	810	(51)	2 169	(57)	8 436	(31)	9 721	(43)
Honey packers	\$	0	(0)	0	(0)	0	(0)	0	(0)
Bank overdraft	\$	786	(77)	6 207	(30)	7 088	(23)	23 119	(30)
Other bank loans	\$	2 380	(47)	11 767	(33)	22 344	(25)	32 500	(32)
Building society	\$	2 739	(76)	567	(81)	3 154	(69)	0	(0)
Finance companies	\$	12	(96)	0	(0)	38	(89)	0	(0)
Pastoral or insurance companies	\$	0	(0)	0	(0)	316	(85)	0	(0)
Government agency	\$	0	(0)	0	(0)	0	(0)	3 844	(72)
Trade creditors	\$	65	(94)	44	(83)	258	(52)	3 193	(58)
Other amounts owing	\$	0	(0)	895	(91)	606	(76)	12 366	(66)
Non apiary debt in business accounts	\$	6 637	(86)	2 940	(79)	4 401	(61)	0	(0)
Total debt	\$	13 429	(45)	27 184	(19)	57 994	(16)	105 064	(13)
Equity ratio	%	92	(4)	90	(3)	86	(3)	85	(2)

5.2.16. Socioeconomic and business structure estimates for honeybee businesses, by size, 2000-01
Average per business

Number of hives	Less than 250		250 to 500		500 to 1000		More than 1000		
	Estimate	RSE	Estimate	RSE	Estimate	RSE	Estimate	RSE	
Socioeconomic indicators									
Age of owner manager	yrs	56	(4)	53	(3)	45	(4)	53	(3)
- years experience as an apiarist	yrs	24	(10)	29	(7)	25	(10)	35	(4)
Age of spouse	yrs	49	(5)	49	(3)	44	(5)	51	(3)
- years experience as an apiarist	yrs	8	(28)	12	(17)	13	(13)	16	(14)
Highest level of education attained:									
<i>Operator</i>									
- university education	%	15	(37)	11	(41)	9	(49)	4	(85)
- trade apprenticeship/technical/vocational	%	27	(24)	13	(35)	17	(35)	17	(45)
- Year 11 or 12	%	8	(66)	19	(28)	29	(25)	13	(52)
- less than year 11	%	50	(45)	58	(31)	46	(30)	66	(48)
<i>Spouse</i>									
- university education	%	24	(40)	22	(30)	16	(39)	11	(55)
- trade apprenticeship/technical/vocational	%	7	(73)	5	(62)	8	(67)	18	(48)
- Year 11 or 12	%	17	(61)	22	(36)	28	(29)	20	(44)
- less than year 11	%	52	(67)	52	(49)	48	(48)	52	(46)
Total off farm wages and salaries	\$	14 532	(20)	6 188	(27)	7 419	(34)	4 902	(48)
Total other income	\$	7 056	(44)	2 781	(39)	2 802	(32)	6 106	(29)
Income - government sources	\$	3 162	(27)	1 419	(41)	1 634	(33)	389	(71)
Labour									
Number of full time weeks worked by:									
- Family and other non hired labour	wks	42	(10)	71	(7)	100	(6)	141	(7)
- permanents	wks	1	(98)	0	(91)	5	(52)	46	(40)
- casuals	wks	1	(128)	1	(45)	10	(33)	15	(33)
- TOTAL	wks	45	(10)	72	(7)	115	(7)	202	(9)
Workers older than 15 years old	no	1.60	(8)	1.85	(5)	2.24	(5)	3.49	(8)
Business structure									
- sole traders	%	63	(12)	39	(21)	15	(35)	17	(45)
- partnership	%	35	(21)	61	(14)	77	(8)	74	(11)
- company	%	1	(112)	0	(0)	8	(65)	7	(61)
- other	%	1	(93)	0	(0)	0	(0)	3	(70)

