



Which Farmers Participate When?

**A report to the Cooperative Venture
for Capacity Building**

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Foreword

This project identifies analyses and reports information currently available about Australian farmers' participation in capacity building activities, broadly defined. It focuses on relatively recent studies, particularly those completed in the last three years, and examines socio-demographic and geographical characteristics that may be related to farmers' participation in capacity building activities including gender, age, industry, type of activity, and State or Territory of residence. Comparisons are also made between the formal educational attainments of Australian farmers and their counterparts in Canada and New Zealand.

The project aims to contribute to achieving the Cooperative Venture for Capacity Building's key result area 'Fostering involvement', which has as its objective 'To increase the accessibility of learning activities and involvement of the farming community through improving understanding of non-participation in learning activities and identifying what is needed to involve current non-participants'. Better understanding current participation levels and factors influencing them can help address issues related to the availability and appropriateness of activities, and possible under-representation of some groups, industries or regions. Governments, the formal education sector, industry, communities and private sector providers can apply this information to improve the programs and services they offer, and better tailor or target these programs or services to match the needs of particular groups within the farmer population.

The Cooperative Venture for Capacity Building has funded several review projects to examine the principles underpinning effective capacity building, participation in capacity building activities, and the appropriate institutional arrangements to support capacity building. A recent project (Andrew et al, 2005) aimed to improve understanding of non-participation in learning activities, and how to foster involvement. However, the project did not attempt to quantify levels of participation. This project is a complementary one in that it identifies and analyses existing quantitative data on farmers' participation, and attempts to establish a baseline against which future participation can be assessed.

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Abbreviations

AAA	Agriculture Advancing Australia
ABARE	Australian Bureau of Agricultural and Resource Economics (Australian Govt)
ABS	Australian Bureau of Statistics (Australian Govt)
ACACA	Australian Curriculum Assessment and Certification Authorities
AFF	Agriculture, Forestry and Fisheries
ANZSIC	Australian New Zealand Standard Industrial Classification
APEN	Australasia Pacific Extension Network
AQF	Australian Qualifications Framework
ASCO	Australian Standard Classification of Occupations
BRS	Bureau of Rural Sciences (Australian Govt)
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CVCB	Cooperative Venture for Capacity Building
DAFF	Department of Agriculture, Fisheries and Forestry (Australian Govt)
DEST	Department of Education, Science and Training (Australian Govt)
EVAO	Estimated Value of Agricultural Operations
GST	Goods and Services Tax
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
MDI	Murray Darling Initiative
NAP	National Action Plan for Salinity and Water Quality
NHT	Natural Heritage Trust
NLP	National Landcare Program
NZCO	New Zealand Classification of Occupations
OECD	Organisation for Economic Cooperation and Development
RIRDC	Rural Industries Research and Development Corporation
RITC	Rural Industry Training Council
RIWG	Rural Industry Working Group
SLA	Statistical Local Area
SCARM	Standing Committee on Agriculture and Resource Management
TAFE	Technical and Further Education
UNDP	United Nations Development Program

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Executive Summary

What is the report about?

The report is about the participation of Australian farmers' in capacity building activities.

Who is the report targeted at?

This report is targeted to the Research and Development Corporations who are members of the Cooperative Venture for Capacity Building (CVCB). It is also relevant to policy makers, federal and state agencies involved in capacity building activities related to agriculture and natural resource management, to regional bodies and industry organisations.

Background

Capacity building activities of interest are often ones directly relevant to improving farming or land management practices, or the operations of the farm business. They could include a wide range of topics like property management practices, or the operations of the farm business. A need for a better understanding of participation rates in these activities has been identified.

Aims/Objectives

This report addresses the Cooperative Venture for Capacity Building's (CVCB) need to develop a better understanding of Australian farmers' participation in capacity building activities and to identify sources of data on participation rates, focusing mainly on the last three years. This report attempts to identify existing baseline information on participation by Australian farmers as a whole, and by agricultural industry, type of capacity building activity, region, and by socio-demographic factors (farmer age, gender, educational level and income).

Methods Used

A review of the relevant literature was performed and an analysis of data obtained from the 2001 Australian Census of Population and Housing was undertaken. Any major gaps in the data were identified.

The research focused on large national studies that had sample sizes large enough size and wide enough scope to enable the specified socio-demographic factors to be examined and comparisons made. It was not an exhaustive summary of all surveys of farmers' participation in capacity building activities, many of which focus only on particular programs, jurisdictions, providers or industry sectors.

To provide an international perspective, comparisons were made between the formal educational attainments of Australian farmers and their counterparts in Canada and New Zealand. These comparisons suggest similar levels of attainments among farmers in the three nations.

Results/Key findings

Examining data from the 2001 Australian Census of Population and Housing confirmed previous findings that Australia's farmers tend to have low levels of formal education qualifications when compared with both the whole population, and with other occupational groups or industry sectors. Discrepancies between Australian farmers and other industry sectors are greatest for university qualifications and relatively small for vocational qualifications. These discrepancies appear to be influenced partly by accessibility factors.

There were marked variations between different industry groups within agriculture in terms of industry participation. Participation appeared to be lowest in traditional broad-acre livestock industries, and highest in specialised and intensive industry sectors like grape growing and cotton. This may, of course, relate to factors like the inherent nature of these industries and their

practices, the extent of industry innovations, the nature of the activities provided for industry members, and how these activities are targeted, marketed and delivered.

As reported in other studies, the data showed that current farmers had a strong preference for informal capacity building activities, particularly workshops or short courses, demonstration sites or field days, and to a lesser extent, conferences. Cost factors and time spent away from the farm may have been major influences on these preferences as well as farmers' typical learning styles.

In terms of regional differences, participation was examined by farmers' State or Territory of residence in most of the surveys reported here. These comparisons suggested relatively high participation by South Australian farmers in a number of types of activities, and relatively low participation among Queensland farmers, particularly in government-run programs and TAFE courses. These differences may warrant further investigation.

The data confirmed findings that older farmers consistently participated in capacity building activities to a lesser extent than younger ones. Participation tended to be highest in the 25-34 year age group and declined consistently thereafter. This was likely to be related to the fact that older farmers on average have lower levels of formal educational attainments than younger ones, and more personal experience in farming.

Gender evidence presented in this study was somewhat inconclusive as women formed only a small percentage of many survey samples. However, the women who responded to these surveys appeared to have similar participation rates to men, and to show a similar preference for informal activities. In the catchment-based landholder studies examined here, female landholders were significantly less likely than males to have undertaken a short course on property management.

One of the most consistent findings of this and related studies was that there is a positive relationship between levels of formal educational attainments and participation in a wide range of capacity building activities. Participation rose fairly steadily and markedly from a low among those who had never attended school, to a high among those who had university-level qualifications. It appeared from this observation that encouraging farmers or intending farmers to continue their formal education is a major way of boosting participation in capacity building activities in general.

Examining relationships between farm income and participation rates produced somewhat inconclusive results. Any possible relationships appeared to be confounded by differing ways of measuring farm income, income fluctuations from year to year, and the varying relative contributions of on- and off-farm income to farming households.

Of the other factors briefly considered in this report, farm roles appeared to be an important factor influencing participation rates. While they comprised only a small percentage of survey respondents, farm employees and share farmers appeared to participate at considerably higher rates than owner-operators. This draws attention to changing farm business structures and their likely future influence on participation.

