



Agricultural Statistics

Needs, Benefits and Costs

**A report for the Rural Industries Research
and Development Corporation**

by Ted Whybrow, Queensland
Department of Primary Industries

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FOREWORD

Statistics are information packaged in numeric form. They are used by government departments, businesses, educational institutions and households throughout Australia and the rest of the world to provide knowledge on which to make informed decisions.

As they relate to agriculture, statistics are fundamental to rural and regional policy development activities. They are also needed for research, extension, marketing and many other tasks undertaken by farm businesses, producer organisations, farm service companies and governments at all levels.

The Australian Bureau of Statistics (ABS) has been a major supplier of agricultural and other statistics to Australian users for many years. In 1997, it was decided that ABS would collect an agricultural census every five years instead of every year. Sample surveys will be conducted in the intervening four years. As a consequence, consistently accurate agricultural statistics for Statistical Local Areas, Local Government Areas and Statistical Divisions will not be available in the sample survey years.

The main objectives of the project were to examine the requirements of major Australian users of agricultural statistics and to assess whether the reduced supply of small area agricultural statistics from ABS would result in users and their clients sustaining loss. The extent of potential loss was measured against the savings to the Commonwealth Government.

The project results reveal that users and the community at large will sustain substantial loss because of the decision to reduce the supply of accurate small area agricultural statistics. The evidence developed indicates that the savings to the Commonwealth Governments fall well short of the potential loss to users and the community.

This project was funded from RIRDC Core Funds which are provided by the Federal Government and is an addition to RIRDC's diverse range of over 500 research publications. It forms part of our Human Capital, Communications & Information Systems R&D program, which aims to enhance human capital and facilitate innovation in rural industries and communities.

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Peter Core
Managing Director

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EXECUTIVE SUMMARY AND RECOMMENDATIONS

Aims of the investigation

The broad aims of this investigation were to:

1. Ascertain whether users of agricultural statistics, their clients and the community will sustain loss due to the decision in 1997 that resulted in the Australian Bureau of Statistics (ABS) conducting an Agricultural Census every fifth year instead of every year, and sample surveys in the intervening four years;
2. Identify the statistical data required by users of agricultural statistics in order to avoid loss;
3. Determine, if loss is sustained, whether that loss is greater than the saving to the Commonwealth Government;
4. Broadly identify additional agricultural statistical data which are presently required but were not available in the past; and
5. Broadly assess whether other data sources could provide the agricultural statistics which are no longer being provided by ABS.

Investigation procedure

The research proceeded by surveying representatives of organisations and units within organisations in a number of states and one territory who the researcher and informed persons considered may use agricultural statistics. The surveys concentrated mainly on Queensland and South Australia. In all, 32 group interviews were conducted and 240 mail survey questionnaires were returned.

Owing to the difficulty in constructing a complete population frame of agricultural statistics users, the results of the surveys should be interpreted as the tabulated responses of those who responded to the surveys. They should not be considered as the inferred statistically correct response for Australia.

ABS conducted a similar survey of Commonwealth Government agencies that use agricultural statistics and provided their results for inclusion in this report.

Relevant text and material from various meetings involving ABS and the National Committee of Agricultural Statistics Stakeholders (NCASS) were also reviewed.

Major findings relating to non-Commonwealth Government organisations

Organisations surveyed listed 712 activities in which agricultural statistics are used. State and local government agencies, regional development organisations, and industry organisations indicated that the highest proportion of their activities in which agricultural statistics were used related to policy development and monitoring.

More than 70% of all respondents from state and local government agencies, regional development organisations, industry organisations, manufacturers/traders and research organisations /academic institutions stated that the main benefit they receive from activities in which agricultural statistics are used was that they “provide a basis on which to formulate

plans/policies". The next two most important benefits to all organisations were those activities that "assist the organisation in meeting client expectations/needs" (63% of all respondents) and those which "enable it to provide objective reports for decision making" (60%).

The major effects of not having appropriate annual sub-state agricultural statistics for activities were: "recommendations could not be supported with factual data" (65% of respondents); "conclusions from activities would be less rigorous/subjective" (61%); "the effectiveness of programs addressing sub-state issues/problems would be reduced" (60%); and "reduced reliability in planning/prioritising/allocation of resources" (59%).

Thirty-nine percent of the respondents said their activities would be critically affected if annual sub-state ABS agricultural statistics were not available. A further 36% of respondents said that their activities would be moderately affected. For the purpose of the surveys, critical effect was defined as "the desired output could not be achieved without the data in question". ABS did not seek information on effects on Commonwealth agencies' activities in their survey.

The value of benefits to the interview respondents of activities in which ABS agricultural statistics were used was considerable. For example, in just Queensland, the value benefits to those who use agricultural statistics for extension work/information dissemination and policy development and monitoring purposes were estimated at greater than \$15 million (see Table 10, Chapter 4). Nationally, this would be far greater.

In response to a more rigorous willingness to pay test, 41% of respondents said they would be prepared to contribute or recommend that their organisations contribute a total annual contribution of \$528,600. A further 25% of the respondents said they did not know if they would contribute. While it would be worth it, many organisations in the states and Commonwealth Government departments would not actually pay because of concerns of ABS cost shifting.

The value of benefits to others (i.e. other people, organisations and the community) ranged from hundreds of thousands of dollars to millions of dollars across organisations and states. In Queensland, for example, the benefits to others from policy development and monitoring activities ranged from greater than \$450,000 for other organisations to greater than \$193,200,000 for the state agencies (see Table 10, Chapter 4).

Expenditure on ABS's Agricultural Statistics Program declined by 58% between 1993-94 and 1998-99; with 38% of this since 1996-97. Expenditure on the Program in 1998-99 was \$3.18 million.

To support activities undertaken by them, most respondents need annual SLA/LGA agricultural commodity/inventory data and annual SLA/LGA gross value of agricultural commodities produced (GVACP) statistics (see discussion in Chapters 4 and 7).

Annual sub-state agricultural commodity/inventory and GVACP statistics are considered by government and non-government users as fundamental to a wide range of activities from which the community receives far more benefits than the cost of collecting these statistics (see Chapter 4).

A relatively small number of respondents use agricultural statistics from sources other than ABS. "Industry and related organisations" is the single most important provider of these statistics. However, owing to the limitations of data from this and other sources, statistics from all sources other than ABS appear to be of little relevance to the requirements of most users of agricultural statistics at this time.

Of those respondents who require statistical items that are not presently collected, relatively few required them annually and at the SLA or LGA level.

Major findings relating to Commonwealth Government agencies

The highest proportion of Commonwealth Government agency activities related to policy development and monitoring and program monitoring.

Respondents to the ABS survey reported many benefits derived from sub-state agricultural statistics.

While a majority of Commonwealth agencies wanted data at the national and state levels, most also said they wanted data items at the agroecological region, statistical division and SLA/LGA levels.

Important conclusions

There are eleven conclusions provided in the body of the report. The major conclusions are:

- ABS agricultural statistics are vital to numerous activities undertaken by the organisations surveyed (Chapter 4);
- The community receives a wide variety of benefits from activities in which agricultural statistics are used. These benefits translate into hundreds of millions of dollars through the support given to making more informed decisions, assistance to industries/communities to obtain strategic direction, improved regional/community economic activity and many other ways (Chapter 4);
- The unavailability of annual sub-state ABS agricultural statistics will have severe detrimental effects on a large range of activities undertaken by respondents to the NCASS survey (Chapter 4);
- The value of benefits lost to users of statistics and the community will be far greater than the savings made by the Commonwealth Government in not collecting reliable annual sub-state ABS agricultural statistics (Chapters 4, 6 and 7);
- While there is considerable demand for statistics on issues for which no or very few statistics are being collected (e.g. the environment, technology and social issues), relatively few respondents who indicated that these statistics were highly useful said they needed them annually at the SLA or LGA level (Chapter 5); and
- A relatively small number of organisations surveyed use statistics from sources other than ABS (Chapters 2 and 5).

Recommendations

These recommendations were negotiated with NCASS and are based on the findings and conclusions of the surveys undertaken, the history of the issues to date, and the identified options. They were tabled for consideration at the SCARM meeting on 1 March 2000.

The recommendations are that:

1. NCASS advise SCARM of the major findings and conclusions of this investigation;
2. NCASS seek SCARM's endorsement of the necessity of annual SLA/LGA agricultural commodity/inventory statistics and annual SLA/LGA gross value of agricultural commodities produced statistics (minimum as per the 1996/97 census);
3. NCASS seek SCARM's endorsement that, starting from the collection of agricultural statistics in 2000/01, specific funding be made available from the Commonwealth (including the current funds at the ABS), at an appropriate funding level to undertake the collection as described in Recommendation 2;
4. If the Commonwealth does not agree to fund an annual collection which will provide the data as described in Recommendation 2 immediately, SCARM ask the Commonwealth to provide funding for the collection of this data every three years in the interim, until further funding arrangements are negotiated with the Commonwealth; and
5. NCASS seek SCARM's agreement that NCASS investigate, with other organisations if necessary, the most efficient model for the strategic overview/management of the collection of agricultural statistics required by Australian users and report on its findings at the next SCARM meeting (a range of options considered by NCASS are provided in Chapter 8).

Author's note

The analyses in this report revealed that there is considerable demand for annual Local Government Area (LGA) and Statistical Local Area (SLA) agricultural commodity/inventory statistics. Also, it appears that the value of benefits accruing to users of these statistics and the general community far exceeds the costs of collecting the data required.

ABS has clearly indicated that it is not able to conduct annual agricultural censuses in the future. The main reasons stated by ABS are budgetary constraints and provider load. However, ABS agricultural statistical collections have suffered a disproportionate reduction in provider load since 1996.

If the statistics are to be retained and if funding must be provided by users, perhaps the only effective way of avoiding even further cost shifting is to refuse to allow ABS to have exclusive mandate for the supply of agricultural statistics.

The researcher is of the view that funding and policy making in relation to agricultural statistics collections should not be the responsibility of the collection agency. These responsibilities should be transferred to an organisation whose key tasks are more aligned with agriculture. ABS or some other statistical collection agency could then be engaged to collect the data required. This would provide protection of funds specifically allocated to the collection of agricultural statistics.

This type of fundamental change is necessary to ensure the implementation of a system, which will guarantee the future provision of agricultural statistics required by users.

1. INTRODUCTION

Aims of the investigation

The broad aims of this investigation were to:

1. Ascertain whether users of agricultural statistics, their clients and the community will sustain loss due to the decision in 1997 that resulted in the Australian Bureau of Statistics (ABS) conducting an Agricultural Census every fifth year instead of every year, and sample surveys in the intervening four years;
2. Identify the statistical data required by users of agricultural statistics in order to avoid loss;
3. Determine, if loss is sustained, whether that loss is greater than the saving to the Commonwealth Government;
4. Broadly identify additional agricultural statistical data which are presently required but were not available in the past; and
5. Broadly assess whether other data sources could provide the agricultural statistics which are no longer being provided by ABS.

Aim 1 is a precursor to Aims 2, 3 and 5. The research procedure ensured that Aim 1 was tested prior to continuing with the main body of the investigation.

Research approach

The research involved a survey of representatives of organisations and units within organisations in a number of states and one territory whom the researcher and informed persons considered may use agricultural statistics. The surveys mainly concentrated on Queensland and South Australia because government agencies from those states were the major financial contributors to the project, together with Rural Industries Research and Development Corporation (RIRDC). Given that the project was being conducted on behalf of the National Committee of Agricultural Statistics Stakeholders (NCASS), representatives from government agencies in other states and various industry organisations were invited to provide names of organisations that they felt could contribute to the investigation.

In addition, it was also considered that a number of nationally oriented organisations who use agricultural statistics should be included in the investigation to identify characteristics of statistical usage which may be specific to them.

It was intended to include Commonwealth Government agencies in the surveys. This issue was discussed at the Rural Affairs Advisory Group (RAAG) meeting of 27 May 1999 and also between representatives from Agriculture Forestry Fishing Australia (AFFA), ABS and NCASS. It was decided that ABS would conduct the survey of Commonwealth agencies. The findings of this survey are included in Appendix A in this report and the conclusions and recommendations have taken these findings into account.

A preliminary investigatory field interview survey was conducted to initially ascertain whether loss did in fact occur because of the decision to reduce ABS's agricultural statistics program and to assist in the design of a more extensive mail survey. The interview survey was also used to collect data which, it was considered, was too difficult and involved to collect in a mail survey. These data have been used to indicate broad measures associated with descriptive data collected in the mail survey.

Prior to data collection, a selection of literature largely related to aspects of benefit cost analyses and agricultural statistical collections was scanned.

Outline of report

The report starts by providing a brief discussion of the theoretical and methodological approaches taken, particularly with regard to the surveys undertaken and the limitations in interpreting the results.

This is followed by detailed discussions on the survey results relating to the benefits of ABS agricultural statistics to users. The effects of the loss of some of these statistics on activities undertaken by users, and the importance of characteristics of specific groups of statistical items which have been affected by the Commonwealth Government's cuts are also discussed. Three case studies on the use of ABS statistics in specific activities are presented to anchor the findings of the surveys to factual demonstrations of usage of these data. Apparent benefits which are likely to be lost in the future because of the cuts in statistics are compared with the Commonwealth Government's cost savings to determine whether there appears to be a substantial potential loss or gain to the community.

In addition, a brief discussion is provided on important issues related to agriculture for which only limited statistics, or no statistics, are presently available. Preferred distribution media are also discussed briefly.

The summary report of a review of Commonwealth Government agencies' agricultural statistical needs prepared by ABS is included and briefly discussed.

2. BACKGROUND

A cut to ABS's agricultural statistics program by \$1 million a year was initiated in May 1997. This funding cut resulted in a situation where the Agricultural Census would be conducted only every five years instead of every year and a sample survey would be conducted in the intervening years.

The consequence of these cuts is that reliable Local Government Area (LGA) and Statistical Local Area (SLA) data, including crop area, production and livestock numbers will not be available in four years out of five. The sample surveys are likely to produce estimates with unacceptable standard errors of greater than 5% to 10% for most items at these geographic levels. The size of standard error will be largely determined by the level and concentration of activities in any particular LGA/SLA. Examples of standard errors associated with estimates from the 1997-98 Agricultural Commodity Sample Survey are provided in Appendix B.

A number of industry organisations and state departments of agriculture/primary industries expressed their concerns as to the loss of these statistics to the National Farmers' Association (NFF). In response, NFF formed the National Committee of Agricultural Statistics Stakeholders (NCASS) to assess the priority needs for future agricultural statistics collections in Australia.

NCASS comprises representatives from all state departments responsible for agriculture throughout Australia, various Commonwealth Government agencies and major industry organisations. It is chaired by NFF.

The first task of NCASS was to commission an international investigation of agricultural statistical systems which revealed that statistical systems in the United States and in Canada largely catered for small area statistical needs in those countries. The report of that investigation recommended that an analysis of needs, benefit and costs be undertaken to assess the need for annual agricultural statistics at the sub-state level in Australia and that research be undertaken to find an appropriate system to fulfil those needs.

The report also recommended that the Standing Committee of Agriculture and Resource Management (SCARM) be advised of NCASS's concerns in relation to this matter.

SCARM Meeting Number 12 (July 1998) discussed the issues relating to the changes to the ABS Agricultural Census and sought NCASS to provide "advice on a viable way forward".

The present investigation was undertaken mainly to assist NCASS to factually determine the requirements for agricultural statistics and to provide advice required by SCARM.

Other related issues

In 1996, the Commonwealth Government implemented a policy of reducing the compliance and paper burden imposed on small business. ABS undertook to reduce the provider load to small business by 20% across all Bureau statistical collections. In the process of doing so, 25% of provider load was cut from the Agricultural Statistics Program. The effective provider load cut to this program after the 1997 budget cut could now be as high as 60%.

A Statistical Clearing House (SCH) was established within ABS in 1997 to review/monitor all Commonwealth statistical collections with a view to reducing provider load. Users of agricultural statistics have been given to understand by ABS that a return to more frequent agricultural censuses would need to be assessed by the SCH.

ABS management has insisted at numerous meetings throughout Australia that ABS will never again conduct annual agricultural censuses. It has also suggested that the SCH would not allow agricultural censuses any more frequently than every three years. Subsequently, ABS stated that it would consider an Agricultural Census every third year from 2000-2001 if users pay through an annualised amount of \$133,000 i.e. users would be asked to pay over a number of years and not just the three years specified. Agriculture, Fisheries and Forestry Australia (AFFA) was approached by ABS to fund 50% of this cost but refused. ABS has now asked the departments of agriculture/primary industries in each state as to whether they would provide a response to this proposal. The Deputy Statistician, Economic Statistics Group, ABS told a national meeting of users in September 1999 that ABS could not guarantee that the amount required each year under this arrangement would not increase.

ABS has also indicated that it is examining the possibility of obtaining information from industry which may help to alleviate the unmet demand for sub-state data. It published in October 1998 a Directory of Agricultural Statistics which provides details of agricultural statistics collected by various agencies throughout Australia, including ABS. This publication is being updated and will refer to statistics relating to the rural community in general.

Overall, a huge amount of agricultural and related statistics are collected by industry and other organisations. However, the majority of these data cater for the particular needs of the organisation concerned. The scope, coverage, level of aggregation and frequency are also largely determined by the organisation collecting or paying for the statistics. Some of these data are available for purchase but, owing to their inherent limitations, they generally fail to have broad relevance to the general community of agricultural statistical users.

Agricultural censuses, on the other hand, have a common scope and coverage across all states and all other levels of aggregation. They are normally collected during the same period each year and are generally tabulated and released for use at about the same date year to year. The resultant statistics give a snapshot of agricultural industries throughout Australia at one consistent point in time and provide results of activities during the year for which data are collected. The snapshot can be of a nation or of a single shire.

3. METHODOLOGICAL AND THEORETICAL CONSIDERATIONS

ABS (1992) points out that statistics “can mean the science dealing with the collection, organisation, and interpretation of numerical data or it can mean numerical data themselves. Data are observations we make to help answer questions about the world around us.”

“Statistics” is therefore information in numeric form which provide knowledge.

Harrison and Tamasche (1984), and ABS (1992), distinguish between numeric data collected by full enumeration from a population (i.e. a census) and numeric data collected from a sample of a population (i.e. a sample survey). Both authors discuss the limitations of undertaking sample surveys as against censuses. It is the effect of these limitations, as they relate to agricultural statistics collected by ABS, which is the main target of this investigation.

Collection process and timetable

Data were gathered through a two-stage process: a personal interview survey and a second stage mail survey.

Thirty-two groups of between one and eight people from government and non-government organisations in Queensland and South Australia were interviewed during the interview survey.

The mail survey questionnaire was posted on 6 September 1999 and the survey closed on 1 November 1999.

Data from the interview survey questionnaires were transcribed to mail survey questionnaires and data from both surveys were processed together.

Questionnaire design and content

The main aim in designing the interview survey questionnaire was to ask questions that would:

1. Identify responses that could be presented in closed format in the mail survey questionnaire; and
2. Obtain data for analysis purposes that would be extremely difficult to collect in the mail survey.

Consequently, the interview survey questionnaire was not as tightly designed as the mail questionnaire. Except for the few test items in the interview questionnaire, similar data items were collected in both questionnaires but in slightly different formats. This enabled the direct transfer of the interview survey data to the mail questionnaire for tabulation purposes.

The mail survey questionnaire was forwarded to respondents under cover of a letter from the NFF. The letter provided a brief history of the funding cuts to the ABS Agricultural Statistics Program. It also made it clear that “reliable Statistical Division (SD), Statistical Local Area (SLA) and Local Government Area (LGA) agricultural statistics will most likely not be available in four years out of five unless funds are paid by users towards the collection of the data”. These details were given to ensure that respondents would provide informative responses on the effects of the reduced availability of sub-state agricultural statistics on their activities.

The mail survey questionnaire firstly elicited information about the respondents and their areas of responsibility. It then determined whether or not they used agricultural statistics. If they did not use

agricultural statistics, they were referred to a number of more general interest questions towards the end of the questionnaire. If they used agricultural statistics, they were asked to list the activities in which these statistics were used. They were then asked to allocate activities to activity categories, with each activity to be allocated to one category only. Despite providing a detailed example of what was required in this question, a large number of respondents allocated their activities to a number of categories rather than to just one as requested.

The rest of the activity section of the form elicited information on the benefits of activities and examined the effects on these activities “if annual sub-state ABS statistics were not available”.

Most of the remainder of the questionnaire elicited data on the ABS and other agricultural statistics needed by the respondents to undertake their activities. To assist respondents in answering questions on data that are collected by ABS in the Agricultural Commodity Survey/Census, a copy of the 1998-99 Agricultural Commodity Survey form was forwarded with the mail questionnaire. Data items in the mail questionnaire related specifically to the data collected in each section in the ABS survey form.

Two questions relating to the willingness of respondents “to contribute with other users towards the collection and tabulation of these statistics by the ABS or another statistical agency” were asked at the end of the questionnaire to assist in measuring the benefits of these statistics to users.

Copies of the mail survey questionnaire and the covering letter are provided in Appendix C.

Sample frame and its implications for data analysis

ABS was requested to provide a listing of their agricultural statistics clients to use as the sample frame to select an appropriate sample for the project surveys. However, this was refused because of “commercial in confidence” reasons. Consequently, it was not possible to apply normal sampling procedures to select an appropriate sample from which to derive objective estimates of benefits from using agricultural statistics.

The sample frame for the mail survey was developed by asking informed persons to identify organisations and persons in organisations who may use agricultural statistics. While ABS was unable to provide a list of clients who bought agricultural statistics from them, they assisted by providing the names of organisations involved in the previous year’s user consultation meetings. Representatives on NCASS were also approached to assist. Since the project concentrated mainly on Queensland and South Australia, greater effort was expended in developing a frame for those states than for the rest of Australia. Local government associations in both states and a regional development association in South Australia were approached to provide names of organisations that they considered may use agricultural statistics.

The way in which the frame was developed gave little control over the number and composition of organisations included from each state. Also, given the diverse way in which agricultural statistics are used in the various state departments responsible for agriculture, a number of these departments provided multiple responses. Queensland provided 48, Western Australia 12, South Australia 8, New South Wales 4, Tasmania and Northern Territory provided one each and Victoria failed to provide a response. A further 17 responses were provided by other Queensland state agencies, 11 by Western Australian state agencies and one by New South Wales.