5.2.17. Importance of availability of information, by size of operations 2000-01
 Percentage of beekeepers

Number of hives		Less than 250	250 to 500	500 to 1000	More than 1000
Honey flora					
Not at all	%	0 (0)	2 (83)	6 (50)	8 (61)
To some extent	%	30 (30)	15 (41)	40 (14)	24 (22)
To a large extent	%	70 (13)	84 (7)	55 (11)	69 (9)
Bee diseases					
Not at all	%	0 (0)	4 (93)	0 (0)	3 (101)
To some extent	%	15 (47)	8 (51)	8 (57)	9 (49)
To a large extent	%	85 (8)	88 (6)	92 (5)	88 (6)
Honey extraction					
Not at all	%	8 (61)	9 (55)	7 (45)	6 (63)
To some extent	%	54 (17)	38 (20)	51 (14)	39 (24)
To a large extent	%	38 (23)	54 (14)	41 (18)	55 (18)
Management systems					
Not at all	%	3 (77)	13 (42)	9 (32)	11 (50)
To some extent	%	55 (16)	54 (16)	46 (17)	47 (20)
To a large extent	%	43 (20)	33 (25)	46 (17)	42 (18)
Pollination					
Not at all	%	18 (38)	11 (52)	11 (38)	14 (45)
To some extent	%	48 (17)	39 (16)	50 (17)	43 (18)
To a large extent	%	34 (19)	50 (14)	39 (21)	43 (21)
Pesticides					
Not at all	%	13 (45)	19 (33)	6 (65)	8 (56)
To some extent	%	28 (29)	23 (30)	31 (24)	34 (26)
To a large extent	%	60 (13)	58 (15)	62 (13)	58 (16)
State regulations					
Not at all	%	5 (57)	12 (45)	3 (89)	3 (101)
To some extent	%	51 (14)	48 (17)	45 (18)	49 (19)
To a large extent	%	44 (16)	40 (19)	53 (16)	48 (20)
Hive equipment					
Not at all	%	7 (68)	9 (52)	7 (49)	3 (101)
To some extent	%	62 (13)	42 (16)	53 (13)	60 (15)
To a large extent	%	31 (24)	49 (15)	39 (18)	37 (22)
Nutrition					
Not at all	%	1 (103)	6 (72)	6 (67)	3 (75)
To some extent	%	37 (20)	22 (27)	23 (32)	16 (38)
To a large extent	%	62 (12)	73 (9)	71 (11)	81 (8)
Seasonal management					
Not at all	%	9 (56)	8 (54)	12 (43)	8 (56)
To some extent	%	49 (18)	45 (19)	48 (15)	42 (20)
To a large extent	%	42 (20)	47 (18)	39 (17)	51 (15)
Commercial beekeeping					
Not at all	%	5 (57)	3 (62)	20 (33)	5 (79)
To some extent	%	59 (15)	48 (18)	36 (18)	42 (21)
To a large extent	%	36 (24)	50 (17)	44 (18)	54 (16)
Queen raising					
Not at all	%	15 (39)	0 (0)	10 (49)	0 (0)
To some extent	%	34 (23)	35 (23)	42 (17)	36 (27)
To a large extent	%	51 (18)	65 (12)	48 (15)	64 (15)
Marketing					
Not at all	%	10 (40)	20 (34)	4 (90)	6 (64)
To some extent	%	51 (17)	31 (23)	64 (12)	35 (25)
To a large extent	%	40 (21)	49 (16)	32 (23)	59 (14)
Other					
Not at all	%	88 (7)	95 (3)	90 (4)	82 (7)
To some extent	%	0 (0)	2 (95)	0	0 (0)
To a large extent	%	10 (55)	3 (60)	8 (50)	11 (42)