Recommendations

In concluding, the report examined the implications of the findings for capacity building activities, and provided recommendations to the CVCB and its members to improve farmers' participation. The recommendations (in abbreviated form) are that the CVCB and its partners:

1. Work with relevant organisations representing the formal education sector and farmer representative groups to encourage participatory curriculum, course and activity design in the formal education sector to better suit farmers' needs and preferences; and to overcome cost and distance barriers, particularly for farmers in remote regions

2. Support development of detailed social profiles that describe the socio-demographic characteristics of different industries within agriculture, and enable comparisons across industries. Consideration could also be given to supporting further work on identifying farming styles or farming segments within particular industries or regions
3. Incorporate and encourage adoption of the principle of ensuring that evaluations of capacity building activities include comparisons between the socio-demographic characteristics of participants and those of the intended target audience as a whole
4. Support further investigation of regional differences in participation, with a particular focus on following up observations about possible under-representation of Queensland farmers. This needs to involve cooperative activities with relevant Queensland agencies and organisations involved in providing capacity building programs and activities
5. Support further work to enable the capacity building contribution of voluntary groups to be better identified and described. The CVCB and its members may also want to consider how they can better use the networks established by these groups to disseminate research results
6. Encourage adoption of the capacity building lessons drawn in this report in their own and others' capacity building activities, and see that these lessons are communicated as widely as possible to the range of providers of capacity building activities
7. Work with major survey and data collection agencies as well as activity providers to identify ways of encouraging collection of more consistent and comparable participation data
8. Support further work to develop better methods of identifying the contribution of informal activities, and encourage use of these methods in future surveys
9. Use the work reported here as a basis for developing an interactive database and bibliography of research on capacity building for Australian farmers, and make these information sources accessible through the CVCB website.

1. Introduction

1.1 Project background

This project addresses the need identified by the CVCB to develop a better understanding of Australian farmers' participation in capacity building activities and identify sources of data on participation rates, focusing mainly on the last three years. The underpinning rationale for the project is that establishing a baseline for participation in capacity building activities can help monitor and evaluate the effectiveness of these activities and the programs providing support for them. Examining socio-demographic and geographical variation in participation rates can help identify what segments within the farming population and what farming regions are under-represented in capacity building activities, and help develop targeted policies or programs to address this under-representation where necessary.

The terms used in describing the project raise a number of definitional questions that need to be answered to better define subject matter and scope. These questions are about how farmers are identified; what is meant by 'capacity building' and how does it relate to other similar terms; what kinds of activities are included within its scope (both the nature and subject matter of activities); and who is involved in providing and participating in these activities. This introductory chapter considers these questions.

Following this chapter, Chapter 2 outlines the study's Objectives; Chapter 3 the Methodology; Chapters 4 to 10 discuss relevant surveys and their findings; Chapter 11 discusses the implications of these findings; and Chapter 12 develops recommendations for the CVCB and its partners to act on the findings.

1.2 Defining 'farmers'

The question 'What is a farmer?' is not as simple as it might first appear. Surveys of farmers, farms or farm businesses need to operationalise these terms either by finding ways of identifying groups of interest from existing lists or 'sampling frames' (which by their very nature are based on definitions applied by others); or by asking questions which enable these groups to be identified retrospectively on the basis of their survey responses. Some surveys use lists of participants in relevant programs. For example, the FarmBis Program (see Chapter 6) has a database of participants in activities that it subsidises — activities aimed at primary producers and land managers. As an example of the second approach, the Australian Bureau of Statistics' (ABS) Census of Population and Housing asks people to describe their occupation or those of other household members on the Census form on the basis of examples provided, and ABS statisticians subsequently classify these descriptions using the Australian Standard Classification of Occupations (ASCO). These kinds of approaches are sometimes called 'self-defined' or 'self-identified' — the person decides what to call themselves on the basis of their own judgment and preferences. Barr (2004) has discussed in some detail the issues of identifying farmers from the Census, and the factors that may lead people to describe their occupation as farmer.

Telephone surveys typically ask initial screening questions based on pre-determined sampling criteria or quotas, allowing the interviewer to establish whether or not the person answering the telephone fits the sampling criteria, or whether there is another person in the household who does. This approach has some elements of self-definition, as well as giving an opportunity for the survey firm or researcher to apply their own criteria through questioning. An example of this approach is in the Rural Producer Survey discussed in Chapter 5 of this report. Respondents to this survey were selected on the basis that they identified themselves as 'someone involved in making management decisions for the farm business or property. That is someone responsible for making decisions on finances, general business issues, marketing or production' (Solutions Marketing and Research, 2003).

Similar definitional questions arise in relation to ‘farms’ and ‘farm businesses’. Typically in industry-focused surveys, some kind of financial criterion is applied to the value of farm production, farm profit or on-farm income to select properties that are seen as being commercial farms or farm businesses. However, many people would apply the term ‘farm’ to any kind of distinctly rural property, irrespective of whether it is being run as a commercial farming operation, as a hobby farm, or whether it is being used just as a place to live with no primary production activities being carried out at all. Even properties that are being run as commercial farms may have great variations in the value of farm production from year to year, and may as a consequence fit financial criteria in one year but not in another.

How these terms are defined, explicitly or implicitly, and how survey samples are then obtained has a major influence on findings and important implications for interpreting and generalising their findings.

A further complication arises in the wording of questions and the role in which they cast farmers and farm decision makers, even after they have been selected on the basis of survey criteria—are they being asked to respond just in relation to their own activities, or to speak on behalf of the farm household to which they belong? This also has major implications for interpreting responses about participation in capacity building activities, and whether any conclusions drawn apply just to the individual responding or to the whole farm household or business.

1.3 Defining ‘capacity building’

‘Capacity building’ is a term that is now widely used in Australia, particularly in government, education and research circles. Macadam, Drinan, Inall & McKenzie (2003) have argued that there is confusion about the term and its meaning, but agreement that focusing on capacity building is useful in addressing the challenges faced by many individuals and communities in coping with a rapidly changing environment.

The United Nations Development Program (UNDP) defines ‘capacity’ as:

... the ability of actors (individuals, groups, organisations, institutions, countries) to perform specified functions (or pursue specified objectives) effectively, efficiently and sustainably (UNDP, 1995: 14)

Building capacity is about strengthening the ability of ‘actors’ to carry out the specified functions of interest in the situation being addressed. The various actors can build their own capacity or the capacity of others by organising or participating in a wide range of activities, and capacity building is not a restrictive or prescriptive term.

The CVCB’s own definition of capacity building in a rural Australian context is based on one used by Macadam et al. (2004), and is that it refers to:

... externally or internally initiated processes designed to help individuals and groups associated with rural Australia to appreciate and manage their changing circumstances, with the objective of improving the stock of human, social, financial, physical and natural capital in an ethically defensible way.

In the more specific context of the National Action Plan for Salinity and Water Quality (NAP), one program for which participation is examined in several of the surveys reported here, capacity building has been defined as ‘any activity undertaken by resource managers to improve their ability to effectively plan for and manage the use of natural resources’ (NAP Capacity Building Working Group, 2001).

As well as covering both externally and internally initiated processes, capacity building can refer to individual or social processes. People can build capacity through solitary pursuits (individual study, observation and experimentation etc.), or by participating in group activities. Commonly capacity building involves a range of players who belong to a community of practice where people share a common interest in something they do, often as a job or to make a living, and through their regular interaction, learn how to improve their practices (Macadam et al., 2003, 2004; Wenger, 2005). Capacity building may involve providers or organisers of activities, and participants. In some cases they may be the same people (participants organising their own capacity building activities — internally initiated processes), while in other cases they may be different (organisers developing activities in which others participate — externally initiated processes).

In this study, which focuses on farmers, capacity building refers to processes aimed at improving the skills, knowledge and abilities of farmers to conduct their farming operations, whether in economic terms (e.g. improving financial performance, reducing debt), in social terms (e.g. improving satisfaction with farming as a lifestyle, contributing to development of rural communities), or in environmental terms (e.g. improving the ecological sustainability of the farming operation, improving the stock of natural capital or the state of the natural resource base). In this light, the processes of interest could include ones ranging from the formal to the informal; and cover a varied set of topics from general educational courses with no specific vocational focus to highly specific training activities focused on developing particular skills needed in farm businesses.