It was not possible to weight the responses from organisations and individuals according to their significance as users of agricultural statistics. For example, a large government department or organisation that makes extensive use of agricultural statistics and submitted only one questionnaire has the same representation in the sample results as a small industry group or shire council that makes only very limited use of data.

The sample does not statistically represent users of agricultural statistics across Australia. At best, the results of the survey should be interpreted as the tabulated responses of those who responded to the survey and should not be considered as the inferred statistically correct response for Australia.

Although the surveys concentrated mainly on Queensland and South Australia, the combined results for all states are presented and discussed in the report with the full knowledge that this could bias the discussion towards the responses in Queensland and South Australia, particularly for state agencies. However, during the discussion on each topic covered by the survey results, the reader's attention is drawn to the differences between the results for these individual states and those of the tabulated results for the whole of Australia. A set of tables similar to the all Australia response tables provided in the text of the report is provided for Queensland, South Australia and other Australia in the appendixes.

Response to the survey

A total of 208 organisations and individuals out of a possible total of 314 responded to the mail survey (66% response). This plus the 32 interview survey questionnaires brought the total response from both the surveys to 240.

Table 1 provides an overview of responses from each type of organisation by state. Fifty-five percent of all Queensland responses came from state government agencies while only 15 percent of the South Australian responses were from state government agencies. Thirty-eight responses from South Australia (70%) were from local government agencies and regional development organisations. Queensland also provided 38 responses from these types of organisations. Twenty-three out of 29 respondents in Western Australia were from state government agencies. A total of 69 responses were from states other than Queensland and South Australia (54) and from organisations with national responsibilities (15).

Table 1: Survey response by state
Type of organisation by state
(Number)

State	Type of department		Other organisations	Total
	Primary Industries/ Agriculture/ Natural Resources	Other state agencies		
New South Wales	4	1	1	6
Victoria	0	0	3	3
Queensland	48	17	52	117
South Australia	8	0	46	54
Western Australia	12	11	6	29
Tasmania	1	1	6	8
Northern Territory	2	0	6	8
National ^(a)	0	0	15	15
Total	75	30	135	240

^(a) National organisations

Table 2 provides the number of responding organisations that have used or expect to use ABS agricultural statistics. One hundred and ninety-nine out of the total number of respondents (83%) indicated they used these statistics. Twelve respondents from mainly local government and regional development organisations in Queensland and 11 from South Australia indicated that they did not use ABS agricultural statistics.

Table 2: Use of ABS statistics by type of organisation
All respondents
(Number)

Type of organisation	Use of ABS statistics		Total
	Has used or expects to use ABS agricultural statistics	Neither has used nor expects to use ABS agricultural statistics	
State government agency	95	10	105
Local government agency	29	18	47
Regional development organisation	27	2	29
Industry organisation	24	4	28
Manufacturer/trader	6	1	7
Research organisation/academic institution	6	1	7
Consultant	7	0	7
Other	5	5	10
All organisations	199	41	240

Respondents who use agricultural statistics are the focus of this project. Therefore, most of the analysis will concentrate on details reported by these respondents. Table 3 provides details of these respondents by state.

Table 3: Respondents who use agricultural statistics
State by type of organisation
(Number)

Type of organisation	New South Wales	Victoria	Queensland	South Australia	Western Australia
State government agency	4	0	60	8	19
Local government agency	0	0	14	15	0
Regional development organisation	0	0	14	13	0
Industry organisation	1	1	6	3	2
Manufacturer/trader	0	0	1	1	1
Research organisation/ academic institution	0	0	3	0	0
Consultant	0	0	3	3	0
Other	0	0	0	0	2
All organisations	5	1	101	43	24
Type of organisation	Tasmania	Northern Territory	National	Total	
State government agency	2	2	0	95	
Local government agency	0	0	0	29	
Regional development organisation	0	0	0	27	
Industry organisation	1	1	9	24	
Manufacturer/trader	3	0	0	6	
Research organisation/ academic institution	1	1	1	6	
Consultant	0	0	1	7	
Other	0	2	1	5	
All organisations	7	6	12	199	

Benefit and cost considerations

It was not possible to develop a single set of benefit/cost criteria to measure the net gains or losses to users of agricultural statistics and the general community due to the Commonwealth Government financial cuts to the collection of agricultural statistics because:

1. Estimates of benefits could not be computed from the project surveys because of problems with the sample frame of statistics users; and
2. The difficulty in objectively valuing the stream of benefits which would accrue to users of these statistics if the statistics were available.

As the project proceeded, it became evident that the benefit streams to users of agricultural statistics, their clients and the general community were numerous and varied. In many instances, an organisation used the statistics in a number of projects with each project producing a distinctly different stream of

benefits. In most cases a project involved both primary benefit streams to the organisation undertaking the project and secondary benefit streams to other organisations and the community at large.

An assessment of the opportunity costs of ABS collecting and publishing annual sub-state agricultural statistics was considered possible but not practical at this stage. This would have required identifying the benefits foregone by other ABS and Commonwealth Government programs to which the money previously spent on agricultural statistics had been channelled. Given the difficulties of developing the other aspects of a traditional benefit/cost analysis, it was decided to use a more subjective approach to measure the benefits relative to actual costs of supplying the required statistics.

Benefit and cost analysis

An interview survey was used to develop descriptive lists of primary and secondary benefits of activities for inclusion in the mail survey. The mail survey asked respondents to indicate which benefits applied to the activities they undertook. This provided an indication of the type and number of benefits resulting from the activities of all those surveyed and assisted in determining whether benefits varied from one organisation type to another.

In addition to the descriptive list of benefits, estimates of the value of each benefit to the organisation and to others were elicited from respondents during the interview survey. Where respondents were not able to initially provide values, the researcher assisted by discussing (sometimes at considerable length) individual benefits with the respondent. In the end, the value of benefits to the organisation were generally estimated based on the value of resources used or income/funding received for undertaking the activity. Benefits to others were derived using a range of methods. These included among others, business generated by industry as a consequence of the activity, a proportion of value of production, costs foregone, and value of investment attracted.

The mail and interview surveys identified the effects of the loss of sub-state ABS agricultural statistics for each respondent's activities. An overall effect rating on all activities was provided by each respondent. The rating scale was 1 to 5 with 1 being critical effect and 5 being no effect. Critical effect was defined for the respondents as meaning "the desired output could not be achieved without the data in question".

The broad logic of collecting these data was to determine whether the effect on activities was critical, and whether the value of benefits from these activities (particularly those with significant secondary benefits) exceeded the cost of collecting the required statistics. If the value of benefits foregone greatly exceed the cost of collecting the statistics required, Government should consider funding ABS to collect the statistics.

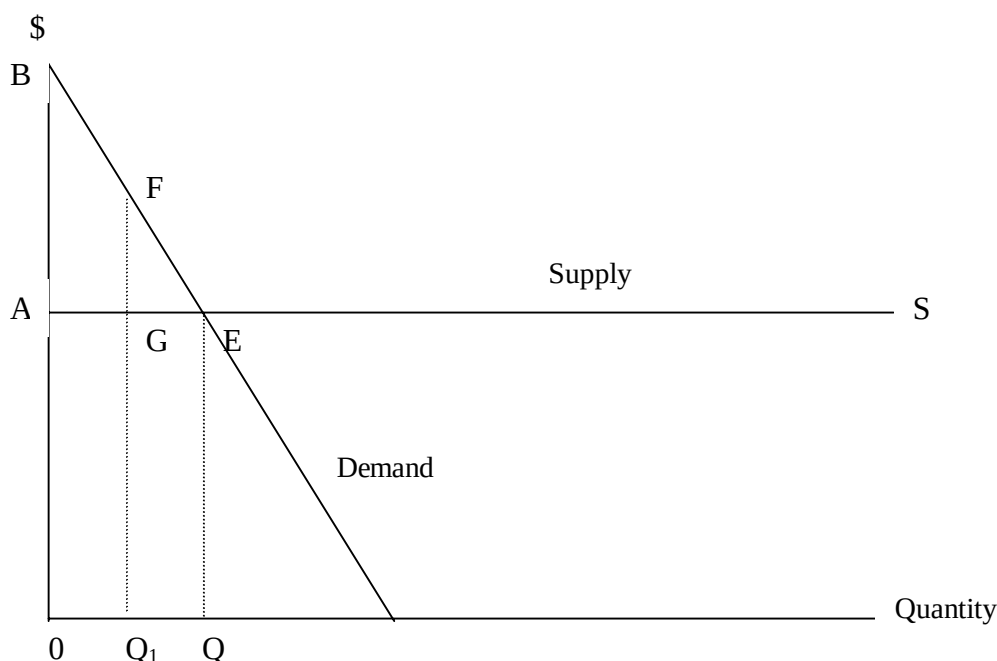
To test the results of the above analysis, benefits were also assessed according to users' willingness to contribute to the collection of the statistics they require.

Respondents in both interview and mail surveys were asked how much they would be prepared to pay or recommend their organisation to pay per year to collect these statistics. When respondents to the interview survey were unable to provide an amount, a method based on doubling dollar amounts starting from \$1,000 was used by the researcher to determine a possible contribution. For example, the researcher asked if the respondent would be willing to pay or recommend that their organisation pay \$1,000 towards the collection of the statistics they required. If the respondent said "yes" the amount was doubled until the respondent said "no". An amount was then negotiated between the rejected amount and the previously accepted amount.

Estimates of these contributions were collected to broadly ascertain whether a significant level of consumer surplus could be identified after subtracting costs of collecting the additional data required.

Since the data would be collected by ABS using tax payers' money, no producer surplus would be involved. Therefore consumer surplus would equate with net social benefits (i.e. in this instance the benefits to the primary users of the statistics). However, all primary users of the statistics also claimed that others benefited from the activities in which they used ABS statistics. The real social benefit would therefore be the sum of consumer surplus and additional benefits received by others. Again, if the value of benefits foregone greatly exceed the cost of collecting the required statistics, Government should consider funding ABS to collect the statistics.

The theory behind this approach is illustrated in the following diagram based on Sinden and Thampapillai (1995).



Assume the supply of ABS agricultural statistics for all geographic and frequency levels is represented by the line AS. This line is parallel to the quantity axis because ABS is a non-profit government agency funded by public money. The demand line is assumed to be fairly inelastic (at least to market equilibrium point) because the requirements for agricultural statistics is known to be fairly inflexible. Q_1 is the present level of supply of agricultural statistics and Q is the amount of statistics which are required by users. The total benefit of the present supply of agricultural statistics is represented by $OBFQ_1$. The present consumer surplus is represented by $ABFG$ and there is no producer surplus. If annual sub-state data were supplied, total benefit would increase by Q_1FEQ while cost would increase by Q_1GEQ . This would result in an additional consumer surplus of GFE to users of statistics. The total additional benefit to all the community is the additional consumer surplus plus a proportion of the flow-on benefits from the activities in which statistics are used.

No attempt was made to estimate the opportunity costs of collecting extra data to tabulate annual SLA and LGA statistics. The fact that the level of opportunity costs may be greater than actual costs was taken into consideration when assessing the results of the analyses.

4. BENEFITS OF AGRICULTURAL STATISTICS TO USERS

This chapter examines the key areas of responsibility of the respondents and the related activities in which agricultural statistics are used. The major benefits of these activities to the respondents and to other people, organisations or the general community are identified. A discussion of the effects on respondents' activities in the absence of annual sub-state ABS agricultural statistics follows.

The analysis to this point in the chapter mainly relates to all responses received from throughout Australia. Tables showing details for Queensland, South Australia and other Australia are provided in Appendix D. The numbering of these tables are the same as those in the main text to enable ease of comparison.

Data on the value of benefits to the users of agricultural statistics and others were collected in the interview survey. Amounts of money respondents were prepared to pay, or were prepared to recommend that their organisations pay, per year towards the collection and tabulation of these statistics were collected in both the interview and mail surveys. These two sets of data were used to quantify benefits of the annual collection and tabulation of useable sub-state ABS agricultural statistics.

Areas of responsibility

The 199 respondents who use agricultural statistics reported a total of 474 key areas of responsibility. Twenty-three percent of these areas of responsibility related to regional economic development, 16% to policy formulation, 13% each to agricultural extension and technical research and development, 12% to natural resource management and the rest to various other activities. The concentration on regional development, policy development and extension and research very much reflected the types of organisations included in the sample frame. A large number of state government agencies reported the top five areas of responsibility. Regional economic development and natural resource management were important undertakings of local government agencies and regional development organisations. Policy formulation was seen mainly as the responsibility of state government agencies, industry organisations and local government agencies.

Details of activities of respondents who use agricultural statistics by type of organisation are provided in Table 4. The number of respondents from each organisation type is also provided in the table.

**Table 4: Key areas of responsibility in agriculture
by type of organisation**
Respondents who use agricultural statistics
(Number)

Type of organisation	Rural merchandising	Regional economic development	Technical research and development	Crop and/or livestock handling	Agricultural marketing
State government agency	2	55	50	8	22
Local government agency	0	24	0	1	1
Regional development organisation	1	25	2	0	3
Industry organisation	4	2	3	6	9
Manufacturer/trader	0	0	1	4	2
Research organisation/academic institution	0	2	4	2	0
Consultant	0	1	0	1	1
Other	0	2	1	1	3
All organisations	7	111	61	23	41

Type of organisation	Natural resource management	Agricultural extension	Policy formulation	Other/ don't know/ not stated	Number of respondents ^(a)
State government agency	35	53	43	12	95
Local government agency	8	0	9	8	29
Regional development organisation	6	1	4	2	27
Industry organisation	2	2	14	5	24
Manufacturer/trader	0	2	1	1	6
Research organisation/academic institution	3	2	1	2	6
Consultant	1	1	2	5	7
Other	2	2	1	1	5
All organisations	57	63	75	36	199

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Any single response recorded in this column could be allocated to more than one response category.

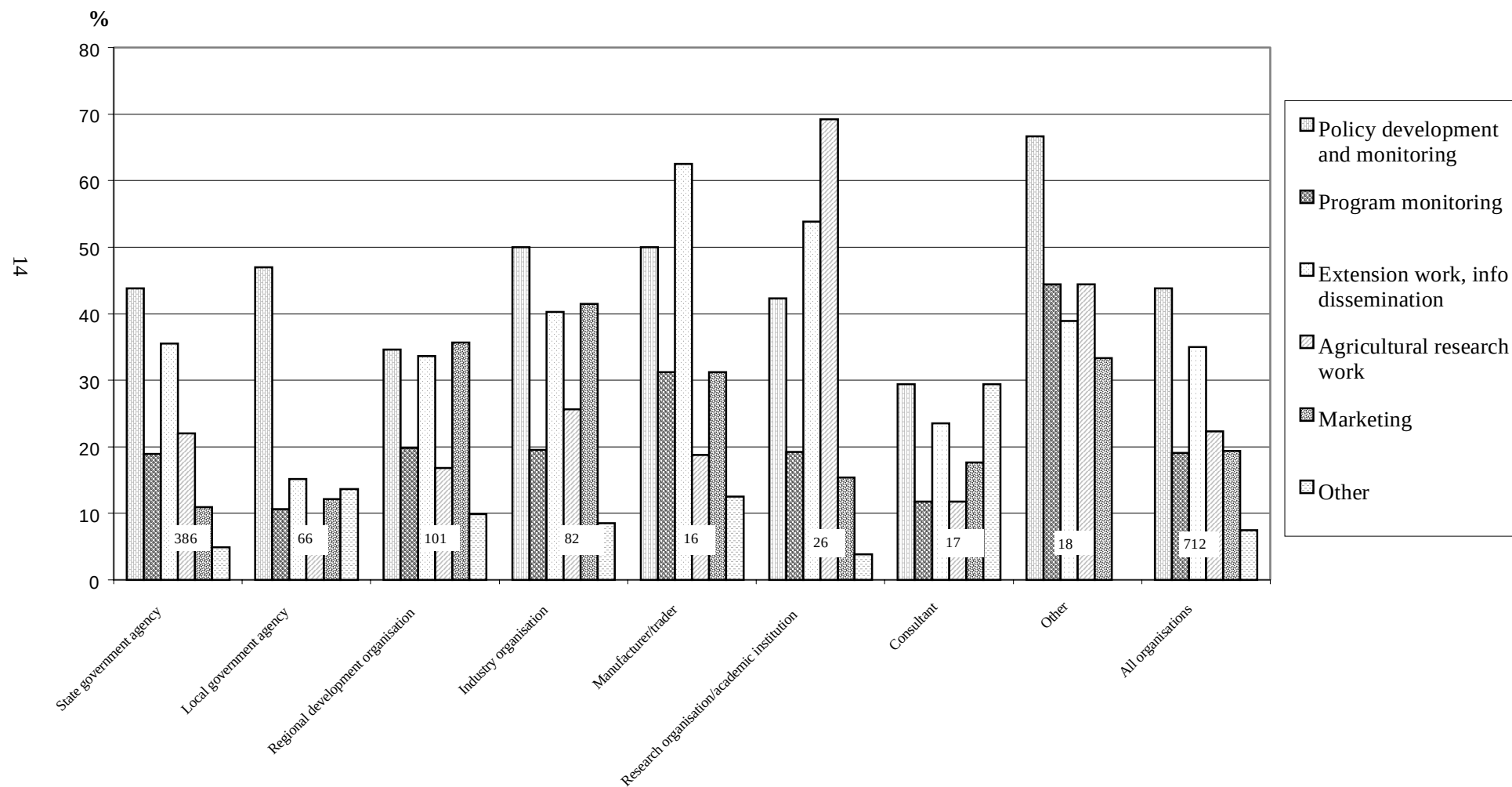
Activities in which ABS agricultural statistics are used

Respondents to both surveys provided 712 important work activities in which they use or expected to use ABS agricultural statistics.

Figure 1 provides details the proportion of activities allocated within each type of organisation category. Table 5 provides the actual number of activities allocated to each activity category.

As discussed in the section on questionnaire design and content, a large number of respondents incorrectly allocated their activities to the categories provided in the questionnaire. However, regardless of this error, the tabulated responses provide an indication of the relative importance of each activity category

**Figure 1: Percent of activities in which ABS agricultural statistics are used
by type of organisation^(a)**
Respondents who use ABS agricultural statistics



**Table 5: Activities in which ABS agricultural statistics are used
by type of organisation**
Respondents who use ABS agricultural statistics
(Number)

Type of organisation	Activity categories						Number of activities ^(a)
	Policy development and monitoring	Program monitoring	Extension work, info dissemination	Agricultural research work	Marketing	Other	
State government agency	169	73	137	85	42	19	386
Local government agency	31	7	10	5	8	9	66
Regional development organisation	35	20	34	17	36	10	101
Industry organisation	41	16	33	21	34	7	82
Manufacturer/trader	8	5	10	3	5	2	16
Research organisation/academic institution	11	5	14	18	4	1	26
Consultant	5	2	4	2	3	5	17
Other	12	8	7	8	6	0	18
All organisations	312	136	249	159	138	53	712

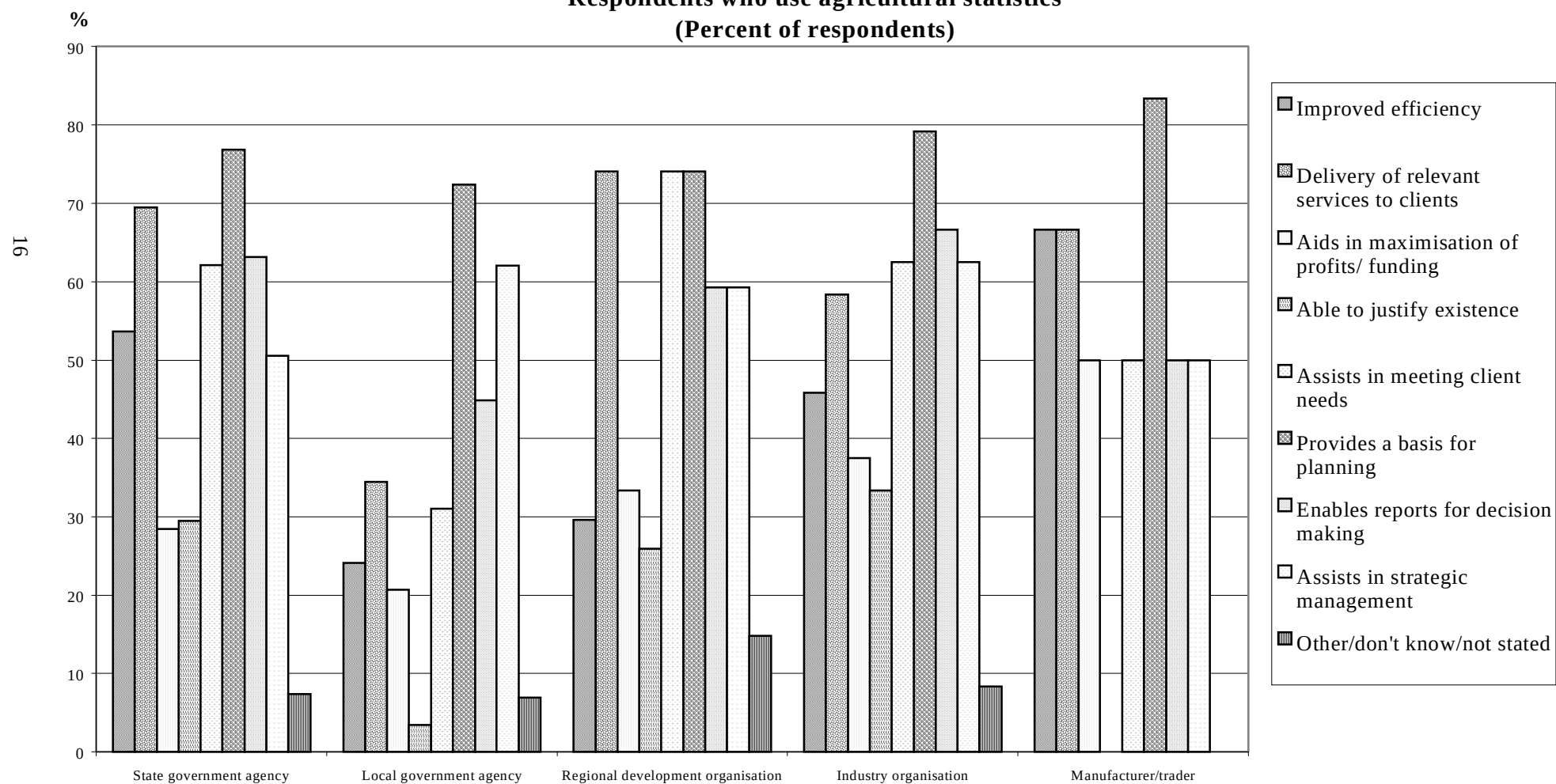
^(a) The number of activities within each activity category do not sum to numbers shown in this column. Any single activity recorded in this column could be allocated to more than one activity category.