5.2.18. Importance of beekeeping information sources, by state 2000-01
 Percentage of beekeepers

Number of hives		Less than 250	250 to 500	500 to 1000	More than 1000
Australian Beekeeper magazine					
Not at all	%	20 (37)	13 (40)	17 (30)	6 (61)
To some extent	%	30 (23)	43 (18)	45 (17)	37 (23)
To a large extent	%	50 (16)	44 (18)	38 (21)	57 (14)
Other beekeeping industry newsletters/magazines					
Not at all	%	20 (36)	19 (28)	11 (44)	3 (75)
To some extent	%	42 (21)	46 (16)	48 (16)	48 (17)
To a large extent	%	39 (20)	36 (19)	41 (20)	49 (17)
Media (press, radio, TV)					
Not at all	%	66 (11)	49 (17)	66 (12)	59 (16)
To some extent	%	27 (24)	46 (18)	34 (22)	39 (25)
To a large extent	%	7 (63)	5 (69)	0 (0)	3 (72)
Field days					
Not at all	%	11 (46)	10 (50)	1 (77)	11 (53)
To some extent	%	44 (18)	32 (22)	36 (18)	28 (30)
To a large extent	%	45 (19)	58 (15)	63 (11)	60 (15)
Courses					
Not at all	%	40 (21)	38 (20)	33 (22)	40 (21)
To some extent	%	28 (30)	39 (21)	29 (21)	29 (28)
To a large extent	%	32 (28)	23 (30)	39 (18)	31 (24)
State Department Apiary Officers					
Not at all	%	13 (34)	15 (33)	24 (27)	10 (51)
To some extent	%	28 (27)	36 (20)	42 (17)	37 (25)
To a large extent	%	59 (13)	49 (15)	35 (23)	53 (18)
Beekeeping associations					
Not at all	%	21 (33)	11 (39)	22 (21)	4 (76)
To some extent	%	36 (23)	48 (15)	13 (39)	36 (26)
To a large extent	%	43 (20)	41 (18)	65 (10)	60 (16)
Australian Honey Bee Industry Council (AHBIC)					
Not at all	%	46 (17)	32 (23)	26 (19)	16 (43)
To some extent	%	40 (19)	47 (16)	36 (21)	46 (22)
To a large extent	%	14 (37)	21 (22)	37 (22)	38 (25)
Honey packers					
Not at all	%	29 (22)	30 (23)	7 (49)	4 (94)
To some extent	%	46 (16)	23 (31)	22 (29)	47 (21)
To a large extent	%	25 (28)	48 (17)	71 (10)	49 (20)
Manufacturers					
Not at all	%	39 (20)	38 (21)	24 (28)	23 (34)
To some extent	%	42 (20)	46 (18)	56 (14)	47 (19)
To a large extent	%	19 (34)	16 (42)	20 (25)	31 (27)
Other beekeepers					
Not at all	%	2 (68)	1 (91)	4 (68)	0 (0)
To some extent	%	28 (28)	26 (27)	23 (30)	18 (36)
To a large extent	%	70 (12)	73 (9)	73 (10)	82 (8)
Other					
Not at all	%	84 (9)	83 (7)	80 (7)	89 (5)
To some extent	%	9 (68)	3 (90)	6 (67)	2 (86)
To a large extent	%	8 (54)	15 (36)	14 (33)	9 (48)

5.2.19. Distributions of honey producers by selected variables, Australia 2000-01

Proportion of producers at or below the value estimated

	Total cash receipts		Cash operating surplus		Return to capital and management	
	Estimate	RSE	Estimate	RSE	Estimate	RSE
10 per cent	\$ 3915	(41)	-5539	(49)	-41519	(59)
20 per cent	\$ 5927	(27)	-33	(99)	-29556	(99)
30 per cent	\$ 8000	(32)	1212	(38)	-25115	(46)
40 per cent	\$ 16700	(21)	2140	(25)	-22509	(30)
50 per cent	\$ 22978	(19)	4247	(23)	-17121	(27)
60 per cent	\$ 30228	(15)	9763	(18)	-12432	(22)
70 per cent	\$ 36000	(12)	15713	(14)	-9338	(17)
80 per cent	\$ 62700	(9)	26768	(11)	254	(99)
90 per cent	\$ 119966	(14)	44258	(17)	15004	(20)

	Total capital at 30 June		Rate of return		Business debt of responding	
	Estimate	RSE	Estimate	RSE	Estimate	RSE
10 per cent	\$ 81355	(41)	-25.2	(53)	0	(0)
20 per cent	\$ 101519	(23)	-17.7	(29)	0	(0)
30 per cent	\$ 125946	(27)	-13.9	(35)	0	(0)
40 per cent	\$ 143523	(18)	-10.2	(23)	0	(0)
50 per cent	\$ 161449	(16)	-8.2	(21)	30937	(32)
60 per cent	\$ 183516	(13)	-6.4	(16)	80000	(42)
70 per cent	\$ 250512	(10)	-4.2	(13)	82209	(34)
80 per cent	\$ 315528	(8)	0.8	(10)	103700	(14)
90 per cent	\$ 457744	(12)	9.6	(15)	125946	(14)

6. References

Gibbs, D. M. H. and Muirhead, I. F. 1998. *The Economic Value and Environmental Impact of the Australian Beekeeping Industry*. Australian Honey Bee Industry Council.

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