1.4 Learning and capacity building

Learning is an individual or social process that is central to building capacity. When referring to capacity building, and particularly when dealing with adult learners, there is a need to move away from conventional ideas of learning as a one-way transfer of information from ‘experts’ to those who need ‘educating’, or as a transfer of knowledge from ‘teachers’ to ‘students’.

Learning instead needs to be thought of as a process:

- that is a lifelong, experiential process which proceeds in an iterative and often disorganised fashion
- whereby people — as individuals or groups — draw on a wide range of formal and informal processes and information sources
- through which people discover new ways to perform tasks, observe and reflect on how they learn, and critically evaluate the assumptions underlying what they learn
- through which people direct their learning to resolve problems they face in their daily lives (Aslin, Mazur & Curtis, 2002; Macadam et al., 2003, 2004; Kolb, 1984; Bawden, 1990).

In her review of Australian farmers’ learning preferences, Kilpatrick (1999) points out that farmers have varying goals, styles, preferences and motivations for learning. For farmers:

- most learning is self-directed, experiential and project- or action-oriented
- networks are important
- various formal and informal information sources are used
- local delivery, relevance, flexibility, and use of credible facilitators and short courses, are typically important aspects of activities offered.

This and other research suggests that farmers use a wide range of learning sources which vary according to purpose, and that they prefer informal learning in groups to formal training, because of their:

- preference for independence
- familiarity with a highly contextual learning mode
- lack of confidence in working in formal training settings
- preference for information from known sources
- possible fear of being exposed to new knowledge and skills (Millar & Curtis, 1997).

1.5 Education, training and capacity building

Education and training are part of capacity building, but tend to refer to relatively formal activities offered by accredited providers, and to activities that involve a teacher - student relationship. Education and training focus on encouraging learning. Smith (1992) defines these terms as follows:

- **education:** activities which aim at developing the knowledge, skills, moral values and understanding required in all aspects of life rather than knowledge and skill relating to only a limited field of activity
- **training:** a planned process to modify attitude, knowledge or skill behaviour through a learning experience to achieve effective performance in an activity or range of activities.

As indicated in these definitions, training tends to refer to activities that are more specific and applied to a particular purpose or task, while education refers to activities aimed at achieving a broader set of individual or social goals needed for any aspect of life. Both have a vital role in the population as a whole as well as within in farming communities.

1.6 Providers of capacity building activities in Australia

As noted above, capacity building may or may not involve an external provider. However, particularly when the aim is to identify quantitative data on participation in capacity building activities, accredited providers are likely to be a major source of information. These providers fall into a number of categories.

1.6.1 The formal education and training system

Figure 1 summarises the major players providing formal education and training in Australia and their relationships. The two main types of post-secondary education are vocational education and training (VET), and higher or university-based education. Adult and community education programs are also offered by a number of institutions and complement the formal educational programs. The Australian Qualifications Framework (AQF) is the national framework for 'recognised' education and training qualifications in Australia.

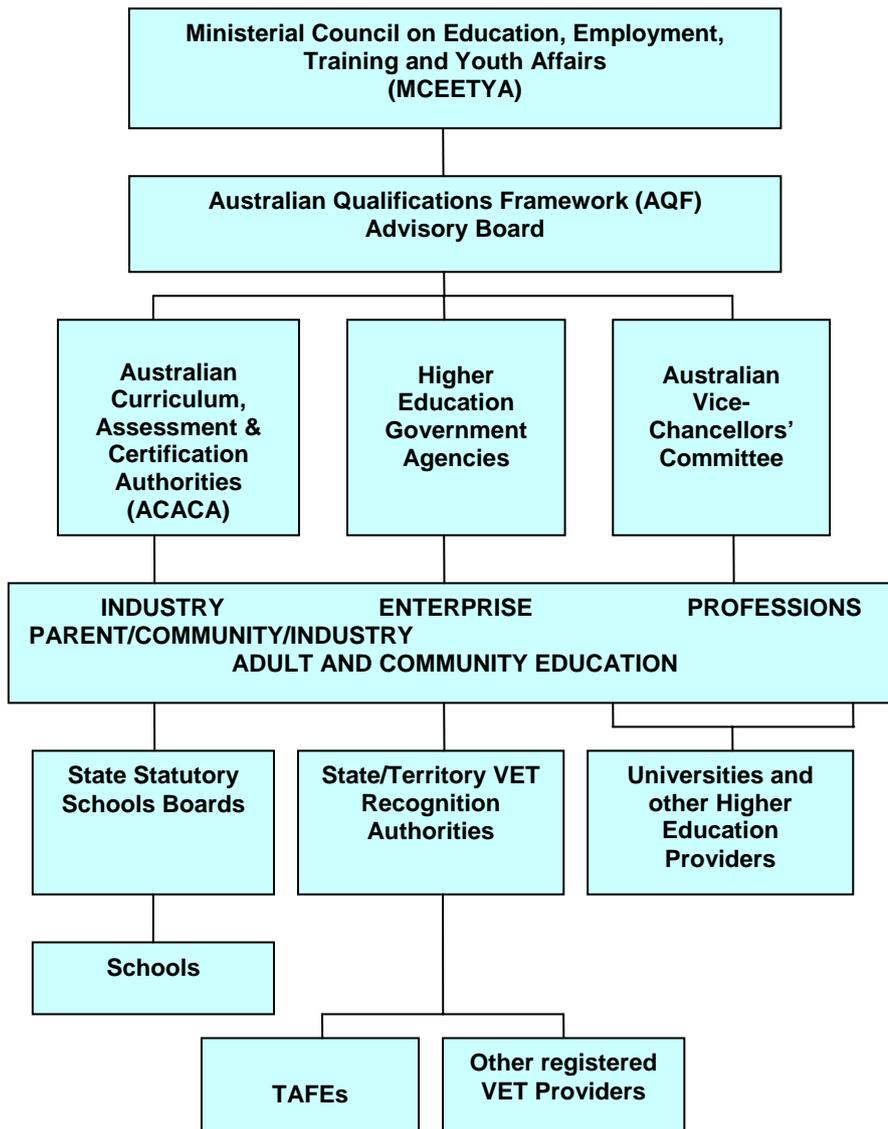


Figure 1 — The Australian Qualifications Framework (AQF) and the formal education and training system in Australia. Modified from AQF (2005)

The Rural Industry Working Group (RIWG) identified 18 universities (37 campuses) involved in rural industry education, which taught 9,000 students in 1999 (RIWG, 2001). These include specialised institutes, colleges, campuses or research centres for rural education and training, some of which are integrated with Technical and Further Education (TAFE) colleges.

As these formal education and training sectors are all part of the ‘capacity building system’ for Australian farmers, a brief description of them follows.

1.6.1.1 Higher education sector

The higher education sector in Australia consists of 39 universities and four self-accrediting higher education institutions. There are approximately 85 other higher education providers accredited by State and Territory authorities (e.g. theological colleges and providers with specialist interests in particular vocational or artistic fields).

Qualifications provided by the higher education sector are normally divided into graduate and post-graduate qualifications. The former cover bachelor-level degrees, and the latter Honours, Masters and Doctoral (PhD) qualifications.

1.6.1.2 The Vocational Education and Training (VET) sector

Department of Education, Science and Training (DEST, 2002) figures suggest that in 1997 there were 2,110 registered VET providers, which included government providers (operating in around 1,000 locations), commercial providers, community providers, and employers. In 2002 there were 3,009 registered provider locations, 33% of which were TAFE and other government providers, and 20% of which were community centres.

The VET sector has traditionally been industry-oriented. A key feature of the VET system is competency-based training — what an individual can do as a result of training. The AQF for vocational education and training provides national recognition of competency-based training on endorsed competency standards. Competency is defined as the ability to apply a specified level of knowledge and skills to achieve standards of performance required in the workplace.

The VET sector offers Nationally Recognised Training programs across Australia. These programs have met nationally agreed standards and can be offered by training organisations that are formally recognised by relevant State and Territory VET Recognition Authorities to deliver training. The National Training Framework specifies the arrangement for recognition of training organisations and products, and training packages that integrate nationally available training products.