The largest number of activities related to policy development and monitoring. These activities are mainly undertaken by state government agencies, local government agencies, regional development organisations and industry organisations. Extension work and information dissemination is also an important activity to each of these types of organisation. During the interview survey and the development of the case studies, spokespersons from a number of state government agencies and regional development organisations said that they disseminated a large amount of statistical and other information to attract investment to regions within the states.

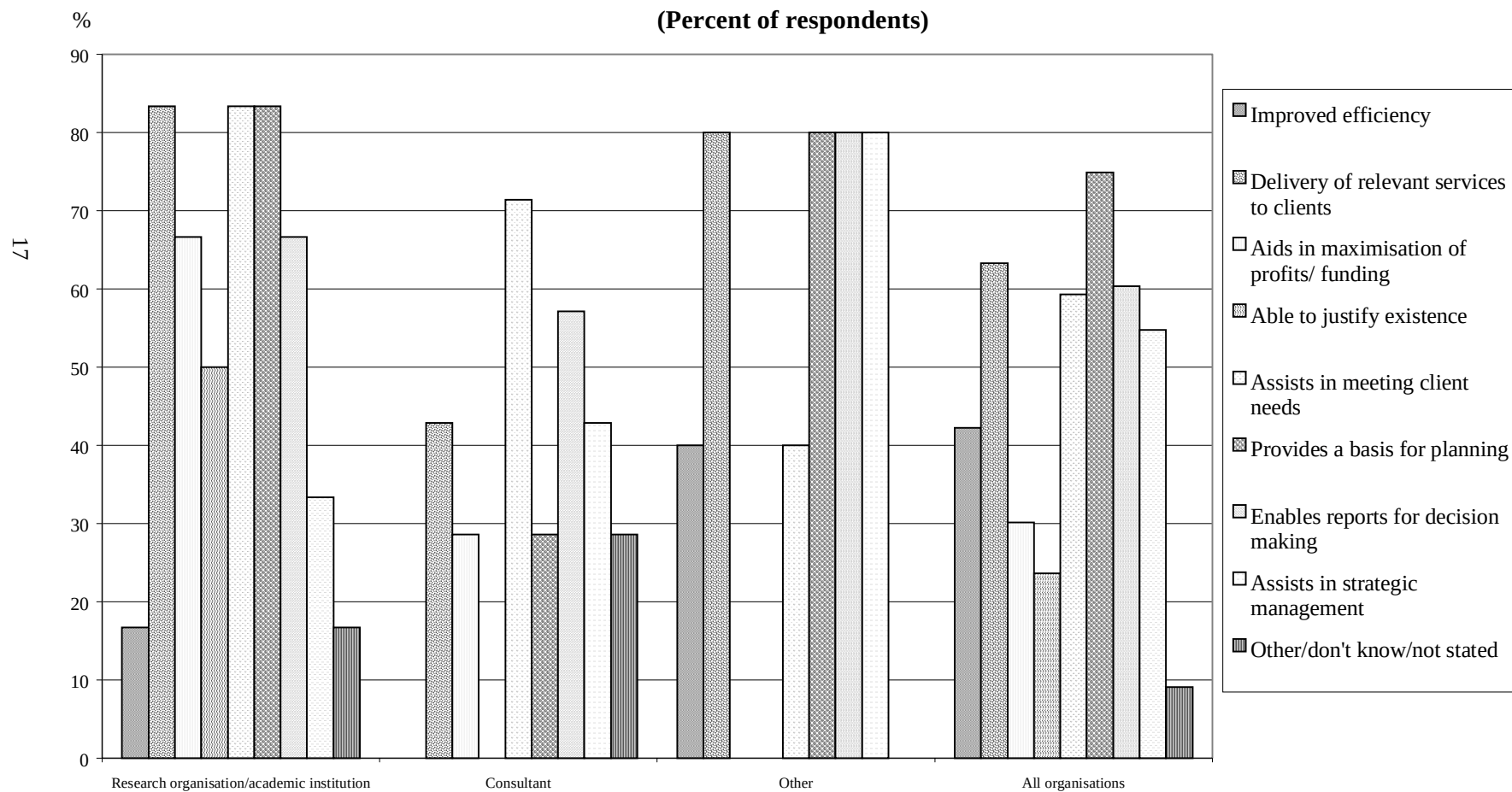
Benefits to organisation of important activities

Figures 2(a) and 2(b) provide the percentage of all respondents who benefit in the different ways from activities they undertake in which ABS agricultural statistics are used. Table 6 provides the actual number of responses for each benefit by type of organisation category.

**Figure 2(a): Benefits to organisation of important activities
by type of organisation category**
Respondents who use agricultural statistics
(Percent of respondents)



**Figure 2(b): Benefits to organisation of important activities
by type of organisation category**
Respondents who use agricultural statistics
(Percent of respondents)



**Table 6: Benefits to organisation of important activities
by type of organisation**
Respondents who use agricultural statistics
(Number)

Type of organisation	Improved efficiency	Delivery of relevant services to clients	Aids in maximisation of profits/funding	Able to justify existence	Assists in meeting client needs
State government agency	51	66	27	28	59
Local government agency	7	10	6	1	9
Regional development organisation	8	20	9	7	20
Industry organisation	11	14	9	8	15
Manufacturer/trader	4	4	3	0	3
Research organisation/academic institution	1	5	4	3	5
Consultant	0	3	2	0	5
Other	2	4	0	0	2
All organisations	84	126	60	47	118
Type of organisation	Provides a basis for planning	Enables reports for decision making	Assists in strategic management	Other/don't know/not stated	Number of respondents ^(a)
State government agency	73	60	48	7	95
Local government agency	21	13	18	2	29
Regional development organisation	20	16	16	4	27
Industry organisation	19	16	15	2	24
Manufacturer/trader	5	3	3	0	6
Research organisation/academic institution	5	4	2	1	6
Consultant	2	4	3	2	7
Other	4	4	4	0	5
All organisations	149	120	109	18	199

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Respondents were asked to provide multiple responses to this question.

More than 70% of all respondents from most organisation types stated that activities undertaken by them in which agricultural statistics are used “provide a basis on which to formulate plans/policies”. The relative significance of this benefit to these organisations throughout Australia indicates the importance of the work in which ABS agricultural statistics are used.

The next two most important benefits to organisations undertaking activities in which agricultural statistics are used were those activities that “assist the organisation in meeting client expectations/needs” (63% of all respondents) and those which “enable it to provide objective reports for decision making” (60%).

During the survey period, the researcher was contacted by a shire council in Queensland that reported, while it does not use agricultural statistics, it engages a local regional development organisation to undertake tasks that require these data. The shire council responded that it did not use agricultural statistics while, in fact, it received indirect benefits from their usage. This may relate to a number of the 18 local government agencies that reported themselves as non-agricultural statistics users. The benefits to them should be picked up in the section in the questionnaire on benefits to organisations other than the organisation using the data.

Benefits to others of important activities undertaken by respondent organisations

Figures 3(a) and 3(b) provide details of how others benefit in the different ways from activities undertaken by respondent organisations in which ABS agricultural statistics are used. Table 7 provides the actual number of responses against each benefit for each type of organisation category.

Table 7: Benefits to others by type of organisation
Respondents who use agricultural statistics
(Number)

Type of organisation	Improved regional economic activity	Attraction of investment to region/state	Better informed decisions	Improved use of resources	Improved planning / prioritising	Increased productivity /commercial gains
State government agency	47	44	82	44	74	38
Local government agency	22	21	21	9	17	3
Regional development organisation	21	21	21	15	17	11
Industry organisation	9	6	20	11	15	13
Manufacturer/trader	3	1	4	4	3	3
Research organisation/academic institution	4	1	5	3	6	3
Consultant	2	1	5	5	6	3
Other	3	2	4	3	3	3
All organisations	111	97	162	94	141	77
Type of organisation	A better informed public	Improved viability/ efficiency	Assistance to industries/ communities	Other/ don't know/ not stated	Number of respondents ^(a)	
State government agency	41	51	54	7	95	
Local government agency	14	8	16	2	29	
Regional development organisation	15	9	19	1	27	
Industry organisation	14	13	14	2	24	
Manufacturer/trader	4	5	4	0	6	
Research organisation/academic institution	5	6	5	1	6	
Consultant	1	4	4	1	7	
Other	4	4	4	1	5	
All organisations	98	100	120	15	199	

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Respondents were asked to provide multiple responses to this question.

Figure 3(a): Benefits to others by type of organisation category
Respondents who use agricultural statistics
(Percent of respondents)

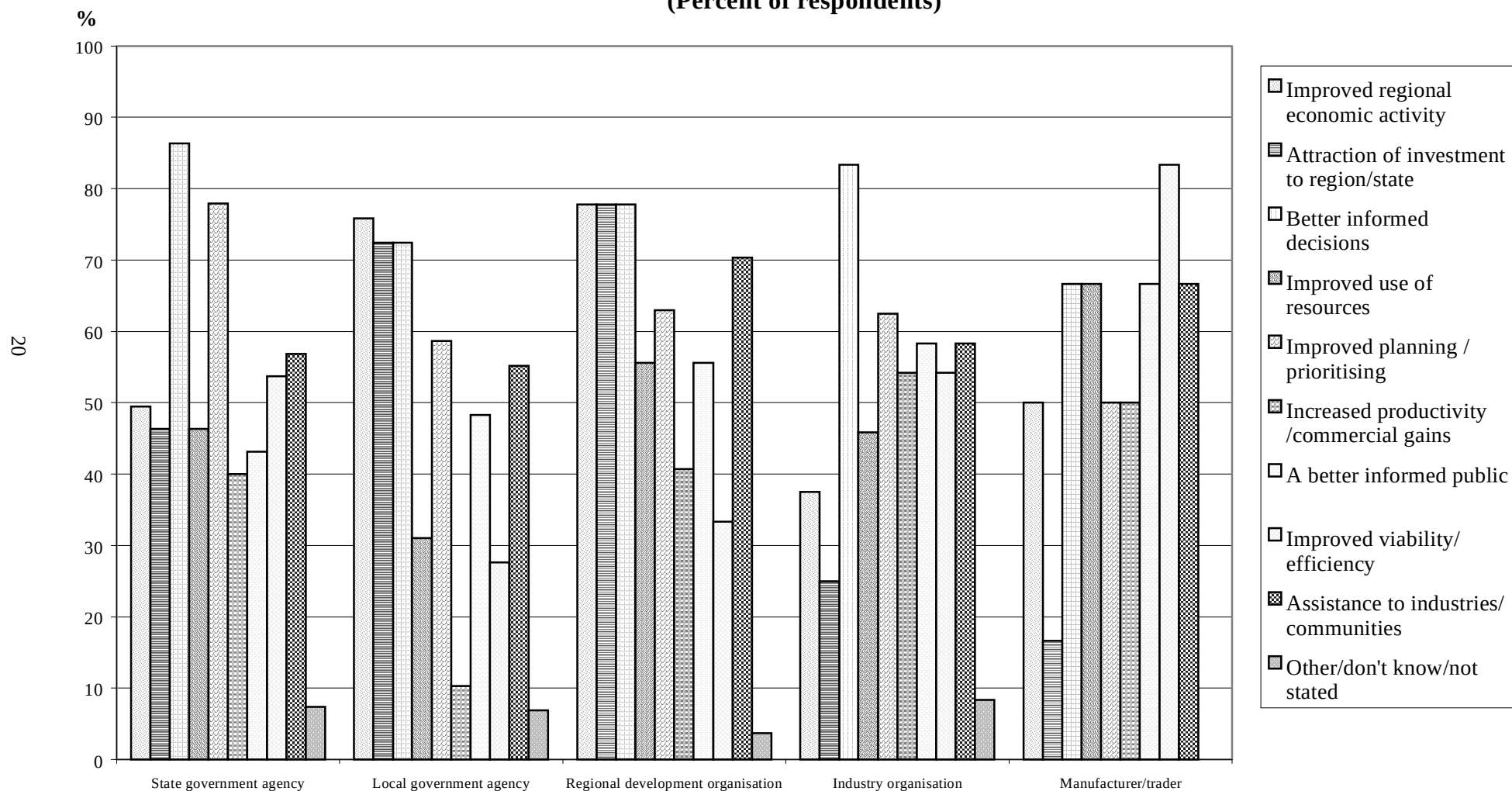
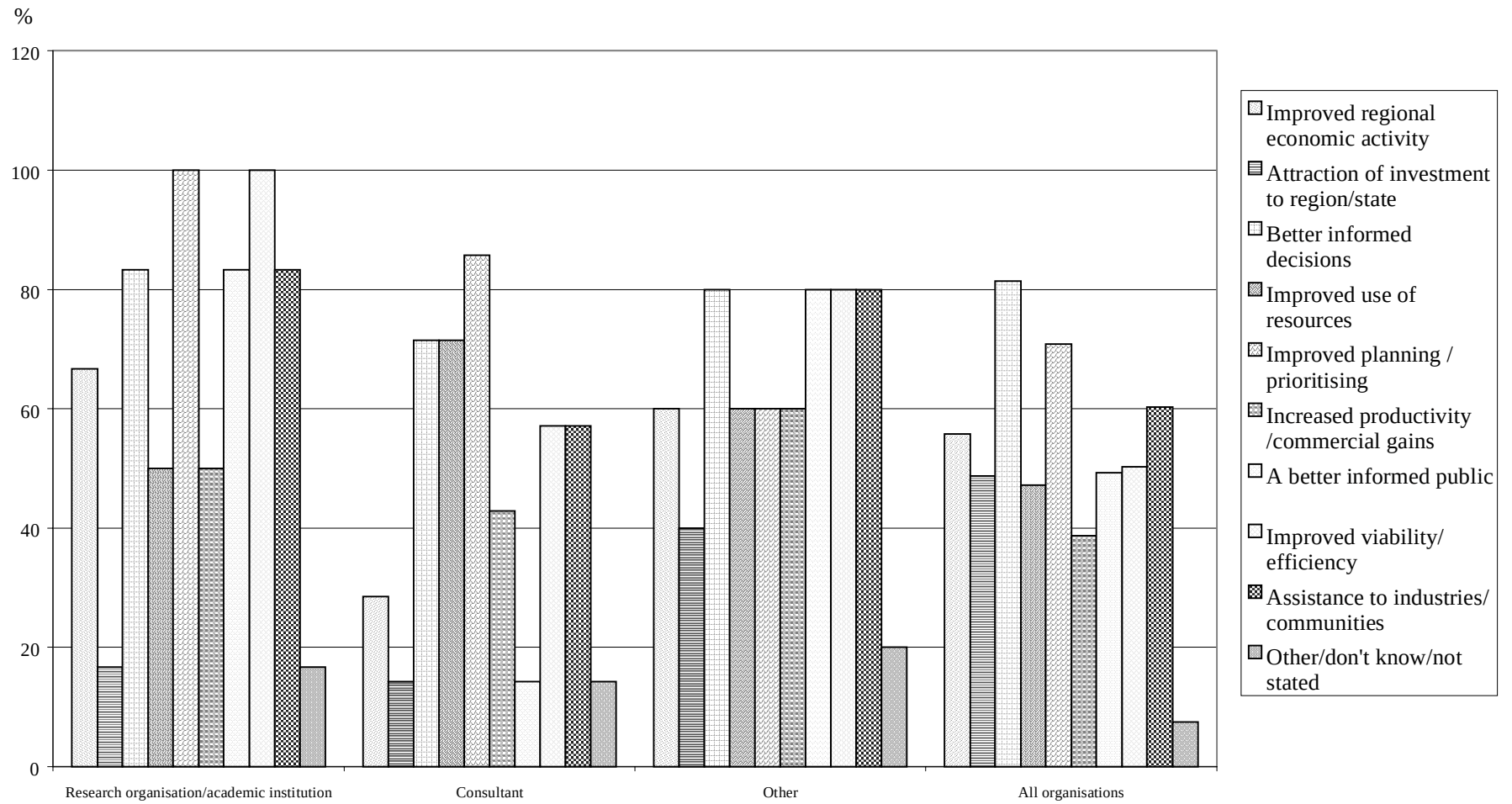


Figure 3(b): Benefits to others by type of organisation category
Respondents who use agricultural statistics
(Percent of respondents)



Overall, 81% of all respondents stated that the activities in which they use ABS agricultural statistics benefited others by providing a basis on which government/industry members/clients make better informed decisions. This response was highest for Queensland, South Australia and for all other respondents grouped together.

The next highest response for all respondents was “improved efficiency in planning/prioritising by government/communities/industry members and clients” at 71%. This was followed by “assistance to industries/communities to obtain strategic direction” at 60%.

Again, these responses were very similar for Queensland, South Australia and for other states/nation organisations. In addition, the latter group of respondents also indicated that “a better informed public” and “improved viability/efficiency/sustainability of primary industry businesses” were important benefits.

Effects on important activities if annual sub-state agricultural statistics were not available

Figures 4(a) and 4(b) provide details, in proportional terms, of the effects on important activities within type of organisation categories. Table 8 provides the actual number of responses against for each type of organisation category.

The major effects reported were:

1. “Could not support recommendations with factual data” (65% of respondents);
2. “Conclusions from activities would be less rigorous/subjective” (61%);
3. “Effectiveness of programs addressing sub-state issues/problems would be reduced” (60%);
and
4. “Reduced reliability in planning/prioritising/allocation of resources” (59%)

The first of these effects was particularly significant for local government agencies (72%), state government agencies (68%) and industry organisations (68%). A large percentage of respondents from state government agencies (71%) and industry organisations (67%) reported the second effect. A significant number of respondents from state government agencies also indicated effects 3 and 4. Sixty-nine percent of local government agency respondents also recorded that they would experience “reduced reliability in planning/prioritising/allocation of resources”.

These results were largely similar for respondents from Queensland, South Australia and from other states/national organisations.

Figure 4(a): Effects on important activities if annual sub-state agricultural statistics are not available by type of organisation category
Respondents who use agricultural statistics
(Percent of respondents)

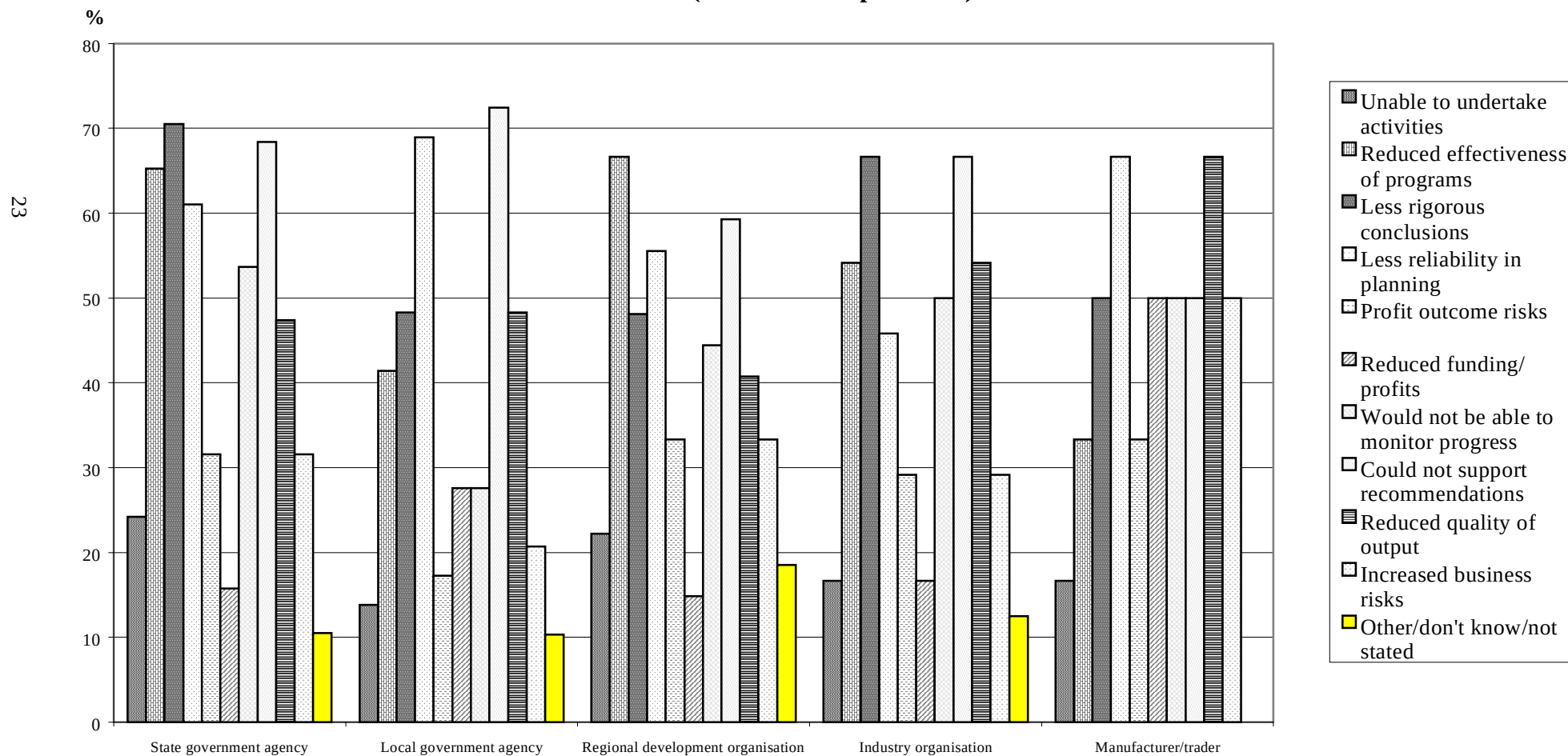


Figure 4(b): Effects on important activities if annual sub-state agricultural statistics are not available by type of organisation category
Respondents who use agricultural statistics
(Percent of respondents)

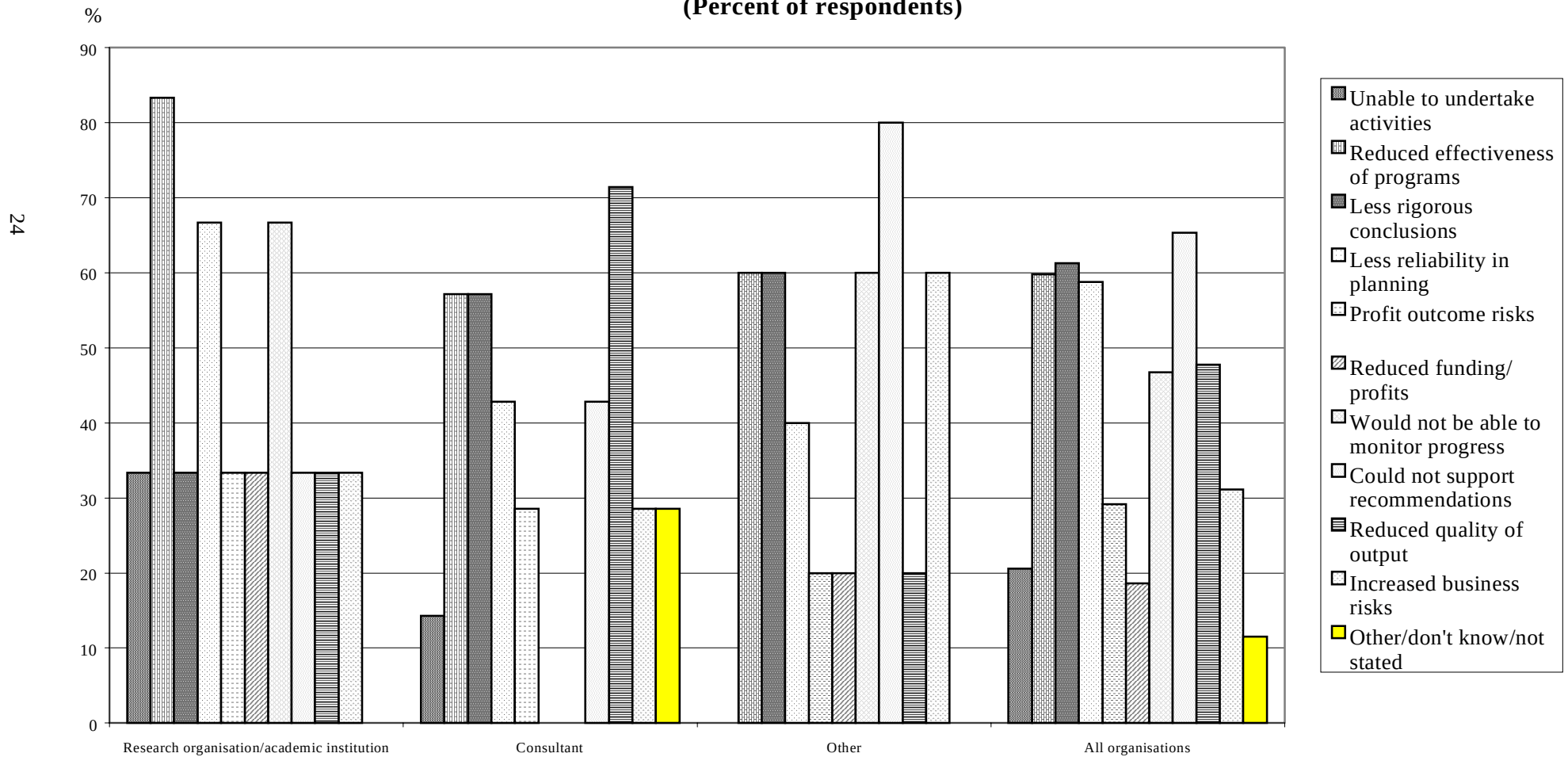


Table 8: Effects on important activities if annual sub-state agricultural statistics are not available by type of organisation

**Respondents who use agricultural statistics
(Number)**

Type of organisation	Unable to undertake activities	Reduced effectiveness of programs	Less rigorous conclusions	Less reliability in planning	Project outcome risks	Reduced funding/profits
State government agency	23	62	67	58	30	15
Local government agency	4	12	14	20	5	8
Regional development organisation	6	18	13	15	9	4
Industry organisation	4	13	16	11	7	4
Manufacturer/trader	1	2	3	4	2	3
Research organisation/academic institution	2	5	2	4	2	2
Consultant	1	4	4	3	2	0
Other	0	3	3	2	1	1
All organisations	41	119	122	117	58	37
Type of organisation	Would not be able to monitor progress	Could not support recommendations	Reduced quality of output	Increased business risks	Other/ don't know/ not stated	Number of respondents ^(a)
State government agency	51	65	45	30	10	95
Local government agency	8	21	14	6	3	29
Regional development organisation	12	16	11	9	5	27
Industry organisation	12	16	13	7	3	24
Manufacturer/trader	3	3	4	3	0	6
Research organisation/academic institution	4	2	2	2	0	6
Consultant	0	3	5	2	2	7
Other	3	4	1	3	0	5
All organisations	93	130	95	62	23	199

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Any single response recorded in this column could be allocated to more than one response category.

Overall effect on activities if annual sub-state agricultural statistics were not available

Table 9 details responses to this question by type of organisation and Figure 5 gives the response by percentage of respondents in each organisation type.

Table 9: Overall effect on activities if annual sub-state agricultural statistics are not available by type of organisation
Respondents who use agricultural statistics
(Number)

Type of organisation	Critical effect	Moderate effect	Some effect	Little effect	No effect/ don't know/ not stated	Number of respondents
State government agency	43	32	14	4	2	95
Local government agency	6	12	7	2	2	29
Regional development organisation	10	11	3	0	3	27
Industry organisation	9	10	3	0	2	24
Manufacturer/trader	1	1	2	2	0	6
Research organisation/academic institution	4	2	0	0	0	6
Consultant	3	1	1	1	1	7
Other	2	2	1	0	0	5
All organisations	78	71	31	9	10	199

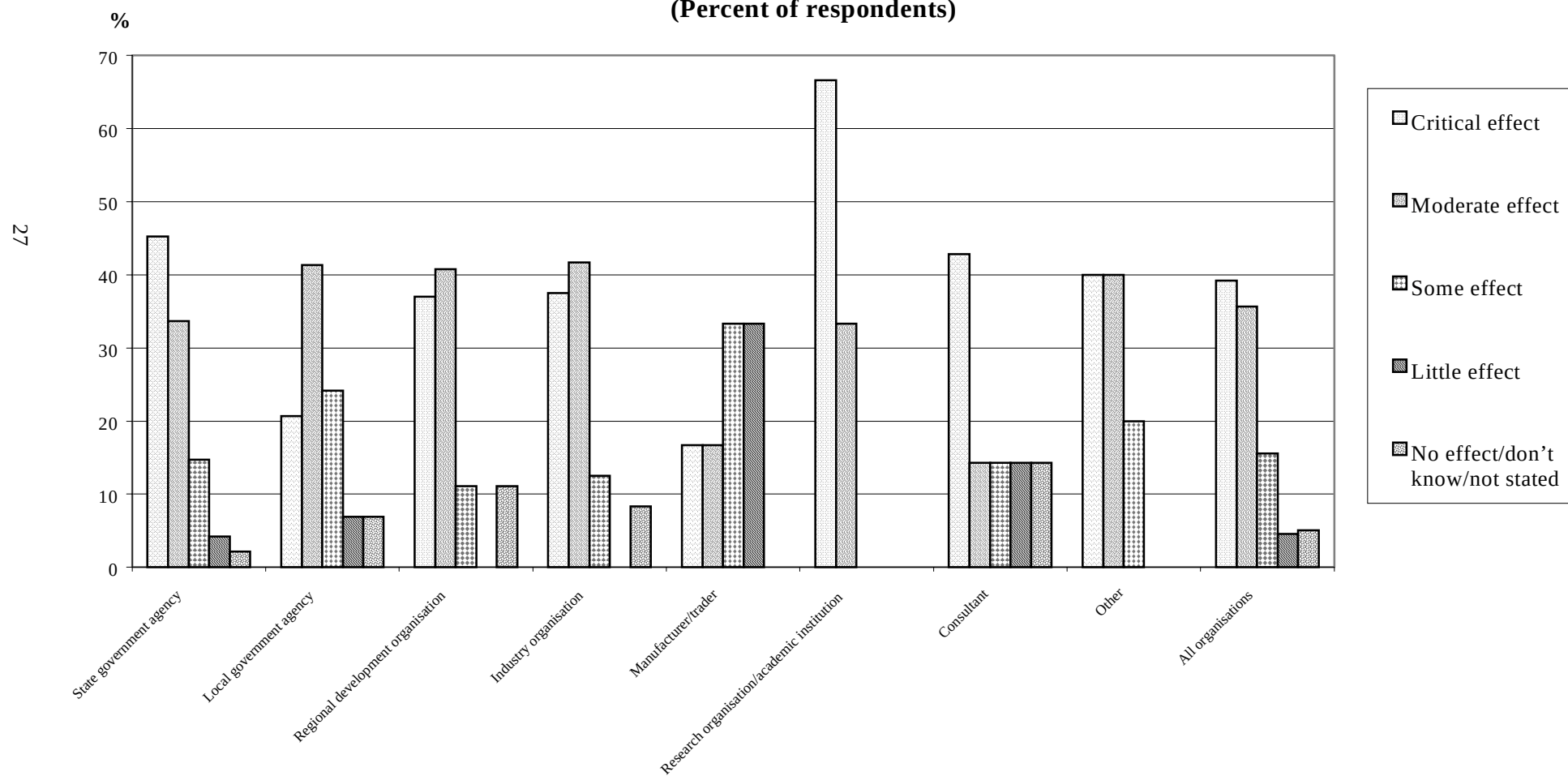
Seventy-eight out of the 199 respondents (39%) who said they use agricultural statistics stated that their activities would be critically affected if they did not have annual sub-state agricultural statistics. Of these, 43 were from state government agencies. The remainder were spread over each of the other organisation types.

A further 71 respondents, or 36% of the total, said that their activities would be moderately affected.

In Queensland, 27 of 60 state government agency respondents said that the loss of sub-state statistics would have a critical effect on their activities. Six out of the eight state government agency respondents in South Australia reported the effect as critical. Ten of 27 state agency respondents in the remainder of Australia also indicated that the effect would be critical.

Of the organisations included in the Queensland interview survey, eight of the 13 state agency representatives indicated that the loss of sub-state data would have a critical effect on their work. The Aussie GRASS project undertaken by the Queensland Department of Natural Resources included in this report as one of the case studies, is one of the eight responses indicating critical effect. Five of the 7 respondents from other organisations interviewed in Queensland said that the loss of sub-state data would have a critical effect on their work.

Figure 5: Overall effect on activities if annual sub-state agricultural statistics are not available
Respondents who use agricultural statistics
(Percent of respondents)



In South Australia, five of six state agency respondents interviewed said the effect would be critical on their activities. The South Australian Research and Development Institute, which is also included as a case study in this report, was one of these respondents. One non-state government organisation in this state indicated that its activities would be critically affected if sub-state data were not available.

The higher critical effect response rate from the interview survey was due mainly to the sample selection process. Given that this was basically an investigatory survey from which the mail survey was to be developed, known significant users of sub-state agricultural statistics were chosen.

Value of benefits, effect ratings and related variables elicited by the interview survey

Data relating to the value of benefits, operating costs and resource usage for activities within activity categories were obtained from respondents during the interview survey. Also obtained were the ratings of the effects on activities if annual sub-state ABS agricultural statistics were not available. These details are summarised in Table 10.

The table shows that state agencies and other organisations in both Queensland and South Australia commit considerable amounts of human resources to activities in which agricultural statistics are used. In Queensland for example, respondents claimed that almost 45,000 person days a year were dedicated to activities relating to extension work/information dissemination and more than 20,000 days to activities relating to policy development and monitoring. These resources were used in the whole of these activities and not just to extract agricultural statistics which were used by people engaged in these activities. The state agency representatives interviewed in South Australia did not allocate any of their activities to extension and information dissemination but indicated that 2,520 person days were dedicated to policy development and monitoring activities in which agricultural statistics are used.

Value of operating costs in relation to each activity were also elicited. These largely reflected the amount of human resources used in the activities.

The value of benefits of the activities within each activity category varied considerably from category to category and between states. Again, looking at extension work/information dissemination and policy development and monitoring as examples, Queensland state agencies claimed that they benefited by greater than \$1,142,000 and \$6,000,000 respectively from these activities. Other organisations within that state said they received \$3,762,000 and greater than \$4,330,000 in benefits respectively of these activities.

Benefits to others (i.e. other people, organisations and the community) ranged from hundreds of thousands of dollars to millions of dollars across organisations and states. In Queensland, for example, the benefits to others from policy development and monitoring activities ranged from greater than \$450,000 for other organisations to greater than \$193,200,000 for the state agencies.

As discussed in the previous section of this chapter, eight out of the 13 state agency respondents in Queensland and five out of the six in South Australia indicated the highest critical effect rating for most of the activities if annual sub-state agricultural statistics were not available. Five other organisations in Queensland and two in South Australia also indicated the highest critical effect rating for most activities within each activity category. The extent of these effects suggest that the benefits to individual users, and to the community at large, of the activities detailed above will be substantially reduced if users are unable to access the sub-state agricultural statistics they require.

**Table 10: Selected variables relating to activities
by state and types of organisation
Interview survey respondents**

Activities and selected variables	Queensland		South Australia	
	State agencies	Other organisations	State agencies	Other organisations
Respondents (no)	13	7	6	6
Policy development and monitoring				
Activities (no)	9	6	6	4
Person days per year (no)	20,099	1,023	2,520	62
Benefit to organisation per year ^(a) (\$ '000)	6,200	> 4,330	1,705 to 4,455	> 420
Benefit to others per year ^(a) (\$ '000)	> 193,200	> 450	900,174	> 400
Operating costs per year (\$ '000)	3,827	1,623	1,391	37
Program monitoring				
Activities (no)	4	2	3	1
Person days per year (no)	440	140 (b)	1,080	63
Benefit to organisation per year ^(a) (\$ '000)	(c)	> 84	255 to 1,005	800
Benefit to others per year ^(a) (\$ '000)	(c)	(c)	1,655 to 9,000	> 10,500
Operating costs per year (\$ '000)	145	84	389	20
Extension and information				
Activities (no)	10	5		2
Person days per year (no)	44,942	1,516		75
Benefit to organisation per year ^(a) (\$ '000)	> 1,142	> 3,762		> 35
Benefit to others per year ^(a) (\$ '000)	> 35,400	> 41,300		< 10,500
Operating costs per year (\$ '000)	7,775	408,500		> 18
Agricultural research				
Activities (no)	9	3	1	1
Person days per year (no)	22,510	890	1,375	122
Benefit to organisation per year ^(a) (\$ '000)	> 19,400	> 530	30,000	> 210
Benefit to others per year ^(a) (\$ '000)	> 432,000	> 1,000	300,000	> 2,000
Operating costs per year (\$ '000)	362,657	632	(c)	17

Activities and selected variables	Queensland		South Australia	
	State agencies	Other organisations	State agencies	Other organisations
Marketing				
Activities (no)	6	1	2	2
Person days per year (no)	5,336	500	> 19	50
Benefit to organisation per year ^(a) (\$ '000)	> 900	> 500	(c)	800 to 4,000
Benefit to others per year ^(a) (\$ '000)	> 25,800	> 100,000	(c)	> 18,000
Operating costs per year (\$ '000)	956	500	>11.5	>20
Other				
Activities (no)	1	5	1	2
Person days per year (no)	5,112	2,692	600	81
Benefit to organisation per year ^(a) (\$ '000)	1,300	> 6,340	(c)	> 60
Benefit to others per year ^(a) (\$ '000)	(c)	12,000 to 57,000	3,000	(c)
Operating costs per year (\$ '000)	1,300	1,341	130	(c)
Overall effect rating^(d)	1 for eight agencies	1 for five organisations	1 for five agencies	1 for two organisations
	2 for four agencies	2 for one organisation	No response for one agency	2 for one organisation
	3 for one agency	3 for one organisation		3 for one organisation
				No response for two organisations

^(a) A number of respondents could not estimate value of benefits to their organisation and/or to "others". Therefore benefit value estimates provided for all activities could be considered as minimal.

^(b) One respondent could not estimate person days.

^(c) Respondents unable to provide estimates

^(d) Rated 1 to 5 with 1 being "critical" and 5 being "no effect"

Willingness to contribute

Details of responses and amounts are provided in Tables 11 and 12.

Table 11: Respondents prepared/recommend to pay towards collection/tabulation of agricultural statistics by type of organisation
Respondents who use agricultural statistics

Type of organisation	Yes		No		Don't know		Number of respondents ^(a)
	Number	Percent	Number	Percent	Number	Percent	
State government agency	42	44	24	25	28	29	95
Local government agency	3	10	16	55	7	24	29
Regional development organisation	17	63	6	22	4	15	27
Industry organisation	10	42	7	29	7	29	24
Manufacturer/trader	1	17	4	67	1	17	6
Research organisation/academic institution	3	50	3	50	0	0	6
Consultant	4	57	2	29	1	14	7
Other	2	40	1	20	2	40	5
All organisations	82	41	63	32	50	25	199

^(a) The sum of "Yes", "No" and "Don't know" responses do not add to "Number of respondents" because four respondents did not provide a response to this question.

Table 12: Amount respondents prepared/recommend to pay towards collection/tabulation of agricultural statistics by type of organisation
Respondents who use agricultural statistics
(\$)

Type of organisation	Total
State government agency	317,800
Local government agency	2,000
Regional development organisation	65,800
Industry organisation	102,500
Manufacturer/trader	4,000
Research organisation/ academic institution	35,500
Consultant	500
Other	500
All organisations	528,600

Eighty-two respondents who use agricultural statistics (41% of the total) indicated their willingness to contribute, or recommend that their organisations contribute, with other users towards the collection and

tabulation of these statistics by ABS or another statistical agency. The highest proportion of affirmative responses came from regional development organisations (63%), state government agencies (44%) and industry organisations (42%).

A total of \$528,600 was suggested by all respondents who indicated a willingness to contribute.

State agencies indicated the highest contribution of \$317, 800. This was followed by \$102,500 from industry organisations and \$65,800 from regional development organisations.

Fifty respondents (25% of the total) indicated they did not know whether they would contribute or recommend that their organisation contribute towards the collection of the statistics they require. A substantial proportion of these respondents may contribute if actually requested to do so.

Discussion on benefits of ABS agricultural statistics

Given the ad hoc and limited way in which the sample frame for the interview and mail surveys was developed, it is highly likely that only a relatively small proportion of non-state government agency users were captured. Also, the results from the surveys do not include usage of ABS statistics by Commonwealth Government departments and Victorian state agencies.

Some double counting did occur in the results from Queensland Government agencies because of an overlap of responses from two DPI regional offices and three DPI institutes which operate state-wide. Also, a small number of individual officers within these regions and institutes completed questionnaires about their particular activities. However, the total effect of these instances is not great and should have little, if any, effect on the survey outcomes for Queensland or nationally.

Despite the limitations of the surveys, the results clearly demonstrate that ABS agricultural statistics are extremely valuable to a wide variety of activities undertaken by a large number of organisations throughout Australia.

The results from the surveys also demonstrate that respondent organisations receive a considerable variety of benefits from activities in which these statistics are used. The value of these benefits total many millions of dollars according to estimates provided by respondents to the interview survey. Respondents to both surveys also identified numerous ways in which other people, organisations and the community benefit from their activities. These flow-on benefits were valued much higher than the value of benefits to the organisations actually undertaking the activities. For example, the benefits to the Queensland and South Australian interview survey respondents of policy development and monitoring activities were valued at greater than \$10.5 million. The value of benefits of these activities to others totalled in excess of \$1 billion. Given that only 32 respondents were included in the interview survey, it can be assumed that the direct and flow-on benefit values of all activities identified in both surveys would be higher than those identified in the interview survey.

A total of 78 respondents (39% of the total) said that their activities would be critically affected if annual sub-state ABS agricultural statistics were not available. A further 71 respondents (36%) said that their activities would be moderately affected. For the purpose of the surveys, critical effect was defined as “the desired output could not be achieved without the data in question”.

The responses to the “effect” question indicate that a large number of highly valued activities with considerable private and flow-on benefits would suffer if appropriate agricultural statistics were not available.

The responses to the willingness to contribute questions in the surveys also indicate the high probability of significant loss. Forty-one percent of respondents said they would be willing to contribute towards the

collection and tabulation of agricultural statistics they require. They indicated a total annual contribution of \$528,600. A further 50 respondents (25%) said they did not know if they would contribute, thus indicating considerable uncertainty.

Given the limitations of the surveys in which these data were collected, it can be safely assumed that the number of organisations willing to contribute, and the total amount of contributions, would be far higher than indicated in the survey results. While this contribution would be less than the estimated value of benefits to organisations derived through the interview survey, it still indicates that agricultural statistics are highly valued by users. Consideration of both this amount and the large value of flow-on (secondary) benefits to others from activities in which agricultural statistics are used, indicated a considerable potential loss in social benefits if the required statistics are not collected.

5. USAGE OF AGRICULTURAL STATISTICS

This chapter examines the usage of ABS agricultural statistics by the respondents to the interview and mail surveys. It also identifies other major sources of agricultural statistics that the respondents access. Issues on which respondents would like statistics collected are identified and briefly discussed.

ABS AGRICULTURAL STATISTICS

Agricultural Census

Usage, geographic level and frequency

Respondents were asked to indicate the level of usefulness of statistical items in each section of the Agricultural Commodity Survey (ACS) form. They were also asked to indicate the lowest geographical level at which items in each section are required and the frequency at which items should be collected. A copy of the 1998-99 survey form was provided to respondents to assist them in answering this question. The analysis of these responses mainly relates to all respondents throughout Australia. Tables detailing responses from state government agencies and non-state government agencies are provided in the appendixes.

Table 13 provides usefulness ratings of statistical items by section of the ACS form.

The sections of the ACS form which attracted the most numerous responses were “cattle number (total)”, “cattle number (herd composition)”, “cereal grains” and “other field crops”. Seventy-one percent of the respondents who indicated “cattle number (total)” stated that this item was highly useful. With the exception of “hay and silage”, “pasture and pasture seed”, “grain held and holding” and “vegetables for seed”, all sections received a highly useful rating of 50% or more. State government agencies provided proportionally more highly useful ratings than non-state government agencies.