Training packages have been developed in an effort to ensure quality training outcomes and meet current and emerging vocational skill needs. They are designed to support a range of training pathways and provide a more flexible approach to training delivery. All packages incorporate:

- national competency standards (workplace skills and knowledge requirements)
- assessment guidelines (advice on assessment of competencies)
- national qualifications (combining competency units that form national qualifications).

Packages may include a number of other tools and resources, such as:

- a learning strategy (information on how training can be delivered)
- assessment materials to support assessment guidelines
- professional development materials (resources to assist trainers, teachers, employers and trainees).

Qualifications from training packages comprise combinations of endorsed competencies relevant to the industry or enterprise context. They may include a range of qualifications from across these levels, including more than one qualification at a particular level where it is necessary to accommodate different needs of industry streams or sectors, or to provide multiple entry and exit points for students.

VET qualifications in Australia include Certificates I, II, III and IV, and Diploma and Advanced Diploma, and are mainly provided by TAFE colleges.

1.6.2 The extension system

As well as the formal education and training system, the ‘extension system’ also provides capacity building activities for farmers. Extension aims to bring about positive change on farms and in agriculture by using a range of processes to facilitate learning within agricultural communities (Fulton et al., 2003). Until recently, the major providers of agricultural extension in Australia have been State Government Departments covering agriculture, primary industry and natural resource management sectors, but growing decentralisation and outsourcing of services has led to the private sector becoming more and more involved (Fulton et al., 2003; Marsh & Pannell, 1999). Extension can cover a wide range of subject areas and, in Australia, involves many players including agribusinesses, growers and industry associations; researchers and Research and Development Corporations; Commonwealth, State and Local Governments; the VET and higher education sectors; and community-based groups like Landcare and rural women’s groups.

The extension system does not focus on providing formal qualifications or accreditation for participants, and tends to have an applied focus, aiming to provide practical knowledge that participants can apply on the farm or in their workplace.

1.6.3 Private sector providers

A wide range of private sector training organisations offer capacity building activities for farmers and rural communities. These activities often take the form of workshops and short courses. Many of these providers are engaged by other organisations that are involved in capacity building to deliver courses on specific topics that have been identified as a priority for farmers in particular regions or for particular industry groups. As such these organisations act as ‘brokers’ or ‘learning facilitators’ in the capacity building system. Kilpatrick & Guenther (2003) have surveyed many such organisations in agricultural industry and natural resource management sectors, and Kilpatrick, Fulton & Geard (2002) have investigated how a range of learning facilitators and training providers can work with industry, clients and other providers in the agriculture sector to develop activities relevant to primary producers’ needs.

In a recent report, Stone (2005) discusses the role of agribusiness (covering a wide range of groups providing services to farmers) in extension, education and training, concluding agribusiness has a crucial role in building farmers’ capacity, and particularly the capacity of more innovative farmers. He also concludes that agribusiness has largely taken up the extension role previously filled by government.

1.7 Types of capacity building activities

While attending educational institutions and attaining formal qualifications are an important part of capacity building, there is increasing emphasis on the need to think about lifelong or continuous learning, and the need for people to regularly update their skills and knowledge as new discoveries are made or new technologies introduced (Kilpatrick, 2001). Research and innovation bring novel ideas, techniques and products into existence at an increasing pace, which means that qualifications attained and knowledge acquired in the past may become dated more and more rapidly. This applies to farming as much as it does to medical practice or motor mechanics.

Figure 2 shows what has been termed the ‘learning spectrum’ — this also applies to capacity building activities considered broadly.

It should be pointed out that informal and unstructured learning activities can and are used as part of accredited training courses, and that formal and structured activities can of course be employed in both accredited and non-accredited training.

In a number of the surveys examined here, the following breakdown of training or learning activities has been used:

- Formal activities — courses offered by universities, TAFE colleges and other educational institutions, leading to formal post-secondary qualifications
- Informal activities — workshops and short courses (which can be offered by a range of providers), demonstration sites and field days, and conferences.

Some studies investigate other types of capacity building activities, including membership of Landcare and similar groups (see below), and participation in relevant government programs.

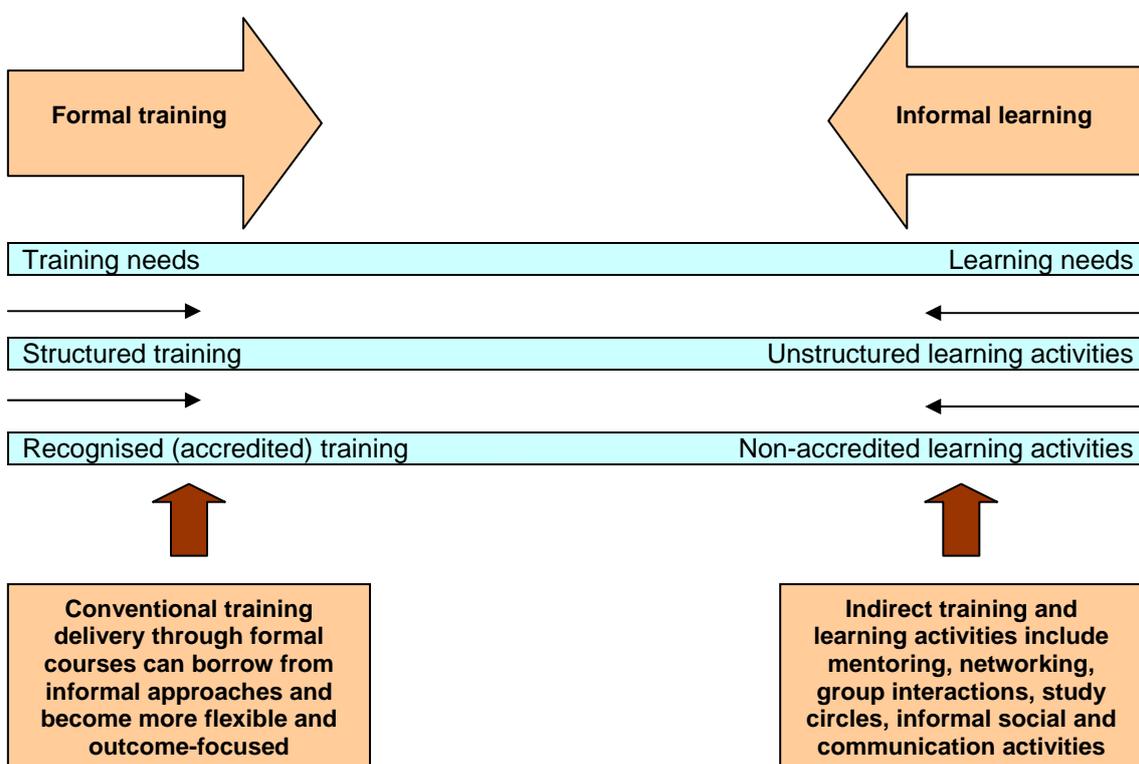


Figure 2 — The 'learning spectrum'. Modified from Office of Vocational Education and Training, Tasmania (2000)

1.7.1 Formal education and training activities

The formal education and training system typically uses activities and methods like classes, lectures and seminars; tutorials, conferences, workshops and study groups; self-directed learning and individual study; and laboratory and field work. Distance learning using electronic media and pre-prepared study materials is important for many rural students who may live far from educational institutions.

1.7.2 Informal activities

There are many informal capacity building activities that farmers can engage in, including conversations with family and neighbours; visits to other farms and demonstration sites; attendance at agricultural field days and shows; and contacts with agricultural suppliers and service providers. As mentioned above, a number of studies consider that informal activities include short courses, which are offered by a wide range of providers, both public and private. Kilpatrick (1999) provides more detailed information about use of different types of activities.

Marsh & Pannell (1999) report that the number of different informal groups in which farmers can participate is growing rapidly, and these groups together form a major network and outlet

for research and development corporations, for example, to disseminate their research results. Farmer-directed groups are especially valuable for learning about subjects such as farm business management practices, benchmarking and analysis, managing information, and general problem solving.

Participation in voluntary work can also be an important way of building capacity among groups and individuals, as well as helping communities meet their needs and developing or reinforcing social networks. The ABS has conducted two national surveys of voluntary work (in 1995 and 2000), and the reports of these surveys include information linking volunteering rates with socio-demographic characteristics (age, gender, occupation), geography, type of organisation, type of activity, time spent, on-going commitment, and motivations for involvement (ABS, 2000).

Involvement in the Landcare movement (through membership of groups and participation in Landcare activities) is a voluntary activity that is now very important in capacity building in rural communities and has been the subject of considerable research. The ABARE 1999 farm survey covering broadacre and dairy farms asked supplementary questions about participation in Landcare groups, and found that 37% of these kinds of farmers Australia-wide participated (Kemp & Alexander, 2000). Other more recent surveys discussed in this report (Byron, Curtis & Mackay, 2004a, b; in press, 2006) have collected information about Landcare membership among landholders in particular catchments. The review of the National Landcare Program (NLP) includes summary information about participation in Landcare, indicating that there are up to 4,500 groups in Australia; and that about 130,000 Australians are members, including about 40% of farmers; and that another 35% of farmers indicate that they have taken part in Landcare group activities including field days and training courses (DAFF, 2003).

1.8 Activity topics

Activities covering a wide range of topics can contribute to capacity building for farmers. Falvey & Matthews (1997) note that more applied offerings include subjects related to agricultural production, processing and marketing, soil, water, forest conservation and management, and that these subjects are delivered by senior secondary schools, adult and community education providers, universities, schools of agriculture in colleges of advanced education, agricultural colleges, and schools of agriculture in various State and Territory TAFE colleges. Aslin, Mazur & Curtis (2002) categorise the subject headings for the training needs of regional natural resource management groups (covering related kinds of capacity building needs for landowners), as follows: People management; Administration and financial; Communication; Planning, spatial and risk management; Natural resource management; Socio-economic; and Government and policy. In a survey of the training priorities of natural resource management groups and other organisations, Kilpatrick & Guenther (2003) use six major categories for training: People management; Financial management; General business management; Marketing; Production management; and Natural resource management.

1.9 Previously identified factors influencing farmers' participation

A range of Australian research has examined factors that may be related to participation in capacity building activities. Factors examined include ones this study has been asked to address: industry, types of activities provided, and socio-demographic factors including age, gender, educational attainments and farm incomes. Data and information from the most recent and relevant studies are reviewed in Chapters 4–10 of this report, and the findings of earlier studies are briefly mentioned here.

The farm workforce tends to have lower levels of formal educational qualifications than many other Australian industry sectors (as is confirmed in this study), which in turn may affect

farmers' participation in other educational and training activities (Kilpatrick, 1999). The implication here is that the more formal education people have, the more likely it is they will value and be prepared to participate in further education of this kind, and *vice versa*.

A range of other social and institutional factors influences participation in education and training. Blom & Clayton (2004) found that lower rates of participation in formal education and training in rural communities than in metropolitan ones were due to:

- thin markets (resulting in lower enrolment numbers, lower levels of funding and reduced program offerings)
- geographic isolation (compounded by inadequate public transport and telecommunications)
- limited workplaces (restrictive work placements, workplace experiences and opportunities for assessment).

A report by the Rural Industry Working Group (RIWG, 2001) identifies other factors relevant to low participation in rural areas, including inadequate communication of training information and products to farmers, and a training system that was not well structured to meet the needs of rural industries (e.g. short term and casual employment on farms). Kilpatrick et al. (1999) identify age, private sector providers, previous unsatisfactory experiences, male domination, lack of childcare, distance to travel, timing, and expense, as barriers to participation in training activities.

Several studies apply ideas of 'farming styles' or 'farming segments' to understanding how farmers differ in their characteristics and practices (Howden, Vanclay, Lemerle & Kent, 1998; Vanclay, Mesiti & Howden, 1998; Thomson, 2001). Farming styles include notions not only about how farmers manage their farms in a physical sense, but also choices about financial management, whether or not to try new ideas, and whether or not to participate in extension activities. The concept embodies the idea that there are clusters of farmers who show similarities in these respects. Thomson (2001) considers that a farming style is a 'defined pattern of beliefs, motives and attitudes that is manifest in particular patterns of behaviour'. Several authors working in this area suggest that identifying farming styles can help understand farmers' participation in a variety of forums and decision-making processes, including those explicitly aimed at building their capacity. Identifying styles and segments among potential audiences, including farmers, can help target all types of communication activities to suit these audiences.

Andrew et al. (2004) consider models, typologies and theories related to participation in learning activities and report on five regional case studies. They point out that non-formal learning is much more difficult to appraise than formal, but that models which only consider the latter fail to take account of the complexity of adult learning. These authors identify four main groups of factors influencing participation:

- Relationships between the learner and the learning 'environment'
- Social and structural factors inhibiting participation
- The learning and educational experience of the farmer
- Situational, institutional and dispositional barriers to participation.

Andrew et al. (2004) suggest the following strategies for fostering farmer involvement:

- Expressing the benefits of learning in terms that have meaning for individual farmers
- Localising learning — relating learning activities to local issues and organising them locally

- Intervening in group and individual learning settings using existing personal interactions and those involved in them (e.g. stock and station agents, other family members)
- Recognising time and cost as central factors
- Using two-way open interaction understanding how different communities interact and communicate, and using these channels
- Training extension officers to better understand social learning and the farmer's context
- Building relationships with individuals particularly for extension officers
- Following up on what is needed
- Monitoring and revising learning opportunities as change takes place in an area.

1.10 Measuring farmers' participation in activities

The main ways of measuring participation are through formal surveys of participants or non-participants. Surveys may be done during or after relevant activities, or may ask about future intentions to participate, and may be directed at measuring participation in only selected activities or any kind of relevant activity. For the sources used here to assess participation, some are general population surveys, some are farmer or landholder surveys that do not have an explicit focus on capacity building, and some are aimed more specifically at examining participation in particular programs or activities of interest to farmers.

Measuring participation in different kinds of capacity building activities can help monitor and evaluate the effectiveness of these activities and their outcomes. However, this task is not without its challenges. Bamberly et al. (1997) assert that formal educational qualifications alone are an inadequate measure of farmers' skills and abilities, because many farmers use a variety of informal learning sources to educate themselves. As participation in informal learning activities is more difficult to measure than participation in formal ones, there is a case for new approaches to measuring farmers' skills and qualifications, for example emphasising competencies and recognition of prior learning (Synapse Consulting, 1998; Bamberly, Dunn & Lamont, 1997).

Some researchers have suggested that, given the research findings that indicate farmers participate more often in informal capacity building activities than formal ones, further work is needed to better describe and document this kind of participation (Macadam et al., 2003). This could involve:

- Creating an inventory and appropriate categories for the range of formal and informal activities that qualify as 'capacity building', which in turn would help identify the full range of organisations and agencies who collect data on participation rates
- Developing qualitative and quantitative tools to measure participation in different kinds of informal capacity building activities.

Marsh & Pannell (1999) suggest that new institutional structures and arrangements may be needed to encourage cooperation and coordination between research and extension providers in both public and private sectors. Research and Development Corporations could investigate the feasibility and potential value of establishing national or coordinated state-level systems for collecting data and disseminating information about the research they support — this could also apply to collecting and sharing information about participation in different kinds of capacity building activities.

2. Objectives

The broad objectives of this project are to help inform the CVCB's investment priorities, better target capacity building activities for Australian farmers, and foster involvement of under-represented groups. The last objective follows from findings of other CVCB project reports including *Fostering involvement – how to improve participation in learning* (Andrew et al., 2004).