**Table 13: Usefulness rating of statistical items
by section in the 1998/99 Agricultural Commodity Survey
Respondents who use agricultural statistics
(Percent)**

Section	Percent			Number of responses ^(a)
	Highly useful	Moderately useful	Slightly useful	
Area of holding	71	24	5	105
Pasture & pasture seed	45	38	17	140
Hay & silage	39	37	25	137
Cereal grains	69	20	11	154
Other field crops	64	25	11	154
Grain held on holding	39	32	29	116
Sugar cane	62	24	14	74
Fruit and nuts	59	28	14	118
Grapevines	61	28	11	123
Nurseries, cut flowers & cultivated turf	51	36	13	118
Vegetables for seed	47	22	32	88
Vegetables for sale for human consumption	68	24	8	119
Cattle number (herd composition)	68	23	9	154
Cattle number (total)	71	23	6	160
Sales of cattle	64	28	9	149
Sheep number (flock composition)	66	28	6	125
Sheep number (total)	69	27	5	134
Sales of sheep	62	30	7	122
Sheep (lambling items)	56	33	11	119
Wool	68	26	7	123
Pigs	56	32	12	128
Other livestock	50	34	16	133
Poultry and eggs	50	36	14	118
Irrigation	65	27	9	142
Other	70	28	3	40

^(a) The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

Table 14 provides details of responses relating to geographic levels at which highly useful statistical items are required.

Table 14: Lowest geographical level at which highly useful statistical items are required by section in the 1998/99 Agricultural Commodity Survey
Respondents who use agricultural statistics
(Percent)

Section	Percent							Number of responses ^(d)
	Australia	State	AER ^(a)	Statistical division	LGA ^(b)	SLA ^(c)	Other	
Area of holding	1	3	4	1	48	37	5	75
Pasture & pasture seed	2	3	6	6	40	38	5	63
Hay & silage	2	2	6	2	43	40	6	53
Cereal grains	1	3	4	3	51	31	8	106
Other field crops	1	5	4	4	49	31	6	99
Grain held on holding	2	4	4	2	36	42	9	45
Sugar cane	2	4	11	2	37	41	2	46
Fruit and nuts	1	4	6	7	35	44	3	69
Grapevines	1	1	5	9	37	39	5	75
Nurseries, cut flowers & cultivated turf	3	3	7	8	30	45	3	60
Vegetables for seed	2	5	5	10	27	46	5	41
Vegetables for sale for human consumption	1	6	5	6	37	42	3	81
Cattle number (herd composition)	2	7	6	4	50	29	2	104
Cattle number (total)	2	6	4	5	50	30	2	114
Sales of cattle	2	6	6	3	47	33	1	95
Sheep number (flock composition)	2	6	5	5	46	32	2	82
Sheep number (total)	2	5	4	5	48	32	2	92
Sales of sheep	4	5	5	4	45	32	4	76
Sheep (lambing items)	5	6	6	3	43	33	3	67
Wool	1	6	5	5	47	33	2	83
Pigs	1	6	3	7	44	35	3	72
Other livestock	2	5	5	5	45	36	2	67
Poultry and eggs	2	9	3	7	41	36	3	59
Irrigation	1	5	5	5	42	35	3	92
Other	0	0	4	0	54	36	7	28

^(a) Agroecological region

^(b) Local Government Area

^(c) Statistical Local Area

^(d) Includes an insignificant number of "not stated" responses for some items. The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

More than 70% of respondents who indicated a highly useful rating against each section of the ACS form stated they required the tabulated statistics by Local Government Area (LGA) or by Statistical Local Area (SLA) level. Both state government agencies and non-state government organisations indicated similar geographic level requirements.

The total number of responses against each section of the ACS form and the frequency at which items are required are provided in Table 15.

Most respondents who indicated a highly useful rating against each section of the ACS form stated they needed these statistics annually. All sections except “area of holding” and “pasture and pasture seed” received a response rate of 85% or more for the annual collection and tabulation of statistics. With the exception of items related to sheep, non-state government organisations generally tended to favour annual collection of all statistics slightly more than state government agencies.

Table 15: Frequency at which highly useful statistical items are required by section in the 1998/99 Agricultural Commodity Survey questionnaire
Respondents who use agricultural statistics
(Percent)

Section	Percent						Number of responses ^(a)
	Each year	Every 2 years	Every 3 years	Every 5 years	Less than one year	Other	
Area of holding	73	13	11	1	0	1	75
Pasture & pasture seed	78	11	8	0	0	0	63
Hay & silage	85	9	6	0	0	0	53
Cereal grains	92	6	3	0	0	0	106
Other field crops	91	6	3	0	0	0	99
Grain held on holding	87	7	4	0	2	0	45
Sugar cane	91	4	2	0	2	0	46
Fruit and nuts	94	1	3	0	1	0	69
Grapevines	87	9	1	0	1	0	75
Nurseries, cut flowers & cultivated turf	88	10	2	0	0	0	60
Vegetables for seed	90	7	2	0	0	0	41
Vegetables for sale for human consumption	93	6	1	0	0	0	81
Cattle number (herd composition)	88	9	2	1	1	0	104
Cattle number (total)	88	8	4	0	1	0	114
Sales of cattle	87	10	2	0	1	0	95
Sheep number (flock composition)	87	10	1	1	1	0	82
Sheep number (total)	89	9	1	0	1	0	92
Sales of sheep	88	9	1	0	1	0	76
Sheep (lambing items)	87	10	2	0	2	0	67
Wool	89	8	1	0	1	0	83
Pigs	90	6	4	0	0	0	72
Other livestock	88	9	3	0	0	0	67
Poultry and eggs	88	7	5	0	0	0	59
Irrigation	85	7	8	0	0	0	92
Other	86	7	7	0	0	0	28

^(a) Includes an insignificant number of “not stated” responses for some items. The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

Usefulness, geographic requirements and frequency ratings for the “other” sections of the ACS form are listed by respondents in Appendix E. A listing of additional highly useful items is provided in Appendix F.

Scope

Seventy percent of all respondents indicated they agreed with the current scope of the Agricultural Commodity Survey/Census. Answers to this question by type of organisation are provided in Table 16. Responses by state are provided in Table 17. Suggested definitions of scope provided by respondents who disagree with the current definition are listed in Appendix G.

**Table 16: Agrees with present Agricultural Survey/Census scope
by type of organisation
Respondents who use agricultural statistics**

Type of organisation	Agrees with current scope						Number of respondents
	Yes		No		Don't know/ not stated		
	Number	Percent	Number	Percent	Number	Percent	
State government agency	68	72	21	22	6	6	95
Local government agency	23	79	0	0	6	21	29
Regional development organisation	17	63	6	22	4	15	27
Industry organisation	14	58	6	25	4	17	24
Manufacturer/trader	5	83	1	17	0	0	6
Research organisation/academic institution	5	83	1	17	0	0	6
Consultant	4	57	2	29	1	14	7
Other	4	80	1	20	0	0	5
All organisations	140	70	38	19	21	11	199

**Table 17: Agrees with present Agricultural Survey/Census scope
by type of organisation in selected states
Respondents in selected states who use agricultural statistics
(Number)**

Type of organisation	Queensland			South Australia			Other Australia		
			Don't know/ not stated			Don't know/ not stated			Don't know/ not stated
	Yes	No		Yes	No		Yes	No	
State government agency	43	13	4	3	5	0	22	3	2
Local government agency	11	0	3	12	0	3	0	0	0
Regional development organisation	10	1	3	7	5	1	0	0	0
Industry organisation	3	2	1	3	0	0	8	4	3
Manufacturer/trader	1	0	0	1	0	0	3	1	0
Research organisation/academic institution	3	0	0	0	0	0	2	1	0
Consultant	3	0	0	1	1	1	0	1	0
Other	0	0	0	0	0	0	4	1	0
All organisations	74	16	11	27	11	5	39	11	5

Survey reference date

Sixty-two percent of respondents agreed with the change of the survey reference date to 30 June. The largest opposition was from state government agencies. The main reasons given were that statistics collected at 30 June would not be comparable with statistics collected at the old reference date and that the new date did not fit in well with farming seasons. Table 18 provides responses to this question by type of organisation. Table 19 presents responses by state.

**Table 18: Agrees with Agricultural Survey/Census 30 June
reference date by type of organisation
Respondents who use agricultural statistics**

Type of organisation	Agrees with 30 June						Number of respondents
	Yes		No		Don't know/ not stated		
	Number	Percent	Number	Percent	Number	Percent	
State government agency	53	56	20	21	22	23	95
Local government agency	22	76	3	10	4	14	29
Regional development organisation	15	56	2	7	10	37	27
Industry organisation	17	71	3	13	4	17	24
Manufacturer/trader	4	67	2	33	0	0	6
Research organisation/academic institution	3	50	0	0	3	50	6
Consultant	5	71	1	14	1	14	7
Other	4	80	0	0	1	20	5
All organisations	123	62	31	16	45	23	199

**Table 19: Agrees with Agricultural Survey/Census 30 June
reference date by type of organisation in selected states
Respondents in selected states who use agricultural statistics**

Type of organisation	Queensland			South Australia			Other Australia		
	Yes	No	Don't know/ not stated	Yes	No	Don't know/ not stated	Yes	No	Don't know/ not stated
State government agency	33	9	18	1	6	1	19	5	3
Local government agency	11	2	1	11	1	3	0	0	0
Regional development organisation	9	0	5	6	2	5	0	0	0
Industry organisation	5	0	1	2	0	1	10	3	2
Manufacturer/trader	1	0	0	0	1	0	3	1	0
Research organisation/academic institution	1	0	2	0	0	0	2	0	1
Consultant	3	0	0	1	1	1	1	0	0
Other	0	0	0	0	0	0	4	0	1
All organisations	63	11	27	21	11	11	39	9	7

Gross value of agricultural commodities produced

Table 20 gives the dissection of total usefulness responses by commodity group.

Over 80% of all respondents who use agricultural statistics said they use total gross value of agricultural commodity produced estimates. Of those who indicated that they used the value of items in the various commodity categories, 79% said that livestock product values were highly useful and 77% said that the value of livestock disposals were highly useful. Highly useful responses for all other commodity categories ranged from 70% to 74%. Both state government agencies and non-state government organisations provided broadly similar usefulness response patterns to this question.

Table 20: Usefulness rating of categories of gross value of agricultural commodities produced items by commodity group
Respondents who use agricultural statistics
(Percent)

Commodity category	Percent			Number of responses ^(a)
	Highly useful	Moderately useful	Slightly useful	
Cereal grains	70	23	8	155
Other field crops	72	21	8	155
Fruit crops	71	18	11	135
Vegetable crops	74	14	11	135
Other crops	70	20	10	138
Livestock disposals	77	15	8	158
Livestock products	79	15	6	158
Total gross value	80	15	5	162

Details of responses at geographic level by commodity group are provided in Table 21.

As with statistics tabulated from the ACS survey, a large majority of respondents who indicated a highly useful rating said they wanted value of agricultural commodity produced statistics at either the LGA or SLA geographic level. Both state government agencies and non-state government organisations provided similar LGA and SLA responses.

Table 21: Lowest geographical level at which highly useful categories of gross value of agricultural commodity produced items are required by commodity category
Respondents who use agricultural statistics
(Percent)

Commodity group	Percent							Number of responses ^(d)
	Australia	State	AER ^(a)	Statistical division	LGA ^(b)	SLA ^(c)	Other	
Cereal grains	1	7	4	5	51	31	3	108
Other field crops	1	9	4	5	48	31	3	111
Fruit crops	1	7	5	6	43	35	2	96
Vegetable crops	1	8	4	6	44	35	2	98
Other crops	1	8	3	5	46	34	2	96
Livestock disposals	1	7	6	4	50	31	2	121
Livestock products	1	10	6	4	49	30	2	125
Total gross value	1	9	6	5	50	28	2	130

^(a) Agroecological region

^(b) Local Government Area

^(c) Statistical Local Area

^(d) Includes an insignificant number of "not stated" responses for some items. The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

Table 22 gives frequency details by commodity group.

Most respondents who indicated that gross value of agricultural commodities produced were highly useful said they needed them every year. State Government agencies and non-state government agencies indicated broadly similar responses to this question.

Table 22: Frequency at which highly useful categories of gross value of agricultural commodities produced items are required by commodity category
Respondents who use agricultural statistics
(Percent)

Commodity group	Percent					Number of responses ^(a)
	Each year	Every 2 years	Every 3 years	Every 5 years	Less than one year	
Cereal grains	92	6	2	1	0	108
Other field crops	91	6	2	1	0	111
Fruit crops	92	5	2	1	0	96
Vegetable crops	92	5	2	1	0	98
Other crops	91	6	2	1	0	96
Livestock disposals	88	7	2	1	1	121
Livestock products	90	7	1	1	1	125
Total gross value	90	5	2	1	1	130

^(a) Includes an insignificant number of "not stated" responses for some items. The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

Local value of agricultural commodities produced

Respondents were asked how they rated the usefulness of the local value of agricultural commodities produced series presently published by ABS. Forty percent of all respondents said the series was highly useful. State Government agencies and non-state government organisations reported a broadly similar highly useful rating. Responses to this question are provided by type of organisation in Table 23.

Table 23: Usefulness of Local Value of Agricultural Commodities Produced by type of organisation
Respondents who use agricultural statistics
(Number)

Type of organisation	Highly useful	Moderately useful	Slightly useful	Not useful/ don't know/ not stated	Number of respondents
State government agency	36	25	7	27	95
Local government agency	12	11	1	5	29
Regional development organisation	11	7	3	6	27
Industry organisation	9	10	0	5	24
Manufacturer/trader	2	3	0	1	6
Research organisation/academic institution	3	1	0	2	6
Consultant	2	2	1	2	7
Other	4	1	0	0	5
All organisations	79	60	12	48	199

Other ABS agricultural statistical collections/publications

Relatively few respondents said other ABS collections/publications were highly useful. All of the five respondents marked “Other” as highly useful. However, one specified “census data” and another “grapevine industry”. The remaining three respondents did not state a collection. Table 24 gives details of the usefulness responses by other ABS collection/publication.

Table 24: Usefulness rating of other ABS agricultural statistical collections/publications by collection/publication
Respondents who use agricultural statistics
(Percent)

ABS collection/publication	Percent			Number of responses ^(a)
	Highly useful	Moderately useful	Slightly useful	
Agricultural finance survey	54	34	12	140
Livestock slaughterings	58	27	15	131
Wool receivals by brokers and dealers	49	22	29	94
Apparent consumption of foodstuffs	56	32	12	119
Other	100	0	0	5

^(a) The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

A large proportion of users who found these collection/publications highly useful indicated that they would like ABS to provide these by LGA or SLA level. A large number of these respondents require the data annually. Tables 25 and 26 provide details of responses by collection/ publication. Details of the purposes for which these collections/publications are used are provided in Table 27.

Table 25: Lowest geographical level at which highly useful other ABS agricultural statistical collections/publications are required by collection/publication

**Respondents who use agricultural statistics
(Percent)**

Collection/publication	Percent							Number of responses ^(d)
	Australia	State	AER ^(a)	Statistical division	LGA ^(b)	SLA ^(c)	Other	
Agricultural Finance Survey	4	17	11	7	42	18	0	76
Livestock slaughterings	3	26	11	4	36	17	1	76
Wool receivals by brokers and dealers	2	22	9	6	33	22	2	46
Apparent consumption of foodstuffs	6	33	9	3	33	15	0	67
Other	0	20	20	0	0	60	0	5

^(a) Agroecological region

^(b) Local Government Area

^(c) Statistical Local Area

^(d) Includes an insignificant number of "not stated" responses for some items. The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

Table 26: Frequency at which highly useful other ABS agricultural statistical collections/publications are required by collection/publication

**Respondents who use agricultural statistics
(Percent)**

Collection/publication	Percent						Number of responses ^(a)
	Each year	Every 2 years	Every 3 years	Every 5 years	Less than one year	Other	
Agricultural Finance Survey	82	12	4	1	1	0	76
Livestock slaughterings	80	8	1	0	8	0	76
Wool receivals by brokers and dealers	78	4	2	0	9	2	46
Apparent consumption of foodstuffs	84	8	6	0	2	2	67
Other	80	0	0	20	0	0	5

^(a) Includes an insignificant number of "not stated" responses for some items. The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals

**Table 27: Purposes for which other ABS agricultural statistics are used
by type of organisation**

**Respondents who use agricultural statistics
(Number)**

Type of organisation	Output monitoring and land use	Industry analyses	Marketing	Policy advice and strategic planning	Regional information and profiles
State government agency	24	27	9	21	16
Local government agency	6	3	0	6	5
Regional development organisation	7	4	1	5	9
Industry organisation	8	5	3	7	4
Manufacturer/trader	3	0	0	0	0
Research organisation/academic institution	2	1	0	0	2
Consultant	2	1	0	0	0
Other	3	1	3	2	1
All organisations	55	42	16	41	37
Type of organisation	Research	Grant funding applications	Other	Not used/ don't know/ not stated	Number of respondents ^(a)
State government agency	9	0	14	29	95
Local government agency	2	1	1	14	29
Regional development organisation	3	1	3	10	27
Industry organisation	2	0	4	6	24
Manufacturer/trader	0	0	1	2	6
Research organisation/academic institution	2	0	2	0	6
Consultant	0	0	0	5	7
Other	1	0	0	0	5
All organisations	19	2	25	66	199

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Any single response recorded in this column could be allocated to more than one response category.

Agriculture statistics sources other than ABS

Table 28 gives the usefulness responses by source/collection.

Table 28: Usefulness rating of agricultural statistical sources other than ABS by source/collection
Respondents who use agricultural statistics
(Percent)

Source/collection	Percent			Number of responses ^(a)
	Highly useful	Moderately useful	Slightly useful	
ABARE-Farm survey	83	17	0	18
ABARE-Commodity statistics	65	25	10	20
ABARE-Other	62	32	5	37
ABARE-Any statistics	70	15	15	20
Meat and Livestock Australia	68	32	0	25
Industry and related organisations	79	21	0	57
Internal/Own surveys	85	15	0	13
State DPI/Agriculture	83	17	0	18
Other or various sources	67	30	3	87

^(a) The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

A relatively small number of respondents use agricultural statistics from sources other than ABS. Apart from “other and various sources”, most usage is made of statistics from industry and related organisations. Only 9% of all respondents said they use ABARE farm survey data. Responses on geographic and frequency requirements for these statistics indicated that most users were satisfied with the present levels. A number of users did indicate that they would like LGA/SLA data.

Other issues

Almost all respondents who use agricultural statistics indicated an interest in statistics on “other issues”.

Table 29 gives details of usefulness responses by issue.

**Table 29: Usefulness rating of other issues for which
statistics are required by issue
Respondents who use agricultural statistics
(Percent)**

Issue	Percent			Number of responses ^(a)
	Highly useful	Moderately useful	Slightly useful	
Environmental issues (e.g. land degradation, farm plans, protection of native forests etc)	51	32	17	184
Technology (e.g. use of computers, mobile phones, farm machinery etc)	48	33	19	181
Social (e.g. farm households, employment, education and training etc)	55	35	11	191
Other	89	11	0	18

^(a) The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

Fifty-five percent who wanted statistics on “social issues” said that these statistics would be highly useful for their purposes. Of the responses for “environmental issues”, 51% said statistics on these issues would be highly useful. “Technology issues” recorded a 48% response. Sixteen of the 18 respondents who listed “Other” topics indicated a highly useful rating for the items they suggested. A complete list of “Other” topics is provided in Appendix H. The highly useful response for each issue were proportionally similar for state government agencies and non-state government organisations.

Details of geographic level responses by issue are provided in Table 30. Frequency requirements by issue are provided in Table 31.

Of the respondents who indicated that the data on “Other” issues would be highly useful, between 60% and 70% said they required the statistics by LGA or SLA. Fifty-nine percent or more of these respondents said they required these data each year. Geographic level requirements were similar for state government agencies and non-state government organisations. However, proportionally more respondents from non-state organisations require these statistics.

**Table 30: Lowest geographical level at which highly useful statistics
on other issues are required by issue**
Respondents who use agricultural statistics
(Percent)

Issue	Percent							Number of responses ^(d)
	Australia	State	AER ^(a)	Statistical division	LGA ^(b)	SLA ^(c)	Other	
Environmental issues (eg land degradation, farm plans, protection of native forests etc)	3	14	9	4	47	17	5	93
Technology (eg use of computers, mobile phones, farm machinery etc)	4	11	7	7	54	16	2	86
Social (eg farm households, employment, education and training etc)	3	13	5	9	49	20	2	104
Other	0	13	13	6	38	25	6	16

^(a) Agroecological region

^(b) Local Government Area

^(c) Statistical Local Area

^(d) Includes an insignificant number of "not stated" responses for some items. The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

**Table 31: Frequency at which highly useful statistics on other issues
are required by issue**
Respondents who use agricultural statistics
(Percent)

Issue	Percent							Number of responses ^(a)
	Each year	Every 2 years	Every 3 years	Every 4 years	Every 5 years	Less than one year	Other	
Environmental issues (e.g. land degradation, farm plans, protection of native forests etc)	59	20	14	1	3	1	1	93
Technology (e.g. use of computers, mobile phones, farm machinery etc)	72	15	11	0	1	1	0	86
Social (e.g. farm households, employment, education and training etc)	71	14	9	0	3	1	1	104
Other	75	0	13	0	6	0	0	16

^(a) Includes an insignificant number of "not stated" responses for some items. The number of responses to each section are different because not all respondents provided a usefulness rating for each section. A total of 199 organisations and individuals within organisations stated that they use agricultural statistics.

Preferred publication medium

Table 32 provides responses for each medium by type of organisation.

Responses to this question were tabulated from all responses to the survey (i.e. 240) and not just those that indicated they used agricultural statistics (i.e. 199). Of these, 73 or 30% of the total indicated they preferred as first choice the Internet as a medium. Sixty-eight, or 28% of the total, said they preferred hard copy or paper. Floppy disk or CD-ROM and E-mail each received 21% of the total responses.

**Table 32: Most preferred publication medium for
agricultural statistics by type of organisation**
All respondents
(Number)

Type of organisation	Hard copy or paper	Floppy disk or CD-Rom	Internet	Email	Number of respondents ^(a)
State government agency	24	24	38	20	105
Local government agency	19	6	11	10	47
Regional development organisation	8	7	11	2	29
Industry organisation	10	7	7	5	28
Manufacturer/trader	3	0	0	4	7
Research organisation/academic institution	0	3	2	2	7
Consultant	1	2	2	2	7
Other	3	2	2	5	10
All organisations	68	51	73	50	240

^(a) Totals for types of organisations differ slightly from questionnaire response totals due to a small number of respondents answering this question incorrectly.