The specified project objectives are set out in the Terms of Reference (Appendix 1), and are paraphrased below. They are to:

- Review current published work on Australian farmers' participation in capacity building activities, with a focus on recent work
- Consult with possible providers of data and information on participation rates
- Examine and analyse participation rates using at least the following categories:
 - Industry
 - Type of activity
 - Region
 - Demographic measures including age, gender, educational level, income.
- Where possible compare farmers' participation rates with those of members of other industries and other countries, and identify any differences that exist
- Examine the implications of the analysis for capacity building in rural Australia, and recommend actions that could be taken to improve participation.

In addition, the Terms of Reference specify the form of the project report and require a communication plan to be developed to ensure that project results and this report are disseminated to the CVCB and its members, and to other relevant stakeholders.

3. Methodology

3.1 Methods and stages

The project applied these methods and stages:

- An advisory committee was formed and an initial meeting held to confirm project arrangements and seek advice about possible data sources
- Relevant websites were searched and initial enquiries made to possible providers
- Literature searches were conducted and relevant findings identified
- Participation data identified and obtained in previous stages were examined and relevant tables and figures prepared
- A draft report was written and circulated for comment to the advisory committee and internal BRS referees
- A final advisory committee meeting was held
- The report was finalised and supplied to the CVCB, and the communication plan implemented.

Project work was undertaken over the period February – September 2005.

3.2 Advisory committee

The committee included representatives from the CVCB, the DAFF Natural Resource Management and Rural Policy and Innovation Divisions, and the National Land and Water Resources Audit.

3.3 Data and information sources

A range of methods was used to identify potential sources of data and information. These methods included library catalogue and web-based searches, examination of existing literature, and enquiries to a range of experts or potential providers, including the members of the Advisory Committee. Enquiries were made to people in the formal education and training sector, DEST, overseas institutions (OECD, European Union, United States Department of Agriculture, Statistics New Zealand, Statistics Canada), and the RITC to seek expressions of interest in the project and ask about possible data or information sources.

There are likely to be many small-scale surveys and evaluations associated with different programs or activities for particular industry sectors or regions, and this review makes no claims of being comprehensive in this respect, especially as there are so many industry groups and sub-groups within agriculture as a whole. Relevant industry associations and industry websites would yield many further sources of information relating to capacity building activities for their members. However, as many of these activities and programs are likely to be targeted and marketed to the industries or regions in question, comparisons across these industries or regions, and valid generalisations about relationships with farmers' demographic factors, are not likely to be possible using data from these kinds of surveys. For this reason, and because of study time and resource limitations, this report does not include results of surveys covering only one industry, program or region, and focuses on larger national surveys covering a range of industries, landholders, programs or types of activities. The exception to this is the use of the surveys of participants in the FarmBis Program, as this program is a national one that provides support for participation in many different kinds of training activities offered around Australia.

Table 1 lists the main surveys and data sources used, and provides summary information about each.

Table 1 - Summary of main surveys and data sources used in this report

General topic addressed and name of survey	Conducted by	Coverage and sampling details	Date of survey	Comments
International comparisons of farmer qualifications				
<i>Australia</i> - 2001 Census of Population and Housing	ABS	Notionally entire national populations, enumerated within households	2001	Latest population wide data for each of these nations. Comparisons need to be made with care. See text for details.
<i>New Zealand</i> – New Zealand Census 2001	Statistics New Zealand		2001	
<i>Canada</i> – Statistics Canada Census 2001	Statistics Canada		2001	
Educational profile of farmers and farm managers and occupational sector comparisons				
ABS 2001 Census of Population and Housing	ABS	Notionally all Australians, enumerated within households	2001 Repeated every five years	The 2001 Census provides the latest available population data for Australia
Rural producers' participation				
Rural Producer Survey for the AAA/AFFA Program Evaluation	Solutions Marketing and Research	Farmers in all States and the Northern Territory. Sample size in 2002 was 2,553, selected from Solutions 'Rural Database' of 110,000 rural producers. Telephone survey using quotas based on ABS farm establishment data. Covers broad range of farm types. No financial cut-off (EVAO) set. Participation questions cover the two years prior to the survey.	Bi-annual (1998, 2000 and 2002)	These surveys, particularly the 2002 survey, are a principal source of information for this report. Also referred to as the 'Solutions Survey' and the 'National Farmer Survey'.

Table 1 (Cont.)

General topic addressed and name of survey	Conducted by	Coverage and sampling details	Date of survey	Comments
FarmBis participants				
Survey of FarmBis participants who had undertaken a learning activity	Roy Morgan Research	Primary producers and landholders who participated in a FarmBis learning activity in the relevant year-Australia-wide. Telephone surveys-2002 survey had final sample of 1,220 completed telephone interviews. Participation questions cover the calendar year 2002.	Annual, surveys conducted in 1999, 2000, 2001 and 2002	Focus is on 2002 survey. Survey is only of FarmBis participants, not wider farmer population.
Farm business participation				
Agricultural Survey: Farm Business Operations and Management, Australia	ABS Tasmanian Office (Reported on ABS website)	Farm businesses in all States and Territories (35,000 farm establishments). Participation questions cover the 2001-02 financial year.	2002	Has a very large sample size but questions on education and training activities, although similar to the Rural Producer Survey, are framed differently. These questions were funded by FarmBis. Limited results available.
Landholders' participation				
Catchment-based landholder surveys	BRS (Reported in Byron, Curtis & Mackay, 2004a, b, in prep, 2006)	Landholders in Qld Murray Darling Catchment, Lachlan Catchment (NSW) and Glenelg Hopkins Catchment (Vic.) Mail surveys to landholders in each catchment. Both farmers and non-farmers included. Effective sample sizes and response rates were: Queensland Murray-Darling — 821 surveys delivered with 490 returned; Lachlan — 737 and 436; Glenelg Hopkins — 1,681 and 1,081. Participation questions cover the 12 months prior to survey.	2003-05	Samples derived from locally sourced lists, and include all landholders with properties above a certain size. Asked question on participation in short courses related to property management.

Table 1 (Cont.)

General topic addressed and name of survey	Conducted by	Coverage and sampling details	Date of survey	Comments
Farm business participation				
Natural resource management on Australian farms	ABARE (reported in Nelson et al., 2004)	Farms drawn from the ABS Business Register, including only properties with an EVAO of \$22,500 or more. Sample size 1,329 properties. Participation covers the two-year period to 30 June 2002.	2002	Results difficult to compare with other surveys as they cover a two-year period and record participation by any 'property representative' not only the survey respondent.
Small farms and other industries' participation				
Small farms and other industries survey	ABARE (some results reported in Hodges, 2005, data available on ABARE website)	Total sample of 1,703 farms Australia-wide, covering range of industry groups. Range of EVAO from less than \$22,500 to greater than \$100,000. Participation question covers the 2002–03 financial year.	2003	Survey asked questions about participation in different kinds of activities and in a range of government-run programs. Only limited analyses possible from data on interactive website. No formal survey report available.

3.4 Data analysis and interpretation

Relevant information from the various surveys has been analysed from data tables or extracted from the published reports, and is presented in Chapters 4-10.

Because of the nature of the information that was readily obtainable from the various surveys and databases used in this report, it has been necessary to interpret 'region' mainly as referring to the various Australian States and Territories. With the exception of the catchment-based landholder surveys, this was the only kind of geographical analysis that could be readily undertaken using existing data and reported findings.

There is of course a relationship between region and industry, as some agricultural industries are highly regionalised and require particular geographical or biophysical conditions to be satisfied e.g. proximity to markets, transport links, workforces or services; suitable climate or soils; or access to adequate water supplies.

4. Farmers' formal educational profile

4.1 International comparisons

The Agriculture, Forestry and Fishing (AFF) sector produces a high proportion of Australia's exports and is in competition for world markets with similar industry sectors in New Zealand, Canada, the United States and the European Union, for example. Many of these countries have more favourable conditions for agriculture in some respects than Australia, and often have higher agricultural subsidies, which mean that Australian farmers must be able to exercise high levels of skills and energy to compete successfully in international markets.