Discussion on usage of agricultural statistics

The results presented in this chapter again relate purely to the responses received and do not imply that the findings are statistically representative of Australia. However, despite the limitations of the surveys, the results clearly show that statistics produced by ABS are considered vital to the functioning of most organisations surveyed. The results also show that most users who use statistics from the more significant agricultural collections require the data at either SLA or LGA level.

The analysis showed beyond doubt that most respondents who use agricultural statistics perceive the statistical items from the ACS as highly useful. While not all respondents provided a usefulness response to every item collected, nearly all provided a usefulness rating against at least one item.

To add rigour to the analysis, geographic and frequency needs for only highly useful statistical items were considered. This showed beyond doubt that nearly all agricultural statistics users surveyed need tabulated statistical items at the LGA or SLA level annually.

Similar geographic and frequency needs were also expressed for all gross value of agricultural commodities produced commodity categories.

Compared with ACS and gross value of agricultural commodities produced, relatively few respondents considered other ABS agricultural collections/publications as highly useful. Most of these respondents wanted statistics published annually and a significant proportion wanted the data by LGA and SLA. Presently these data are published at the State level or higher.

A considerable number of respondents require data on “Other” issue items. However, compared with the highly useful responses to the ACS and gross value items, fewer respondents who indicated that these items were highly useful said they wanted them at the SLA or LGA level. Fewer also said they needed them annually. This could indicate that data on these items may need only to be collected on a rotational basis by census every two or three years.

6. CASE STUDIES

Of the 240 respondents of the interview and mail surveys, 199 said that they use ABS agricultural statistics. A large proportion of these stated that annual ABS sub-state statistics were highly useful for the activities undertaken by their organisations. Many claimed that reduced availability of sub-state agricultural data would affect these activities to the extent that their desired output could not be achieved. In addition, most respondents claimed that their organisations not only benefit from the activities in which they use agricultural statistics, but the community at large also gains considerable benefits. Three case studies were undertaken to investigate these claims more closely.

The case studies were selected on the basis of their willingness to participate and as to whether their survey responses were typical of organisations within their “type of organisation” categories. Two state government agencies were chosen because of the large response from these organisations relative to other organisation types. A regional development organisation was chosen because these organisations work largely with local government agencies on a wide range of activities which use sub-state data. Together, regional development organisations and local government agencies comprise 28% of all respondents who use ABS agricultural statistics.

CASE STUDY 1

SOUTH AUSTRALIAN RESEARCH AND DEVELOPMENT INSTITUTE (SARDI)

SARDI is an agency operating within the South Australian Department of Primary Industries and Resources, (PIRSA). Its purpose is to direct, fund and promote public sector research and development in primary industries in that state. It undertakes applied research and development and coordinates research contracts and investments between clients, investors and researchers. It also advises the South Australian Government on rural science policy issues.

Mr Ian Black, Industry and Investment Analyst was interviewed on behalf of SARDI. He reported that the main activities in which ABS agricultural statistics were used during the past 12 months were:

- Econometric analyses relating to research programs (200 person days);
- Benefit cost analyses of research programs (200 person days);
- Agricultural research funding proposals and reports associated to research being undertaken (1375 person days); and
- Developing and monitoring research and development (R&D) policy (80 person days).

The number of person days in brackets after each activity are the total dedicated to undertaking the whole of that activity and not just the time spent on extracting and tabulating statistics. The number of days provide a clear indication of the level of importance placed on each activity by SARDI.

Sub-state ABS agricultural statistics were considered as critical to econometric analyses relating to research programs (a rating of 1 on a scale of 1 to 5, with 1 indicating that the desired output could not be achieved without the data). Annual sub-state statistics were not considered as critical for benefit cost analyses of research programs and research funding proposals (both with a rating of 3). The lack of these data would have a major effect on the development and monitoring of R&D policy (rating of 3) because regional based econometric analysis is very important for this purpose. Where a rating of 3 was given, it was pointed out that benefits of regional based research projects would be inadequately assessed without annual sub-state ABS agricultural data and that optimal funding may not be allocated to these projects.

This case study concentrates specifically on econometric analyses undertaken by SARDI during the past 12 months that relate to research programs.

Econometric analyses relating to research programs

“A Review of the Impact of Farm-Level Research and Development on the South Australian Sheep Industry”(Black 1999) was the most significant econometric task undertaken within this activity during the past 12 months. This work examined the effects of past R&D projects on the South Australian sheep industry between 1965-94. It drew conclusions and made recommendations on future investment in research and development critical to the sustainability of the industry. Examples of these are:

- The return to R&D investment in the sheep industry in SA was as good as that in the beef industry and better than that in the grain industry during the period under investigation;

- As measured by increases in stocking rates, adoption of new pasture technology has been relatively good in higher rainfall areas of the state where historically there has been no major cropping alternatives;
- Adoption of improved technology has been neglected in the cereal-sheep areas as cropping areas have expanded;
- Given historical performance indicated by the available data, pasture development resources need augmenting on the Eyre Peninsula; and
- There is good reason to think that R&D investment in improving pasture production in the lower rainfall areas will be well repaid.

Results of this work are presently being considered by SARDI, PIRSA, the South Australian government and relevant funding agencies to prioritise future expenditure on sheep industry R&D.

In 1998, the sheep industry had a gross value of production of \$341 million in South Australia. Despite the present short term wool price slump, the industry is expected to continue to be a major contributor to the state's rural economy. This will largely depend on technological advances through sustained research effort.

Usage of ABS annual small area agricultural statistics

Spatial and temporal data which measure industry productivity changes relative to R&D expenditure over space and time are fundamental to the econometric model developed for this activity. Detailed special data are required because of the significant differences in regional climatic conditions, soil types, ground cover etc between production areas within the state. Annual data are required because the agricultural activities being investigated, and the resources which are required for these activities, have production cycles of one year or less. Variations in seasonal conditions within these production cycles result in markedly different outcomes from year to year.

Given the long lead time between the introduction of technological advances resulting from R&D in the sheep industry, it was necessary to obtain 30 years of data for the model to objectively identify productivity changes over time. Owing to the wide special variations in South Australia, it was also necessary to disaggregate the data to the smallest areas possible. As a consequence, ABS was asked and did provide special annual data tabulations for sheep, milk cattle and meat cattle numbers and the areas of wheat, barley and oats for almost 400 "hundreds" (sub-Statistical Local Area regions similar to parishes in other states).

Hundred level data were not available for grain legumes. These were estimated by disaggregating state level data for these crops to hundreds by correlating them with trends in the area of oats at both the state and hundred levels. Oilseed were basically ignored for the purpose of this analysis.

The livestock data were used to estimate dry sheep equivalents (DSE) for each hundred. These were converted to a grazed hectare basis using a formula which incorporated area of vegetation and a percentage of the area cropped; the latter being designed to take into account the grazing value of crop stubble.

While the above data were used in the econometric analyses to measure the effect of R&D on the state's sheep industry between 1985 and 1994, they were also used to produce a number of maps which pictorially demonstrate the regional significance of important changes over that period. For example, Figure 6 shows the grazing animal production efficiency achieved between 1985 and 1994 on a grazed

hectare basis for regions in South Australia. Other maps demonstrating important changes between the periods 1965-1974 and 1985-1994 are provided in Appendix I. Mean averages were calculated for each of the measures demonstrated in each of these maps. Annual data were critical to calculate these averages to ensure that trends were accurately captured for analysis purposes.

As part of an ongoing evaluation of the impact of R&D on sustainable productivity of agriculture and fisheries industries in South Australia in 1998, SARDI conducted similar special analyses to review the impact of public sector applied R&D for the South Australian wheat industry. A map showing the percentage change in corrected wheat yields (tonne/hectare) in which annual ABS hundreds data were used is also provided in Appendix J. This latter work again revealed a number of important outcomes critical to the future of this particular industry.

Conclusions

SARDI has introduced a process to review and monitor the effectiveness of public sector R&D in primary industries in South Australia. This process is critical to identifying whether the community at large has, and is, receiving value for research dollar expended by government though increased production while maintaining a viable resource base. Fundamental to the process is the availability of annual sub-state agricultural area, production and stock data for inclusion in sophisticated econometric models which have been developed to provide evidence to support management decisions. Given the expenditure on these models to date, and their usage as a fundamental tool in decision making, SARDI believes that the availability of basic data for this purpose are extremely important for the efficient allocation of primary industry R&D resources now and in the future. Without these data, decisions would be based on more subjective assessments which would most likely lead to less efficient resource allocation.

Figure 6

CASE STUDY 2

GROWZONE DEVELOPMENT NETWORK (GDN)

Introduction

During the field interview phase of the project, four regional development organisations (three in Queensland and one in South Australia) were visited. All four indicated that at least one of their core activities would be critically affected if sub-state ABS agricultural data were not available. Activities detailed by these respondents, the value of estimated community benefits (ECB) of each activity and the effect of not having required sub-state data are provided in Table 33.

Table 33: Estimated community benefit (ECB) of activities undertaken by four regional development organisations and effects of not having annual sub-state agricultural statistics

Activity	ECB value	Effect rating ^(a)
Regional profiles and promotion material	Between \$45 million and \$100 million	1 for three organisations 2 for one organisation
Regional strategic plans	Greater than \$400,000	1 for one organisation
Specific projects	Up to \$400.2 million	1 for three organisations
Export planning and management	Greater than \$100 million	1 for one organisation
Identify areas of growth for infrastructure development	Unable to value	2 for one organisation
Measuring comparative and competitive advantage	Unable to value	1 for one organisation
Benchmarking	Unable to value	1 for one organisation
Predicting trends	Greater than \$3 million	1 for one organisation
Market assessment	Greater than \$250,000	4 for one organisation
Funding submission	Part of \$10.5 million	3 for one organisation

^(a) Rated 1 to 5 with 1 being “critical effect” and 5 being “no effect”

GDN was selected as a case study because of the large number of activities it conducts. Also, while the other organisations were bound by commercial in confidence reasons for not disclosing details of commercial projects, GDN was able to disclose the processes through which a potentially important exporting company was attracted to the GrowZone region. The company, Fodder King Ltd, officially launched its operations in the region on 16 November 1999 at Toowoomba. Annual sub-state ABS agricultural statistics played an important role in all stages up to that time.

GDN's charter is to promote the development and prosperity of rural communities in the GrowZone region (Darling Downs and South-West Statistical Divisions of Queensland) "by facilitating jobs, population growth and a wealthier economy" (GDN, 1999). It enters into partnerships with other organisations operating in the region (eg DPI, Queensland Grain Growers Association, local councils, University of Southern Queensland etc) to assist in achieving its goals. DPI and the University of Southern Queensland, for example, undertake marketing support and statistical based projects in conjunction with GDN.

GDN indicated at the initial interview that it undertook at least five of the activities listed in Table 33 during the past 12 months and that four of these activities were critically dependent on annual sub-state agricultural statistics. Later discussions indicated a linkage, not only between the activities identified during the initial interview, but also with other activities which they failed to mention earlier but were listed by the other regional development organisations interviewed.

Mr Edward Sims, GRN's Chief Executive Officer, provided information at both the survey and case study interviews.

Fodder King Ltd

To attract industry to the GrowZone region, GDN wrote to 3,000 businesses throughout Australia in early 1999 inviting them to consider the Darling Downs and south-west Queensland for business development. Fodder King Ltd was one of eleven organisations which indicated an interest. This company has a lucerne harvesting and drying process which produces container packed product at an optimum 12% to 18% moisture level for export. It now sees the GrowZone region as a future major supplier of lucerne for this purpose.

In order for Fodder King to decide on whether it would move into the GrowZone region it needed information on:

- The geographic spread, area and production of crops in the region (particularly cotton and lucerne);
- Historical crop production trends within the region (particularly cotton and lucerne);
- The area and types of crops irrigated; and
- The number of growers of each type of crop.

The company was particularly interested in the irrigated area of all crops and the area of irrigated cotton because:

- The area irrigated indicated potential resource available to grow lucerne for future supply to the company;

- Lucerne is a particularly good companion crop to cotton in that it attracts the heliothus moth (and therefore the heliothus grub) away from cotton and to itself where it inflicts minimum damage: this results in better cotton yields with less chemicals; and
- Lucerne is an ideal complementary/rotation crop with cotton because of its high nitrogen content.

ABS Statistical Local Area (SLA) trend data on these items were accessed by GDR to assist Fodder King to assess the commercial potential of the region.

One of the objectives of the launch on the 16 November 1999 was to invite farmers to not only to grow lucerne to supply the company but to also invest in the company. Knowing the number of irrigated cotton growers, in particular, was important for this phase of the program.

The company believes that its dried lucerne has a potential overseas market of up to \$40million. The project will also provide employment opportunities in the region with 13 people required per production cell of 600 hectares, of which there will be twenty. Approximately one third of these jobs will be permanent employment positions.

Fodder King Ltd was attracted to the GrowZone region through GDN's promotional material. GDN claimed that annual sub-state ABS agricultural data were critical to its promotional material because basic historical trend data were required to substantiate claims made about the region. These data were also essential to assessing the commercial viability of this enterprise in the region.

Other activities

GDN was one of the exhibitors at the 10th World Congress on Food Sciences and Technology in Sydney between 4 and 9 October 1999. Examples of the promotional material distributed at the Congress and other material which are presently being prepared for GDN promotional purposes are provided in Appendix K. To date, GDN has received a total of forty promising inquiries resulting from their promotion work at the Congress. Examples include:

- The establishment of a pasta processing plant in the region;
- Using the GrowZone region as a launching point for exporting commodities targeted at the value added sector in South East Asia ;
- Business interests from Murcia Spain using the GrowZone region as an entry point to Asia;
- The possible relocation of a breakfast cereal manufacturer to the region; and
- Commodity export opportunities to a number of regions in Asia.

To follow up these inquiries, GDN has been required to provide information to demonstrate the ability of the region to assure supply of specific commodities, if undertakings by all parties involved are to proceed.

Annual sub-state ABS agricultural statistics were used to provide historical trend information on those commodities at both the broad GrowZone regional and sub-regional (shire) levels as part of an information package. It is doubtful if many of these opportunities would proceed without factual evidence to support the claims made by GDN and the community it serves.

During the discussion on the development of the opportunities for the GrowZone region, mention was made of the necessity for infrastructure support by local and state governments to assist in some regional development projects. Evidence of this was identified by the author during the interview survey phase of this project. A north Queensland regional development organisation advised that annual ABS statistical local area agricultural statistics were used in submissions to both levels of government for infrastructure (water, electricity and roads) development to support a large value adding project in the region. These statistics were also used to help convince a European investor to provide funds for the project. The organisation claimed that it would have been very difficult to convince the investor to proceed without these data. It was estimated that 200 jobs would be created during the construction phase of the project and a further 80 permanent jobs created when operations commenced. The north Queensland respondent gave sub-state ABS agricultural statistics in this instance a critical effect rating of 1 for attracting the investment and a rating of 2 in the submission to government for infrastructure support.

Mr Sims from GDN advised that he was aware of at least four regional projects in southern Queensland which require support from either or both local and state governments. Annual shire level data which show the variability of agricultural activity over time are important to provide a factual basis in funding proposals to gain government support for these projects.

FIGURE 7

CASE STUDY 3

AUSTRALIAN GRASSLAND AND RANGELAND ASSESSMENT BY SPATIAL SIMULATION (Aussie GRASS)

Aussie GRASS is a national grassland and rangeland assessment model that uses climate and resource information to assess the condition and productivity of pastures. The Aussie GRASS project is led by the Climate Impacts And Natural Resource Systems group, Queensland Department of Natural Resources, and involves collaboration with agencies in New South Wales, South Australia, Western Australia and the Northern Territory. Aussie GRASS is funded by the Climate Variability in Agriculture Program and administered by the Land Water Resources Research and Development Corporation.

The first stage of the project was completed in 1996 and primarily focused on Queensland. The current phase of the project is concerned with refining the existing Australia wide modelling framework so that products, currently produced for Queensland, can be produced Australia wide. This phase is expected to be completed by early year 2000.

Aussie GRASS modelling framework and the requirement for annual ABS Statistical Local Area (SLA) livestock herd and flock composition data

The Aussie GRASS model framework is shown in Figure 7. The major inputs are daily rainfall and other climatic information, soil type and associated parameters, pasture community and associated parameters, tree basal area and stocking rates. Stocking rates are calculated from ABS agricultural statistics.

Data standardisation and desegregation are vitally important issues in determining data best suited for incorporated into the model. Annual ABS SLA livestock data, while having limitations, offers the best known degree of spatial and temporal standardisation for stocking rate calculations.

Carter et al (2000) outlined the processes through which ABS data are converted to stocking rate data required for Aussie GRASS. The spatial model divides the country into 5 km grid cells (or pixels), all of which are independent of each other. The various classes of stock for each SLA are converted to a common unit (animal unit = 400 kg) and are distributed across the pixels within each SLA. This distribution process takes into account information such as predators (dingos), pasture communities and national parks, eg sheep are excluded from areas such as those where dingos are a common problem and/or where black spear grass occurs.

To allow objective assessment of current seasonal conditions relative to the past, the Aussie GRASS model outputs are often presented in a ranked or percentile format, e.g. March monthly growth for the current year is ranked against all other March monthly pasture growths for previous years back to 1957 (the earliest year in which all climatic information is available in a digital format). The percentile format therefore requires that all inputs such as stocking rate are available back to 1957. Currently stocking rate is available in a digital format for all SLAs from 1983, although for Queensland data have been digitised back to 1952 (work carried out as part of the National Land and Water Audit is currently digitising SLA stock data for the other states back to 1957).

Effects of reduced availability of and ABS small area statistics

The decision by ABS to downgrade the annual agricultural census to a survey in four out of every five years will mean that accurate data will be available at far less resolution than have been available in the past. Even if estimates are available at the SLA level, the relative standard error of the data would

increase markedly as estimates are transformed into animal units and desegregated to the pixel level. The end result would be that accuracy and reliability of most outputs from Aussie GRASS would decrease. This would lead to reduced confidence of clients (government and other organisations) in the use of Aussie GRASS outputs and adversely affect the many policy decisions they are required to make.

Aussie GRASS clients and products

In the past Aussie GRASS products were focused primarily at policy makers and officers in both state and federal government departments.

In Queensland, these products have been used operationally since November 1991 by Queensland Government officers for a variety of purposes, including briefings to the Queensland Government Cabinet. Currently, all Queensland drought declaration assessments and applications for Drought Exceptional Circumstances incorporate Aussie GRASS outputs. Other Queensland clients now include stock inspectors and local drought committees, extension officers, agribusiness, Rural Fire Boards, producers, industry organisations and other researchers. Aussie Grass products have also been provided to government officers from New South Wales, Victoria and South Australia for inclusion in their applications for Drought Exceptional Circumstances.

Outputs from Aussie GRASS are considerable and a few of the products are listed in the brochure on Aussie Grass provided in Appendix L. Among the other products which are not listed in the brochure, but which are also included in Appendix M, are “A Summary of Seasonal Conditions In Queensland” (SSCQ) and “Potential Grassfire Risk” maps.

Pasture Growth maps are published in SSCQ and are made available individually to government and other clients who require them. These maps are now considered critical for drought declaration purposes in Queensland and are used to provide objective evidence of pasture stress in Drought Exceptional Circumstance applications. For example, the Queensland drought situation towards the end of 1996 as represented by shires either fully or partially drought declared was far more extensive than the historical rainfall would have suggested. The validity of the shire declarations was supported by the pasture growth simulation from Aussie GRASS. This demonstrates the fact that reliance on rainfall records as an indicator of seasonal conditions alone can be very misleading (see analysis in Appendix N). This information was subsequently used to support Drought Exceptional Circumstance applications at that time.

The Potential Grassfire Risk maps reflect the total standing dry-matter in all Queensland shires, accounting for biomass eaten/trampled by animals as well as pasture growth. These are provided to rural fire services on a monthly basis to assist in their planning, educational and fire prevention programs.

The accuracy of both the Pasture Growth maps and the Potential Grassfire Risk is at risk because of the cuts in availability of the annual ABS agricultural statistics at the SLA level.

7 COSTS OF ABS COLLECTIONS

The cost estimates discussed in this chapter were provided by ABS. They include ABS funds allocated from consolidated revenue and do not include funds provided to ABS by users. Expenditure on each collection relates to funds spent in the financial year shown and not necessarily to collections actually undertaken in those years. ABS reported that it was extremely difficult to identify costs associated with each collection in each year due to the overlap of collection activities from one year to the next.

Cost data were requested from 1993-94 onwards because a Long Form/Short Form Agricultural Census collection cycle commenced in that year.

The Long Form collection comprised all core items that had been collected in censuses to 1992-93. The Short Form collection, which was to be undertaken in two years out of three, was to include only items that were considered essential for estimating gross value of agricultural commodities produced. This was introduced by ABS as a cost saving measure.

The first Long Form Census was undertaken in 1993-94 and this was followed by Short Form collections in 1994-95 and 1995-96. The next Long Form Census was planned for 1996-97. However, in that year, ABS was required to cut total provider load of its statistical collection programs by 20%. The provider load of the Agricultural Statistics Program was subsequently cut by 25% from the planned Long Form collection. Except for a number of extra items relating to hay, grain held on holding, sugar cane and other livestock, the actual census for that year was similar in size to that of the Short Form years. Therefore expenditure on the Agricultural Census in 1996-97 was well down on that for the 1994-95 census.

ABS was directed by the Commonwealth Government to cut its Agricultural Statistics Program expenditure by \$1 million a year over a five year survey/census cycle from 1997-98. Between 1996-97 and 1997-98 expenditure on the Agricultural Census declined by \$453,000. The total expenditure on the Agricultural Statistics Program decreased by \$580,000. The largest percentage cut was made to the Agricultural Finance Survey (35%).

Expenditure on the Agricultural Census declined by \$1,175,000 (31%) to \$2.6 million in 1998-99. The expenditure on the total program decreased by \$1,344,000 (30%) to just under \$3.2 million in that year.

Expenditure on ABS's Agricultural Statistics Program declined by 58% between 1993-94 and 1998-99, 38% of the reduction occurred since 1996-97.

Table 34 gives details of the cost estimates provided by ABS.

**Table 34: ABS Agricultural Statistics Program costs
1993-94 to 1998-99**

Year	Agriculture commodity collection (\$'000)	Other agriculture (\$'000)	Agricultural finance survey (\$'000)	Agricultural systems administration (\$'000)	Total (\$'000)
1993-94	6,378	4	515	666	7,563
1994-95	5,050	122	561	389	6,122
1995-96	3,495	149	522	2	4,168
1996-97	4,288	221	592	2	5,104
1997-98	3,775	202	382	165	4,524
1998-99	2,600	186	250	144	3,180

8. CONCLUSIONS, OPTIONS FOR THE FUTURE AND RECOMMENDATIONS

Conclusions

These conclusions take into account both the analyses in the preceding chapters and the findings of the ABS's review of the Commonwealth Government agencies' agricultural statistics needs provided in Appendix A.

The chapters from which each conclusion was drawn are provided in brackets after the conclusion. Further discussion is provided only when the researcher considered it necessary to draw the readers attention to a particularly important point in the analysis.

Conclusion 1

ABS agricultural statistics are vital to numerous activities undertaken by the organisations surveyed (Chapter 4).

Conclusion 2

Commonwealth, state and local government agencies, regional development organisations, and industry organisations indicated that the highest proportion of their activities in which agricultural statistics are used related to policy development and monitoring (Chapter 4).

Conclusion 3

Respondent organisations receive considerable benefits from the activities undertaken by them in which ABS agricultural statistics are used (Chapter 4).

Conclusion 4

Other organisations and the community receive a wide variety of benefits from activities undertaken by respondents to the NCASS survey. These benefits translate into hundreds of millions of dollars through the support given to making better informed decisions, assistance to industries/communities to obtain strategic direction, improved regional/community economic activity and many other ways (Chapter 4).

Details of benefits to others are provided in Table 7. The conclusion that others benefit by hundreds of millions of dollars is based on the analysis of the interview survey results, which is summarised in Table 10.

Comment could not be made on benefits to others of Commonwealth agencies' activities in which agricultural statistics are used because ABS did not seek this information from their respondents.

Conclusion 5

The unavailability of annual sub-state ABS agricultural statistics would have severe detrimental effects on a wide variety of activities undertaken by respondents to the NCASS survey (Chapter 4).

The main effects would relate to: not supporting recommendations with fact, conclusions from activities would be less rigorous/subjective, reduced reliability in planning/prioritising/allocation of resources and

other losses (see Table 8). Thirty-nine percent of respondents said that the effect on their activities would be critical and 21% (41 of 199) said that they would be unable to undertake their activities.

Comment could not be made on effects to Commonwealth agencies' activities in which agricultural statistics are used because ABS did not seek this information from their respondents.

Conclusion 6

The value of benefits lost to users of statistics and the community will be far greater than the savings made by the Commonwealth Government in not collecting reliable annual sub-state ABS agricultural statistics (Chapters 4, 6 and 7).

Eighty-two respondents (41% of the total) indicated they would be prepared to contribute or recommend that their organisations contribute a total annual contribution of \$528,600. A further 50 respondents (25%) said they did not know if they would contribute. Given the incompleteness and other problems with the project sample frame it is highly likely that this figure would be considerably higher and would most likely exceed the saving by the Commonwealth Government. This would indicate consumer surplus forgone by users (a net social loss). This figure multiplies into the hundreds of millions of dollars when added to the estimated value of loss to the community because of the flow-on adverse effects on activities of not having appropriate agricultural statistics available.

Conclusion 7

The large majority of non-Commonwealth Government users surveyed need annual SLA/LGA agricultural commodity/data and annual SLA/LGA gross value of agricultural commodities produced statistics to support activities undertaken by them (Chapter 5).

Conclusion 8

Annual SLA/LGA agricultural commodity/data and gross value of agricultural commodities produced statistics are generally considered more important by state government and non-government users than by Commonwealth Government users (Chapter 5 and Appendix A).

The analysis revealed that ABS agricultural statistics are used extensively by the organisations surveyed. Annual SLA/LGA commodity and inventory statistics from the Agricultural Commodity Survey/Census (ACS) and annual regional gross value of agricultural commodities produced estimates are needed by state government agencies and non-government organisations. According to the ABS report, the majority of Commonwealth respondents were "in favour of (agricultural commodity/inventory) data collected at the Australia (national) level and state level, however, most ... also wanted data items collected from the AER, Statistical Division, LGA (shire) and SLA level". The need for the latter data depended on the particular requirement of individuals and organisations. All Commonwealth respondents wanted the agricultural commodity/inventory data items they nominated collected annually, with Treasury stating they wanted it as frequently as possible. Seven of the ten Commonwealth respondents wanted GVACP estimates at the Australia level and three at the LGA, AER and Statistical Division.

Conclusion 9

A majority of all respondents to all surveys supported the present definition of scope for the ACS and agreed with the move to 30 June as the collection reference date (Chapter 5).

Conclusion 10

A relatively small number of organisations surveyed use statistics from sources other than ABS. Industry and related organisations were the most important other sources (Chapter 5).

Conclusion 11

While there is considerable demand for statistics on issues for which no or very few statistics are presently being collected, relatively few respondents who indicated that these statistics were highly useful said they needed them annually at the SLA or LGA level (Chapter 5).

Collection and delivery options

Brief notes are provided after each option. These options and related notes were developed from material and discussions relating to the history of the issue to date, discussions with NCASS members and from the major findings of this investigation. All options refer to collections that will provide low relative standard errors (i.e. less than 5%) for all agricultural commodity items (minimum items as collected in the 1996-97 agricultural census) and gross value of production items tabulated at SLA/LGA levels from 2000-01 onwards.

Collection options

A) *Commonwealth Government to fund an annual collection*

- The Commonwealth Government agreed in 1956 to consolidate the states' statistical services on the understanding that the Commonwealth would continue to compile and publish those statistics which were previously compiled and published by the Government Statisticians of each state. This commitment is implicitly maintained in the *Australian Bureau of Statistics Act 1975*, which states that one of the functions of the ABS is to 'by arrangements with the Governments of the States, provide statistical services for those Governments'.
- Annual small area agricultural statistics are vitally important to a diverse range of government and non-government users through out Australia (Chapter 4).
- Many people and organisations in rural and other regions of Australia benefit from government and non-government activities in which agricultural statistics are used (Chapter 4).
- The financial benefits accruing to the community at large through the collection of annual small area agricultural statistics far outweigh the costs to the community (Chapter 4).
- The extent and value of benefits accruing to the Australian community through the collection of relevant agricultural statistics, and the Commonwealth's obligations inferred under agreement and legislation, clearly indicates the Commonwealth Government has a responsibility to fund the agricultural statistics required by the community.

B) *SCARM to provide additional funds for an annual collection*

- Given the widespread benefits of the use of annual agricultural statistics to the general community (Chapter 4), some NCASS members are of the opinion that 'Government' in general should be responsible in ensuring that these benefits are made available to the community. If the Commonwealth Government refuses to comply completely with the user needs, then the states should consider assisting.
- State departments of primary industries are major users of annual small area agricultural statistics.

- C) *ABS to fund a collection every three years*
- This option is not preferred by a majority of users because of the extensive need for annual small area agricultural statistics (Chapter 5).
 - The supply of the required agricultural statistics every three years may not incur as much cost to the community as every five years. However, it would appear that there would still be a considerable potential loss because few respondents to the NCASS survey said that they required agricultural statistics less than annually.
- D) *SCARM to provide extra funding for a collection every three years*
- As per C).
- E) *Industry / State governments to provide additional funds for an annual collection*
- As per A) and B).
 - Industry is part of the general community which not only receives benefits from the use of agricultural statistics but also provides significant benefits to the rest of the community through their activities in which these data are used (Chapter 4).
- F) *Industry/State governments to provide additional funds for the collection every three years*
- As per A), B), C) and E).
- G) *Maintain the status quo*
- As per A).
 - The loss sustained by the community of this option has been shown to be unacceptably high (Chapter 4).

Delivery Options

- a) *The strategic overview/management of the collection of agricultural statistics be transferred from ABS to an Agricultural Statistics Management Group, comprising representatives from State and Commonwealth Government agencies and industry organisations.*
- ABS has a history of cost shifting to the states and other users (Chapter 2).
 - ABS has refused to guarantee that further cuts would not be made in the future, due mainly to internal budget allocations (Chapter 2).
 - Most NCASS members and a significant number of respondents to the NCASS interview survey do not have the confidence in ABS to supply the agricultural statistics required by the community in the future.
 - This option would put the responsibility of the collection of agricultural statistics in the hands of the users who would be accountable to the community at large.
- b) *An ABS Statistical Centre*

- This option would attempt to draw on available and new resources by setting up an inter-agency unit under the umbrella of the ABS but reporting to a separate Board of Management. The Board would set work program priorities and would augment the current funding as it saw fit, potentially tapping into new funding sources. The Board of Management could consist of a sub-set of SCARM members and the ABS, guided by steering and user committees (option provided to NCASS by AFFA).
- Most NCASS members are concerned that an ABS Statistical Centre would still be subject to ABS budget cuts and may be a further avenue for the Commonwealth Government to shift costs to the states.
- The proposal as suggested does not include representation from all user groups.

c) *AFFA/ABARE to be the statistical centre*

Control would still be in the hands of one major group of users (Commonwealth agencies) and similar problems that are presently occurring with ABS may develop in the future.

d) *Maintain the status quo*

ABS is unable to provide the services required by users (Chapters 2, 4 and 5).

Recommendations

These recommendations were negotiated with NCASS and are based on the findings and conclusions of the surveys undertaken, the history of the issues to date, and the identified options. They were tabled for consideration at the SCARM meeting on 1 March 2000.

The recommendations are:

1. NCASS advise SCARM of the major findings and conclusions of this investigation;
2. NCASS seek SCARM's endorsement of the necessity of annual SLA/LGA agricultural commodity/inventory statistics and annual SLA/LGA gross value of agricultural commodities produced statistics (minimum as per the 1996/97 census);
3. NCASS seek SCARM's endorsement that, starting from the collection of agricultural statistics in 2000/01, specific funding be made available from the Commonwealth (including the current funds at the ABS), at an appropriate funding level to undertake the collection as described in Recommendation 2;
4. If the Commonwealth does not agree to fund an annual collection which will provide the data as described in Recommendation 2 immediately, SCARM ask the Commonwealth to provide funding for the collection of this data every three years in the interim, until further funding arrangements are negotiated with the Commonwealth; and
5. NCASS seek SCARM's agreement that NCASS investigate, with other organisations if necessary, the most efficient model for the strategic overview/management of the collection of agricultural statistics required by Australian users and report on its findings at the next SCARM meeting.

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APPENDIX A

SUMMARY OF COMMONWEALTH GOVERNMENT USER REVIEW RESULTS

APPENDIX B

EXAMPLES OF SLA ESTIMATES FROM THE 1997-98 ACS

**Examples of Statistical Local Area (SLA) Estimates from the 1997-98
Agricultural Commodity Survey (ACS)**

Cessnock (NSW) Cattle Items

Item	Numbers	Relative Standard Error %
Milk Cows	871	64
Other Milk	555	76.6
Total Dairy	1425	66.7
Beef Bulls	218	18.4
Beef Cows (Heifers 1 year +)	6212	20.5
Beef Calves (under 1 year)	3940	22.6
Beef Cattle (1 year + nec)	1853	19.4
Meat Cattle	12223	19.4
Total Cattle	13646	20.7

Moree Plains (NSW)

Item	Numbers	Relative Standard Error %
Milk Cows	515	90.8
Beef Bulls	2689	10.1
Beef Cows (Heifers 1 year+)	72915	7.8
Beef Calves (under 1 year)	43451	8.1
Beef Cattle (1 year + nec)	38651	8.9
Meat Cattle	157706	7.5
Total Cattle	158221	7.4

Crops

Statistical Local Area	Item	Area (ha)	Relative Standard Error %	Production (tonnes)	Relative Standard Error %
Coffs Harbour (NSW)	Bananas	1277	7.4	18353	7.4
Central Coast (Tas)	Potatoes	547	11.2	22777	12.3
Devonport (Tas)	Potatoes	314	15.1	13766	15.4
Cleve (SA)	Wheat	103462	9.3	192209	9.6
Kimba (SA)	Wheat	84645	12.7	119128	12.9
Lower Eyre (SA)	Wheat	69830	8.6	183325	8.5
Cleve (SA)	Barley	58739	10	112559	10.2
Kimba (SA)	Barley	15495	17.2	24043	20.4
Lower Eyre (SA)	Barley	53009	9.2	134091	9.4

APPENDIX C

AGRICULTURAL STATISTICS: NEEDS, BENEFITS AND COSTS MAIL SURVEY QUESTIONNAIRE

APPENDIX D

BENEFIT OF AGRICULTURAL STATISTICS

TABLES FOR:

QUEENSLAND

SOUTH AUSTRALIA

OTHER AUSTRALIA

QUEENSLAND

**Table 4 : Key areas of responsibility in agriculture in Queensland
by type of organisation**
Respondents who use agricultural statistics
(Number)

Type of organisation	Rural merchandising	Regional economic development	Technical research and development	Crop and/or livestock handling	Agricultural marketing
State government agency	1	41	35	6	15
Local government agency	0	13	0	0	0
Regional development organisation	1	14	2	0	3
Industry organisation	2	0	2	2	3
Manufacturer/trader	0	0	0	0	0
Research organisation/academic institution	0	1	2	0	0
Consultant	0	0	0	0	0
Other	0	0	0	0	0
All organisations	4	69	41	8	21
Type of organisation	Natural resource management	Agricultural extension	Policy formulation	Other/ don't know/ not stated	Number of respondents ^(a)
State government agency	20	35	23	5	60
Local government agency	3	0	5	7	14
Regional development organisation	3	0	1	3	14
Industry organisation	0	1	2	2	6
Manufacturer/trader	0	0	0	1	1
Research organisation/academic institution	1	0	0	1	3
Consultant	0	1	1	3	3
Other	0	0	0	1	0
All organisations	27	37	32	23	101

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Any single response recorded in this column could be allocated to more than one response category.

**Table 5: Activities in which ABS agricultural statistics are used
in Queensland by type of organisation**
Respondents who use ABS agricultural statistics
(Number)

Type of organisation	Activity categories						Number of activities ^(a)
	Policy development and monitoring	Program monitoring	Extension work, info dissemination	Agricultural research work	Marketing	Other	
State government agency	81	36	101	59	27	17	237
Local government agency	14	6	5	2	6	5	35
Regional development organisation	15	8	12	9	23	4	52
Industry organisation	5	2	2	2	3	6	15
Manufacturer/trader	0	0	1	0	1	2	4
Research organisation/academic institution	4	1	6	6	0	1	13
Consultant	3	2	4	2	0	0	7
Other	0	0	0	0	0	0	0
All organisations	122	55	131	80	60	35	363

^(a) The number of activities within each activity category do not sum to numbers shown in this column. Any single activity recorded in this column could be allocated to more than one activity category.

**Table 6: Benefits to organisation of important activities
in Queensland by type of organisation
Respondents who use agricultural statistics
(Number)**

Type of organisation	Improved efficiency	Delivery of relevant services to clients	Aids in maximisation of profits/funding	Able to justify existence	Assists in meeting client needs
State government agency	29	45	17	19	42
Local government agency	2	6	2	0	4
Regional development organisation	4	10	3	3	10
Industry organisation	1	3	1	3	5
Manufacturer/trader	0	1	0	0	0
Research organisation/academic institution	0	2	2	2	2
Consultant	0	2	0	0	3
Other	0	0	0	0	0
All organisations	36	69	25	27	66
Type of organisation	Provides a basis for planning	Enables reports for decision making	Assists in strategic management	Other/don't know/not stated	Number of respondents ^(a)
State government agency	45	37	27	3	60
Local government agency	9	6	6	1	14
Regional development organisation	8	8	7	2	14
Industry organisation	4	5	2	1	6
Manufacturer/trader	1	0	0	0	1
Research organisation/academic institution	3	2	0	1	3
Consultant	1	3	2	0	3
Other	0	0	0	0	0
All organisations	71	61	44	8	101

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Respondents were asked to provide multiple responses to this question.

Table 7: Benefits to others by type of organisation in Queensland
Respondents who use agricultural statistics
(Number)

Type of organisation	Improved regional economic activity	Attraction of investment to region/state	Better informed decisions	Improved use of resources	Improved planning / prioritising	Increased productivity /commercial gains
State government agency	31	28	50	27	48	26
Local government agency	10	9	9	4	7	0
Regional development organisation	12	10	10	7	7	7
Industry organisation	2	0	5	2	4	2
Manufacturer/trader	0	0	1	0	0	0
Research organisation/academic institution	1	0	2	1	3	1
Consultant	0	0	3	2	3	1
Other	0	0	0	0	0	0
All organisations	56	47	80	43	72	37
Type of organisation	A better informed public	Improved viability/ efficiency	Assistance to industries/ communities	Other/ don't know/ not stated	Number of respondents ^(a)	
State government agency	23	35	32	3	60	
Local government agency	6	1	6	1	14	
Regional development organisation	5	4	9	1	14	
Industry organisation	3	2	3	0	6	
Manufacturer/trader	1	0	1	0	1	
Research organisation/academic institution	2	3	2	1	3	
Consultant	1	2	2	0	3	
Other	0	0	0	0	0	
All organisations	41	47	55	6	101	

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Respondents were asked to provide multiple responses to this question.

Table 8: Effects on important activities if annual sub-state agricultural statistics not available in Queensland by type of organisation

**Respondents who use agricultural statistics
(Number)**

Type of organisation	Unable to undertake activities	Reduced effectiveness of programs	Less rigorous conclusions	Less reliability in planning	Project outcome risks	Reduced funding/profits
State government agency	17	37	41	34	18	11
Local government agency	2	3	8	8	2	5
Regional development organisation	6	9	6	6	4	3
Industry organisation	1	3	5	2	1	1
Manufacturer/trader	0	0	1	0	0	0
Research organisation/academic institution	2	2	0	1	0	1
Consultant	0	2	2	2	0	0
Other	0	0	0	0	0	0
All organisations	28	56	63	53	25	21
Type of organisation	Would not be able to monitor progress	Could not support recommendations	Reduced quality of output	Increased business risks	Other/ don't know/ not stated	Number of respondents ^(a)
State government agency	32	41	28	18	6	60
Local government agency	2	9	4	3	1	14
Regional development organisation	5	8	5	5	1	14
Industry organisation	3	3	3	1	0	6
Manufacturer/trader	0	0	1	0	0	1
Research organisation/academic institution	2	1	1	0	0	3
Consultant	0	1	3	0	0	3
Other	0	0	0	0	0	0
All organisations	44	63	45	27	8	101

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Any single response recorded in this column could be allocated to more than one response category.

Table 9: Overall effect on activities if annual sub-state agricultural statistics not available in Queensland by type of organisation

**Respondents who use agricultural statistics
(Number)**

Type of organisation	Critical effect	Moderate effect	Some effect	Little effect	No effect/ don't know/ not stated	Number of respondents
State government agency	27	23	8	2	0	60
Local government agency	2	6	4	1	1	14
Regional development organisation	5	7	1	0	1	14
Industry organisation	3	1	2	0	0	6
Manufacturer/trader	0	0	1	0	0	1
Research organisation/academic institution	3	0	0	0	0	3
Consultant	1	1	0	1	0	3
Other	0	0	0	0	0	0
All organisations	41	38	16	4	2	101

SOUTH AUSTRALIA

**Table 4 : Key areas of responsibility in agriculture in South Australia
by type of organisation**

**Respondents who use agricultural statistics
(Number)**

Type of organisation	Rural merchandising	Regional economic development	Technical research and development	Crop and/or livestock handling	Agricultural marketing
State government agency	0	3	5	0	0
Local government agency	0	18	0	1	1
Regional development organisation	0	12	0	0	0
Industry organisation	1	1	0	2	2
Manufacturer/trader	0	0	0	1	0
Research organisation/academic institution	0	0	0	0	0
Consultant	0	1	0	1	0
Other	0	0	0	0	0
All organisations	1	35	5	5	3
Type of organisation	Natural resource management	Agricultural extension	Policy formulation	Other/ don't know/ not stated	Number of respondents ^(a)
State government agency	2	6	3	1	8
Local government agency	9	0	7	11	15
Regional development organisation	3	1	3	0	13
Industry organisation	1	1	1	0	3
Manufacturer/trader	0	0	0	0	1
Research organisation/academic institution	0	0	0	1	0
Consultant	1	0	1	2	3
Other	0	0	0	0	0
All organisations	16	8	15	15	43

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Any single response recorded in this column could be allocated to more than one response category.

**Table 5: Activities in which ABS agricultural statistics are used
in South Australia by type of organisation**
Respondents who use ABS agricultural statistics
(Number)

Type of organisation	Activity categories						Number of activities ^(a)
	Policy development and monitoring	Program monitoring	Extension work, info dissemination	Agricultural research work	Marketing	Other	
State government agency	19	8	1	2	1	1	29
Local government agency	17	1	5	3	2	4	31
Regional development organisation	20	12	22	8	13	6	49
Industry organisation	3	0	2	3	7	0	13
Manufacturer/trader	2	0	1	0	0	0	3
Research organisation/academic institution	0	0	0	0	0	0	0
Consultant	1	0	0	0	0	5	6
Other	0	0	0	0	0	0	0
All organisations	62	21	31	16	23	16	131

^(a) The number of activities within each activity category do not sum to numbers shown in this column. Any single activity recorded in this column could be allocated to more than one activity category.

**Table 6: Benefits to organisation of important activities
in South Australia by type of organisation**
Respondents who use agricultural statistics
(Number)

Type of organisation	Improved efficiency	Delivery of relevant services to clients	Aids in maximisation of profits/funding	Able to justify existence	Assists in meeting client needs
State government agency	6	5	5	4	3
Local government agency	5	4	4	1	5
Regional development organisation	4	10	6	4	10
Industry organisation	2	2	2	1	1
Manufacturer/trader	1	0	1	0	1
Research organisation/academic institution	0	0	0	0	0
Consultant	0	0	1	0	1
Other	0	0	0	0	0
All organisations	18	21	19	10	21
Type of organisation	Provides a basis for planning	Enables reports for decision making	Assists in strategic management	Other/don't know/not stated	Number of respondents ^(a)
State government agency	4	4	2	2	8
Local government agency	12	7	12	1	15
Regional development organisation	12	8	9	2	13
Industry organisation	2	1	2	1	3
Manufacturer/trader	1	0	0	0	1
Research organisation/academic institution	0	0	0	0	0
Consultant	0	0	0	1	3
Other	0	0	0	0	0
All organisations	31	20	25	7	43

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Respondents were asked to provide multiple responses to this question.