Formal educational attainments can provide some indication of comparative skills and abilities. However, international comparisons are difficult to make due to varying statistical definitions of occupation, industry and education in different nations. Also locating and accessing comparable information has proved a challenge.

Table 2 brings together some information from Australia, New Zealand and Canada — all of which are significant agricultural exporters. Despite the fact that all are members of the Commonwealth, the three nations have different approaches to statistical collections and socio-economic classifications. New Zealand and Australia do have a common industrial classification (the Australian and New Zealand Standard Industry Classification — ANZSIC), but a different occupational classification. Canada tends to use similar classifications to that of its southern neighbour, the United States. All three nations conducted population censuses in 2001.

Table 2 — Comparisons of educational qualifications in agriculture-related occupational sectors in Australia, New Zealand and Canada. Sources: ABS Census 2001, Statistics New Zealand Census 2001, Statistics Canada Census 2001. ANZSIC — Australian and New Zealand Standard Industry Classification, ASCO — Australian Standard Classification of Occupations, NZCO — New Zealand Classification of Occupations

Nation and occupational sector	With post-school quals %	Without post-school quals %	VET quals %	Uni quals %	Not stated %
<i>Australia</i>					
ANZSIC Agriculture, Forestry and Fishing	33.5	66.5	23.7	9.8	—
<i>Australia</i>					
ASCO Farmers and Farm Managers	28.1	66.9	21.0	6.1	6.0
<i>New Zealand</i>					
ANZSIC Agriculture, Forestry and Fishing	23.2	76.8	18.1	5.1	0.8
<i>New Zealand</i>					
NZCO Agriculture and Fishery Workers	22.8	77.1	18.4	4.4	0.8
<i>Canada</i>					
Occupations unique to primary industry	28.5	71.5	23.5	4.9	0.0

It should be noted that care must be taken in interpreting these data, as different occupational and educational definitions are used in the three countries. Particular points to be noted are:

- VET qualifications in Australia includes Certificates I, II, III, IV, Diploma and Advanced Diploma, which are mainly provided by TAFE colleges
- In New Zealand there are four levels of vocational education: Basic, Skilled, Intermediate and Advanced
- Canada has three major groups of VET qualifications: Trades or Diploma, College Certificate or Diploma, and University Certificate or Diploma below Bachelor level
- Australia and New Zealand use the same industry classification (ANZSIC), and so in Table 2, rows 1 and 3 are comparable. In row 2, Farmers and Farm Managers based on the Australian Standard Classifications of Occupation (ASCO) are reported. Row 4 reports New Zealand statistics for Agricultural and Fishery Workers from the New Zealand Classification of Occupations (NZCO), which includes farm managers and farm workers as well as other workers. It would be expected that this group would have a lower proportion of post-school qualified persons than New Zealand farmers or farm managers alone, and it does
- Statistics Canada uses the Canadian National Occupational Classification - Statistics, which is different from the ASCO and NZCO. According to the Canadian National Occupational Classification - Statistics (NOC-S) 2001, occupations in the category 'Occupations unique to primary industry' are primarily concerned with operating farms and supervising or doing farm work; operating fishing vessels and doing specialised fishing work; and in doing supervision and production work in oil and gas production and forestry and logging. This clearly includes many occupations outside the group of interest here.

Notwithstanding all these qualifications on data use, there is little evidence to suggest that Australian farmers fare poorly in terms of educational qualifications when compared with their colleagues in New Zealand and Canada. In fact, qualification profiles appear similar in the three nations.

4.2 Educational profile of Australian Farmers and Farm Managers, and comparisons with other occupational sectors

4.2.1 Educational profile of Farmers and Farm Managers

The educational profile of Farmers and Farm Managers, based on data from the 2001 Australian Census, is reported in Table 3.

At the time of the 2001 Census, a total of 6.0% of Australian Farmers and Farm Managers had a graduate or post-graduate level qualification, and 21.0% had some form of VET qualification. Australia-wide, 28.1% of the total population had some kind of post-school qualification.

There was variation among States and Territories in formal educational attainments. New South Wales had the highest proportion of farmers and farm managers with post-school qualifications (33.3%), and Queensland the lowest (22.8%). The two Territories had relatively high levels of post-school qualifications, but the Australian Capital Territory figure may be misleading due to its very small farm sector.

Table 3 — Percentages of Farmers and Farm Managers with post-school qualifications.
Source: ABS Census 2001. Figures refer to highest level of formal educational qualification attained

Type of qual	NSW	Vic.	Qld	WA	SA	Tas.	ACT	NT	Total Farm-ers and Farm Man-agers
Post-graduate	0.7	0.5	0.4	0.4	0.4	0.6	7.3	0.8	0.5
Graduate Diploma/ Graduate Certificate	0.7	0.7	0.5	0.5	0.4	0.7	5.8	0.8	0.6
Bachelor degree	5.6	4.6	4.2	5.8	4.2	5.4	11.7	5.8	4.9
Diploma/ Advanced Diploma	7.0	6.3	4.6	6.5	4.9	7.3	9.7	7.9	6.1
Certificate	17.9	16.6	12.2	10.7	12.5	16.0	18.9	19.0	14.9
Post-school quals not adequately described	1.4	0.8	0.8	0.9	1.0	1.3	4.4	1.5	1.0
Not stated	5.4	5.4	4.2	5.0	4.0	5.6	7.3	6.9	5.0
<i>Total with post-school quals</i>	<i>33.3</i>	<i>29.5</i>	<i>22.8</i>	<i>24.7</i>	<i>23.5</i>	<i>31.3</i>	<i>57.8</i>	<i>35.7</i>	<i>28.1</i>

A recent report for the Rural Industries Research and Development Corporation (RIRDC) (Herrería, Woodhead, Tottenham & Magpantay, 2004), examines the educational qualifications of people employed in the AFF sector by region, using a regional classification devised by ABARE. The non-metropolitan regions used are Regional city [covering all Statistical Local Areas (SLAs) that include all or part of an urban centre with a population of more than 100,000]; Populated coastal (SLAs in more densely settled areas, generally within 80 km of the coast); Populated inland (inland SLAs but excluding Remote regions); and Remote (sparsely populated SLAs classified as remote or very remote using the Accessibility/Remoteness Index of Australia). The report concludes that a smaller proportion of people in the AFF sector across Australia held a bachelor degree or higher qualification than people in Australian Metropolitan regions as a whole. However, the lowest percentage of AFF sector employees with higher education qualifications was in the Remote region (4.5%), suggesting that access to higher education institutions may be a factor in these differences. AFF sector employees in the Populated coastal and Populated inland regions had a similar proportion of people with these qualifications (5.1% and 5.5%), to Non-metropolitan regions as a whole (5.3%).

4.2.2 Farmers and Farm Managers compared with the Australian population

At the 2001 Census, almost 35% of Australians aged 15 years and over had some form of post-secondary educational qualification (Table 4).

Of these, 12.9% had degrees or higher level educational qualifications and 21.8% had a VET qualification. Farmers and Farm Managers had a similar proportion of VET qualifications to the population as a whole, but a lower proportion of Higher Education qualifications.

Table 4 — Post-school educational qualifications of Australians aged 15 years and over in 2001, and comparisons with Farmers and Farm Managers as per Table 3 ('post-school' excludes schooling up to and including Year 12). Source: ABS Census 2001

Type of qual	% of population aged 15 yrs and over	% of Farmers and Farm Managers
Postgraduate	1.8	0.5
Graduate Diploma/Graduate Certificate	1.4	0.6
Bachelor degree	9.7	4.9
Diploma/Advanced Diploma	6.0	6.1
Certificate	15.8	14.9
Not stated/inadequately described	11.5	6.0
<i>Total with post-school quals</i>	<i>34.7</i>	<i>28.1</i>

4.2.3 Farmers and Farm Managers compared with other Australian occupational groups

Farmers and Farm Managers are part of the Managers and Administrators section of the ASCO, which is a classification devised by the ABS that includes nine major occupational groups. Managers and Administrators comprise 56% of all persons employed in the AFF sector, far higher than any other industry group: the average percentage of Managers and Administrators for all industries is around 9%. Another way of reporting this dominance is that almost 25% of all Managers and Administrators are in the AFF sector. This reflects the fact that a large proportion of Australia's farms are owner-operated and managed.