Table 7: Benefits to others by type of organisation in South Australia
Respondents who use agricultural statistics
(Number)

Type of organisation	Improved regional economic activity	Attraction of investment to region/state	Better informed decisions	Improved use of resources	Improved planning / prioritising	Increased productivity / commercial gains
State government agency	3	3	7	4	7	5
Local government agency	12	12	12	5	10	3
Regional development organisation	9	11	11	8	10	4
Industry organisation	1	0	1	1	1	1
Manufacturer/trader	1	0	0	1	0	1
Research organisation/academic institution	0	0	0	0	0	0
Consultant	1	1	1	2	2	1
Other	0	0	0	0	0	0
All organisations	27	27	32	21	30	15
Type of organisation	A better informed public	Improved viability/ efficiency	Assistance to industries/ communities	Other/ don't know/ not stated	Number of respondents ^(a)	
State government agency	1	3	3	2	8	
Local government agency	8	7	10	1	15	
Regional development organisation	10	5	10	0	13	
Industry organisation	1	1	1	2	3	
Manufacturer/trader	0	1	1	0	1	
Research organisation/academic institution	0	0	0	0	0	
Consultant	0	1	1	1	3	
Other	0	0	0	0	0	
All organisations	20	18	26	6	43	

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Respondents were asked to provide multiple responses to this question.

Table 8: Effects on important activities if annual sub-state agricultural statistics not available in South Australia by type of organisation

**Respondents who use agricultural statistics
(Number)**

Type of organisation	Unable to undertake activities	Reduced effectiveness of programs	Less rigorous conclusions	Less reliability in planning	Project outcome risks	Reduced funding/profits
State government agency	2	6	4	4	3	1
Local government agency	2	9	6	12	3	3
Regional development organisation	0	9	7	9	5	1
Industry organisation	1	2	1	1	2	0
Manufacturer/trader	0	0	0	1	0	1
Research organisation/academic institution	0	0	0	0	0	0
Consultant	1	1	1	1	1	0
Other	0	0	0	0	0	0
All organisations	6	27	19	28	14	6
Type of organisation	Would not be able to monitor progress	Could not support recommendations	Reduced quality of output	Increased business risks	Other/ don't know/ not stated	Number of respondents ^(a)
State government agency	3	6	1	3	1	8
Local government agency	6	12	10	3	2	15
Regional development organisation	7	8	6	4	4	13
Industry organisation	1	1	1	1	1	3
Manufacturer/trader	0	1	0	1	0	1
Research organisation/academic institution	0	0	0	0	0	0
Consultant	0	1	1	1	1	3
Other	0	0	0	0	0	0
All organisations	17	29	19	13	9	43

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Any single response recorded in this column could be allocated to more than one response category.

Table 9: Overall effect on activities if annual sub-state agricultural statistics not available in South Australia by type of organisation

**Respondents who use agricultural statistics
(Number)**

Type of organisation	Critical effect	Moderate effect	Some effect	Little effect	No effect/ don't know/ not stated	Number of respondents
State government agency	6	1	0	0	1	8
Local government agency	4	6	3	1	1	15
Regional development organisation	5	4	2	0	2	13
Industry organisation	0	2	0	0	1	3
Manufacturer/trader	0	0	1	0	0	1
Research organisation/academic institution	0	0	0	0	0	0
Consultant	1	0	1	0	1	3
Other	0	0	0	0	0	0
All organisations	16	13	7	1	6	43

OTHER AUSTRALIA

**Table 4 : Key areas of responsibility in agriculture in Other Australia
by type of organisation**

**Respondents who use agricultural statistics
(Number)**

Type of organisation	Rural merchandising	Regional economic development	Technical research and development	Crop and/or livestock handling	Agricultural marketing
State government agency	1	14	11	2	8
Local government agency	0	0	0	0	0
Regional development organisation	0	0	0	0	0
Industry organisation	1	1	2	3	5
Manufacturer/trader	0	0	1	3	2
Research organisation/academic institution	0	1	2	2	0
Consultant	0	0	0	0	1
Other	0	2	1	1	3
All organisations	2	18	17	11	19
Type of organisation	Natural resource management	Agricultural extension	Policy formulation	Other/ don't know/ not stated	Number of respondents ^(a)
State government agency	14	13	19	9	27
Local government agency	0	0	0	0	0
Regional development organisation	0	0	0	0	0
Industry organisation	2	1	13	6	15
Manufacturer/trader	0	2	2	0	4
Research organisation/academic institution	2	2	1	1	3
Consultant	0	0	0	0	1
Other	2	2	1	5	5
All organisations	20	20	36	21	55

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Any single response recorded in this column could be allocated to more than one response category.

**Table 5: Activities in which ABS agricultural statistics are used
in Other Australia by type of organisation**
Respondents who use ABS agricultural statistics
(Number)

Type of organisation	Activity categories						Number of activities ^(a)
	Policy development and monitoring	Program monitoring	Extension work, info dissemination	Agricultural research work	Marketing	Other	
State government agency	69	29	35	24	14	1	120
Local government agency	0	0	0	0	0	0	0
Regional development organisation	0	0	0	0	0	0	0
Industry organisation	33	14	29	16	24	1	54
Manufacturer/trader	6	5	8	3	4	0	9
Research organisation/academic institution	7	4	8	12	4	0	13
Consultant	1	0	0	0	3	0	4
Other	12	8	7	8	6	0	18
All organisations	128	60	87	63	55	2	218

^(a) The number of activities within each activity category do not sum to numbers shown in this column. Any single activity recorded in this column could be allocated to more than one activity category.

**Table 6: Benefits to organisation of important activities
in Other Australia by type of organisation**
Respondents who use agricultural statistics
(Number)

Type of organisation	Improved efficiency	Delivery of relevant services to clients	Aids in maximisation of profits/funding	Able to justify existence	Assists in meeting client needs
State government agency	16	16	5	5	14
Local government agency	0	0	0	0	0
Regional development organisation	0	0	0	0	0
Industry organisation	8	9	6	4	9
Manufacturer/trader	3	3	2	0	2
Research organisation/academic institution	1	3	2	1	3
Consultant	0	1	1	0	1
Other	2	4	0	0	2
All organisations	30	36	16	10	31
Type of organisation	Provides a basis for planning	Enables reports for decision making	Assists in strategic management	Other/don't know/not stated	Number of respondents ^(a)
State government agency	24	19	19	2	27
Local government agency	0	0	0	0	0
Regional development organisation	0	0	0	0	0
Industry organisation	13	10	11	0	15
Manufacturer/trader	3	3	3	0	4
Research organisation/academic institution	2	2	2	0	3
Consultant	1	1	1	1	1
Other	4	4	4	0	5
All organisations	47	39	40	3	55

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Respondents were asked to provide multiple responses to this question.

Table 7: Benefits to others by type of organisation in Other Australia
Respondents who use agricultural statistics
(Number)

Type of organisation	Improved regional economic activity	Attraction of investment to region/state	Better informed decisions	Improved use of resources	Improved planning / prioritising	Increased productivity /commercial gains
State government agency	13	13	25	13	19	7
Local government agency	0	0	0	0	0	0
Regional development organisation	0	0	0	0	0	0
Industry organisation	6	6	14	8	10	10
Manufacturer/trader	2	1	3	3	3	2
Research organisation/academic institution	3	1	3	2	3	2
Consultant	1	0	1	1	1	1
Other	3	2	4	3	3	3
All organisations	28	23	50	30	39	25
Type of organisation	A better informed public	Improved viability/ efficiency	Assistance to industries/ communities	Other/ don't know/ not stated	Number of respondents ^(a)	
State government agency	17	13	19	2	27	
Local government agency	0	0	0	0	0	
Regional development organisation	0	0	0	0	0	
Industry organisation	10	10	10	0	15	
Manufacturer/trader	3	4	2	0	4	
Research organisation/academic institution	3	3	3	0	3	
Consultant	0	1	1	0	1	
Other	4	4	4	1	5	
All organisations	37	35	39	3	55	

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Respondents were asked to provide multiple responses to this question.

Table 8: Effects on important activities if annual sub-state agricultural statistics not available in Other Australia by type of organisation

**Respondents who use agricultural statistics
(Number)**

Type of organisation	Unable to undertake activities	Reduced effectiveness of programs	Less rigorous conclusions	Less reliability in planning	Project outcome risks	Reduced funding/profits
State government agency	4	19	22	20	9	3
Local government agency	0	0	0	0	0	0
Regional development organisation	0	0	0	0	0	0
Industry organisation	2	8	10	8	4	3
Manufacturer/trader	1	2	2	3	2	2
Research organisation/academic institution	0	3	2	3	2	1
Consultant	0	1	1	0	1	0
Other	0	3	3	2	1	1
All organisations	7	36	40	36	19	10
Type of organisation	Would not be able to monitor progress	Could not support recommendations	Reduced quality of output	Increased business risks	Other/ don't know/ not stated	Number of respondents ^(a)
State government agency	16	18	16	9	3	27
Local government agency	0	0	0	0	0	0
Regional development organisation	0	0	0	0	0	0
Industry organisation	8	12	9	5	2	15
Manufacturer/trader	3	2	3	2	0	4
Research organisation/academic institution	2	1	1	2	0	3
Consultant	0	1	1	1	1	1
Other	3	4	1	3	0	5
All organisations	32	38	31	22	6	55

^(a) The number of responses for each benefit category do not sum to numbers shown in this column. Any single response recorded in this column could be allocated to more than one response category.

Table 9: Overall effect on activities if annual sub-state agricultural statistics not available in Other Australia by type of organisation
Respondents who use agricultural statistics
(Number)

Type of organisation	Critical effect	Moderate effect	Some effect	Little effect	No effect/ don't know/ not stated	Number of respondents
State government agency	10	8	6	2	1	27
Local government agency	0	0	0	0	0	0
Regional development organisation	0	0	0	0	0	0
Industry organisation	6	7	1	0	1	15
Manufacturer/trader	1	1	0	2	0	4
Research organisation/academic institution	1	2	0	0	0	3
Consultant	1	0	0	0	0	1
Other	2	2	1	0	0	5
All organisations	21	20	8	4	2	55

APPENDIX E

AS WRITTEN RESPONSES TO “OTHER” SECTIONS” OF THE ACS FORM

As written responses to “other sections” in ACS

Other	Usefulness	Geographic level	Frequency
Alternatives & new crops etc.	1	6	1
No. of holdings	1	6	1
Fertiliser usage	2	5	2
Specific crop details	1	5	1
Aquaculture	1	5	1
Cattle breeds	1	5	3
Fertiliser, herbicide, insecticides,		5	3
Naturalised introduced pastures	1	5	1
Forests	99	6	1
Aquaculture	1	5	1
New industries/crops	1	3	2
Fallow	1	6	1
Goat fibres - cashmere	1	5	2
Goat fibres - mohair	1	5	2
Goat milk	1	5	2
Tree plantations	1	5	1
Tree plantings	1	7	1
Tillage practice	1	7	1
Veg protection	1	7	1
Trees	2	4	1
Fencing	2	6	1
Trees	2	6	1
Computers	1	4	2
Trees & shrubs	2	6	1
Computer/Internet	2	6	1
Fencing	1	6	1
Trees	1	6	1
Computers	2	6	1
Fencing	1	7	1
Trees	1	7	1
Computers	1	7	1
More core items	1	6	1
Employees	1	6	1
Computer Internet	1	5	1
Direction of sales	1	5	1
Non core questions in 1998-99 Ag Census form	1	5	1
All non core items in 1998-99 form	2	5	1
Fencing	2	5	1
Forestry	2	5	1
Technology	1	5	1
Trees	2	5	2
Computers	1	5	2
Fencing and trees	3	5	1
Computer use	1	5	3
% of off farm income	1	5	5
Technology	1	5	1
Trees	2	5	1
Technology	2	5	1
Fencing	1	5	3
Trees	1	5	3
Clearing	1	5	3

APPENDIX F

AS WRITTEN RESPONSES SUGGESTING HIGHLY USEFUL ITEMS FOR COLLECTION IN THE ACS

As written responses suggesting highly useful items for collection in ACS

Suggested highly useful items
Accurate irrigation and fertiliser usage figure Accurate area of land used for grazing Area of land used for orchards tea tree generally, more info on alternative/new industries More info on web usage
1. Number of growers for each variety 2. Number of people working in an industry 3. Production of varieties – not just mangoes all the varieties
1. AG Chem Usage 2. Fertiliser Usage
Number of people living on Australia's farms
Fertiliser Usage
Data on emerging industries with relevance to central Australia conditions ie. Olives, dates, sundried vegetables, citrus varieties, quandongs, native plants for food end medical use.
Industry Demographics
1. Approximate level of total Debt 2. Approximate level of total Equity 3. Has total debt increased or decreased 4. Is the farm business supplemented with outside income?
Grape Production (wine) Grape Production (table graphs)
Export Sales and Markets
Export & import product info
Data collection by specific area rather than over a whole shire
❖ More native pasture detailing eg. "do you consider your native pasture to be more/as/less productive than at the last survey" ❖ Information on weed infestations ❖ Investment in alternative industries ❖ Native pasture type (eg. Mulga, Malee etc)
Goats – location & number
Breakdown of irrigation use (e.g. ground water/surface; water allocation from unregulated watercourses, groundwater)
Farm forestry
Gross income from commodity produced. Net income from commodity produced. People engaged full-time and part-time in production including family and employees and off farm income earned on non primary production
A specific section on goats should be included. Include cameloids(?) – alpaca, llama with other livestock
Levels of property debt
1. Primary production variations 2. Supplementary feed
1. Number of business units involved in agricultural enterprises within Local Government areas. 2. Number in full-time employment within this enterprise
Calc of sheep and cattle turn off/farm from data received
Cattle brandings. Cattle mortalities. Male calves <1 not intended for service. Female calves <1.
1. For me crop areas and yields are critical 2. Areas of 'new crops' e.g. sesame etc is of particular interest 3. Dry land and irrigation crops should be separated 4. Income \$ returns should not be in the collection
I would like: 1. Total calf numbers

2. Total females mated
Quarterly grain stocks on hand (all holders of stock) broken up between held on farm, held commercial, held in storage system.
1. Fertiliser (type & tonnage) 2. Herbicides in fallow 3. Herbicides in crop 4. Insecticide
1. Computer/Internet usage (rotating every 3 years) 2. Machinery (rotating every 3 years) 3. Farm Labour (rotating every 3 years) 4. How/direction of commodity sales to next level of the chain yearly (include contract sales etc) 5. Farm forestry production 6. Risk management strategies (e.g. hedging on futures market).
Markets – local, interstate, export. Cost of production Cross regional product at a SLA
A section for specialist products. E.g. organic production, emus etc.
1. Add in sown pastures – ❖ Area if naturalised sown pasture species (eg. Buffelgrass and stylo legume natural spread) 2. Producers don't always identify a self sown spreading pasture.
New industries (others specified)
3c sugar cane. Time started and finished crushing cane.
Aquaculture for crops should be detailed
Olive Plantations
1. Employment numbers and types ie. Full-time, part-time, casual. 2. Distance travelled by employees 3. Export and \$ quantities
Forest Area
Mode of transport used to cart product off properties to point of sale eg. Road train, semi trailer, truck etc.
Oaten hay for export. Barley for malting
New vine plantations Change of varieties during period
Viticulture growth. (we are having difficulty identifying the current planting let alone making future predictions of growth)
Varietal grape types or listing of red & white wine grapes in summary form
1. Number of owner-operators on holding 2. Number of employees on holding
Destination of livestock sales – mkt auction, location of abattoir, to other farmers. Planting intentions new crops
Value adding activities undertaken on landholding farm tourism activities
Expectations
Fishing ie. Aquaculture
Export % of total value production
Poppy crops planted (area)
% of wool clip forward sold. Interstate sales of livestock Tree number, age, variety and planing density for orchid crops
Total grain storage capacity
Cows in milk by breed Milk production
Goat numbers – feral, fibre, meat, milk

Goat fibres – cashmere, mohair Goat milk
Stock numbers by shire Grain production
Total value of production Gross value of production
1. Plantation timber area 2. Plantation timber type (species) 3. Plantation timber harvested
Hectares for grapes – wine production No of wineries Yield of grapes/hectares Variety of grapes grown
Do growers intend increasing or decreasing their production/sheep numbers, next year.
Source of water for irrigation – private system – public scheme On-farm storage capacity for irrigation
The questions within each commodity area should be agreed by the relevant industry sector. Updated regularly and reported to individuals in that sector.
1. Cattle/livestock be able to differentiate beef cattle from dairy – similarly in the livestock disposals section 2. Split other questions number 17 into yes/no A) Personal yes/no and B) Business Yes/No ❖ Similarly for number 18 A) household B) business C) Personal 3. Extra question “Do you use e-mail?”
Crops (split by variety) Crops (split by quality grade)
How many planted success of tree planting ie. Survived >5 years. Earth works completed/ How much is land degradation costing you? What are the forms of land degradation?
Tree planting info eg. Area planted, type of trees
❖ Gross value of agricultural production – not just tonnes. Come out late at present. ❖ Able to calculate yields (t/ha)
❖ Fertiliser by type ❖ Wool held on farm ❖ Livestock selling methods agent/non agent
❖ Splitting malt and feed barley ❖ Lentils as a separate item ❖ Arable area of the farm
❖ Market destination of goods sold ❖ Area of each species of fruit trees (eg. Olives)
❖ Irrigation details (quantity, area) ❖ Usage of irrigated pastures Hay Dairy Fat lambs etc. ❖ Orchard crops area (individual crops)
❖ Land management issues collected annually ❖ Source of irrigation water ❖ What are irrigation pastures used for ❖ Single unit measurement for publication ❖ Water application by priority

Emerging industries (eg. New varieties of flowers and fruit etc)
❖ Quality grades in grain crops ❖ Dryland lucerne quality & Area ❖ Perennial pasture species (saltbush fodder trees etc.) ❖ Questions on quantities of fencing and revegetation
❖ Calves branded ❖ Number and type of animals bought ❖ Area of tree clearing ❖ Type of country cleared (eg. Regrowth, virgin forests etc)
Carbon sequestration and loss
❖ Information technology ❖ Land degradation items ❖ Prefer data by catchment ❖ Non-core items in the 1998-99 form should become core items
❖ Direction of sale ❖ Capital Investment ❖ Machinery ❖ Labour inputs ❖ Fertiliser
❖ Percentage sent to exports ❖ Processed or fresh
Separate section for organics broken into cereals, horticulture and animals.
❖ Sweet Potatoes ❖ Asian veges
❖ Fencing replacement per year ❖ Goats (farm and feral) ❖ Off farm income (reliance on)
❖ Sugar Beet ❖ Asian Vegetables ❖ Native and feral animal farming ❖ Emerging industries
❖ Contribution of off farm income to household income
❖ Stock of feedlots ❖ Grain used for feed on farm ❖ Grain bought to feed stock on farm
❖ Demographic Information ❖ Farm Machines ❖ Communication Services ❖ Workforce on the farm ❖ Who the farm sells products to
❖ Tree and regrowth clearing
❖ Separate all other sheep – RAMS wethers – non breeding ewes ❖ Separate sheep and lamb wool production info – Rams, ewes wethers lambs ❖ Sheep mortality rates ❖ Sheep breed differentiation every 5 years ❖ Off farm sources of information or services

APPENDIX G

AS WRITTEN SUGGESTED DEFINITIONS OF SCOPE

As written suggested definitions of scope

Definitions
Should be higher \$10K or \$20K
EVAO > \$22,500 which is then in line with other ABS statistics eg. Cat 7507
\$20,000 or more
EVAO \$20,000
\$1000 or greater there are small producers in varying agricultural industries
Possibly at least \$25,000
EVAO of \$25,000 or more. Anything less are sub economic rural holdings or 'hobby' farms.
A 2 level collection
1. Existing PLUS
2. EVAO cut-off of say \$20,000 or \$30,000 to identify commercial farmers.
Agriculture operation (EVAO) of \$30,000>
\$50K +
\$20,000 or more.
Minimum (EVAO) \$50,000
>\$25,000 (EVAO)
\$20,000. Would make survey much cheaper to run
Probably too low in today's economic climate and would capture true hobby farmers – could go to \$10K or \$20K
Make sure that data is not skewed by results from small holding (say less than \$25,000)
I would suggest increasing this figure to \$10,000 so that more of the very small, part time operators are removed
\$10,000 adequate (I thought it was \$20,000 now).
\$25,000
More realistic EVAO – upwards
EVAO > \$50000
>\$20,000 or >\$50,000 with survey of those operations under this
The EVAO should be set according to the viability of the operation and should require an intent to operate for a profit to remove hobby farmers and non-viable operations
\$25,000
EVAO greater than \$20,000
\$20,000
\$20,000
\$10,000
\$10,000
Something that is stable and reflect changes in land use.
>\$15,000
\$10,000
\$20,000
\$22,500
25 head of animals

APPENDIX H

**AS WRITTEN OTHER TOPICS ON WHICH AGRICULTURAL
STATISTICS ARE REQUIRED**

As written other topics on which agricultural statistics are required

Topic	Usefulness	Geographic level	Frequency
Ag production levels	1	3	1
Farm margins	1	4	1
Debt and viability	1	5	1
Commodity stocks	2	1	1
Value chain analysis	1	2	5
Farmer demography	1	6	3
Information technology	1	6	1
Wholesale and retail info in market chain	1	2	1
Volume and value of interstate imports and exports	1	2	1
Rural infrastructure needs vs supply	1	6	1
Land management practices	1	6	1
Proportion of farm income	1	6	3
Information diffusion	1	5	1
Future life plans	1	5	1
Expectations of youth	1	5	1
Characteristics of communities	1	5	99
Off farm income	1	5	99
Availability of communication services	1	5	1

APPENDIX I

SELECTED MAPS FROM THE REVIEW OF THE IMPACT OF FARM LEVEL RESEARCH AND DEVELOPMENT ON THE SOUTH AUSTRALIAN SHEEP INDUSTRY

APPENDIX J

MAP SHOWING PERCENT CHANGE IN SOUTH AUSTRALIAN CORRECTED WHEAT YIELDS

APPENDIX K

GROWZONE DEVELOPMENT NETWORK PROMOTIONAL MATERIAL

APPENDIX L

AUSSIE GRASS BROCHURE

APPENDIX M

AUSSIE GRASS SEASONAL CONDITIONS AND GRASSFIRE RISK MAPS

APPENDIX N

AUSSIE GRASS MAPS SHOWING THE VALIDITY OF QUEENSLAND SHIRE DROUGHT DECLARATIONS