In Figure 3, the qualifications profile of Farmers and Farm Managers is compared with that of other occupational groups. The most relevant comparison is with the whole Managers and Administrators group, of which Farmers and Farm Managers are a component. A much smaller proportion of Farmers and Farm Managers (28.1%) have post-school qualifications than Managers and Administrators as a whole (59.6%). The biggest difference is in relation to higher education qualifications, where only 6.1% of Farmers and Farm Managers have a higher education qualification as compared with 34.0% of Managers and Administrators as a whole. The VET qualifications proportions in the two groups are much more similar-21.0% and 25.5% respectively. In fact, the qualifications profile of Farmers and Farm Managers is almost identical to that of Intermediate Production and Transport Workers. This occupational group consists of Plant Operators (mobile and stationary), Machine Operators, Train and Truck Drivers, Mining Workers, Construction Workers (non trade), Storepersons, and Forestry and Logging Workers.

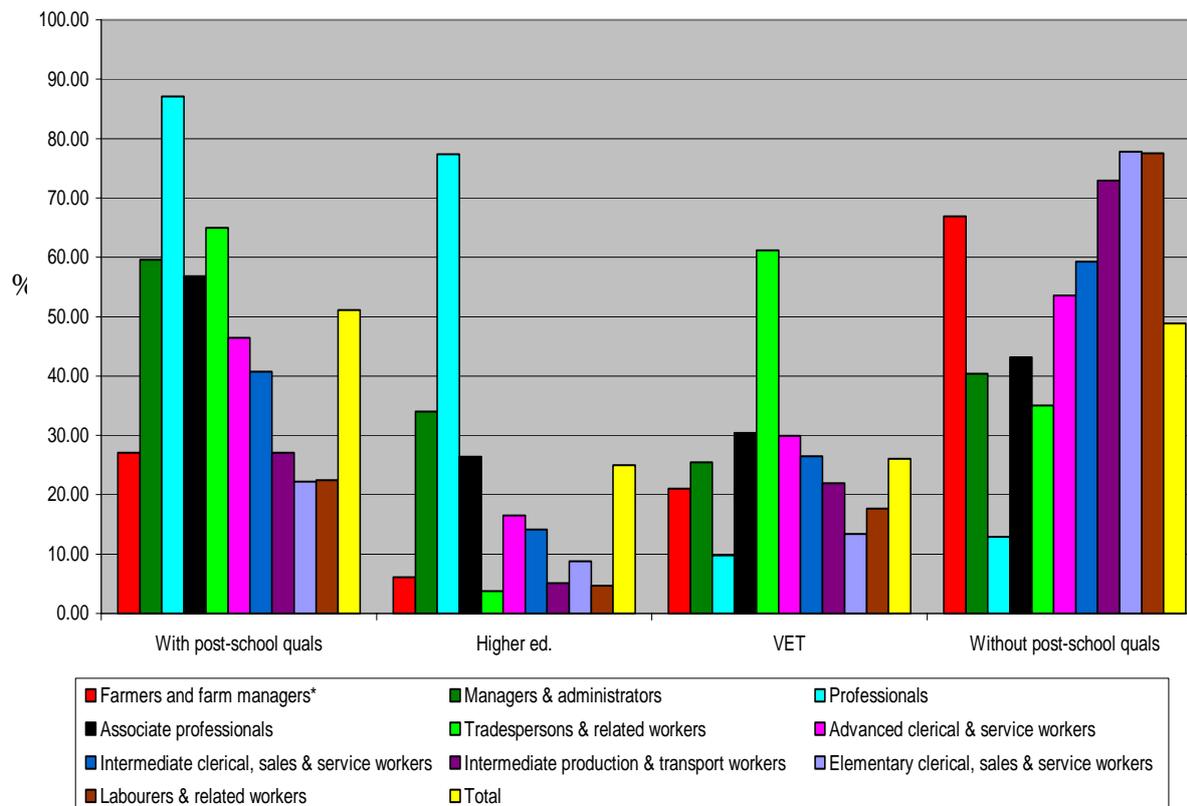


Figure 3 — Qualifications profile of Farmers and Farm Managers (shown in red) as compared with other major Australian occupational groups. Source: ABS (2000, unpublished data), and ABS Census 2001. (Please note that Farmers and Farm Managers form part of the Managers and Administrators category but are presented separately here for comparison)

4.2.4 Farmers and Farm Managers compared with other Australian industry sectors

The qualifications profile of people employed in the AFF sector can also be compared with that of other industry sectors (Table 5). Although Farmers and Farm Managers comprise a large proportion (56%) of this sector, it needs to be borne in mind that it contains other occupational groups. Their percentages are:

- Professionals — 2.5%
- Associate professionals — 2.3%
- Tradespersons & related workers — 5.7%
- Advanced clerical & service workers — 1.7%
- Intermediate clerical, sales & service workers — 2.6%
- Intermediate production & transport workers — 6.5%
- Elementary clerical, sales & service workers — 0.5%
- Labourers & related workers — 21.1%

Table 5 — Qualifications profile of employed persons aged 15 to 64 years by industry sector. Source: ABS (2000, unpublished data)

Industry sector	With post-school quals	Higher education quals	VET quals	Without post-school quals	Completed highest level of school only	Did not complete highest level of school
<i>Agriculture, forestry and fishing</i>	33.5	9.8	23.7	66.5	15.3	51.2
Mining	59.2	21.2	38.0	40.8	10.8	30.0
Manufacturing	49.6	16.10	33.5	50.4	16.4	34.0
Electricity, gas & water supply	62.9	21.60	41.3	37.1	12.8	24.3
Construction	54.8	7.00	47.8	45.2	13.9	31.3
Wholesale trade	42.8	15.20	27.6	57.2	22.6	34.6
Retail trade	30.3	9.00	21.3	69.7	25.9	43.8
Accommodation, cafes & restaurants	34.4	10.80	23.6	65.6	29.3	36.3
Transport and storage	41.9	14.20	27.8	58.1	19.8	38.3
Communication services	47.1	20.50	26.5	52.9	23.6	29.4
Finance & insurance services	47.8	30.9	16.9	52.2	31.2	21.0
Property & business services	61.7	39.2	22.5	38.3	19.1	19.2
Government admin. & defence	62.5	38.7	23.8	37.5	16.7	20.8
Education	79.8	67.8	11.9	20.2	8.7	11.5
Health and community services	70.2	49.3	20.9	29.8	10.7	19.1
Cultural & recreational services	49.4	28.8	20.6	50.6	24.6	26.0
Personal & other services	51.0	17.7	33.3	49.0	19.8	29.2
<i>Ave across sectors</i>	<i>51.1</i>	<i>25.0</i>	<i>26.1</i>	<i>48.9</i>	<i>18.9</i>	<i>30.1</i>

Again, the qualifications profile of the AFF sector shows that it has fewer people with post-school qualifications than most other industry sectors. The percentage with these qualifications only exceeds that of the Retail trade sector.

The discrepancy between the AFF sector and other industry sectors is particularly great for higher educational qualifications, where the AFF sector has only 9.8% with these qualifications compared with the average across all industry sectors of 25.0%. With VET qualifications the gap is much narrower: 23.7% and 26.1% respectively.

4.2.5 Qualifications of Farmers and Farm Managers by State and Territory

Figure 4 shows the formal educational qualifications of Australian Farmers and Farm Managers by State and Territory, as recorded in the 2001 Census.

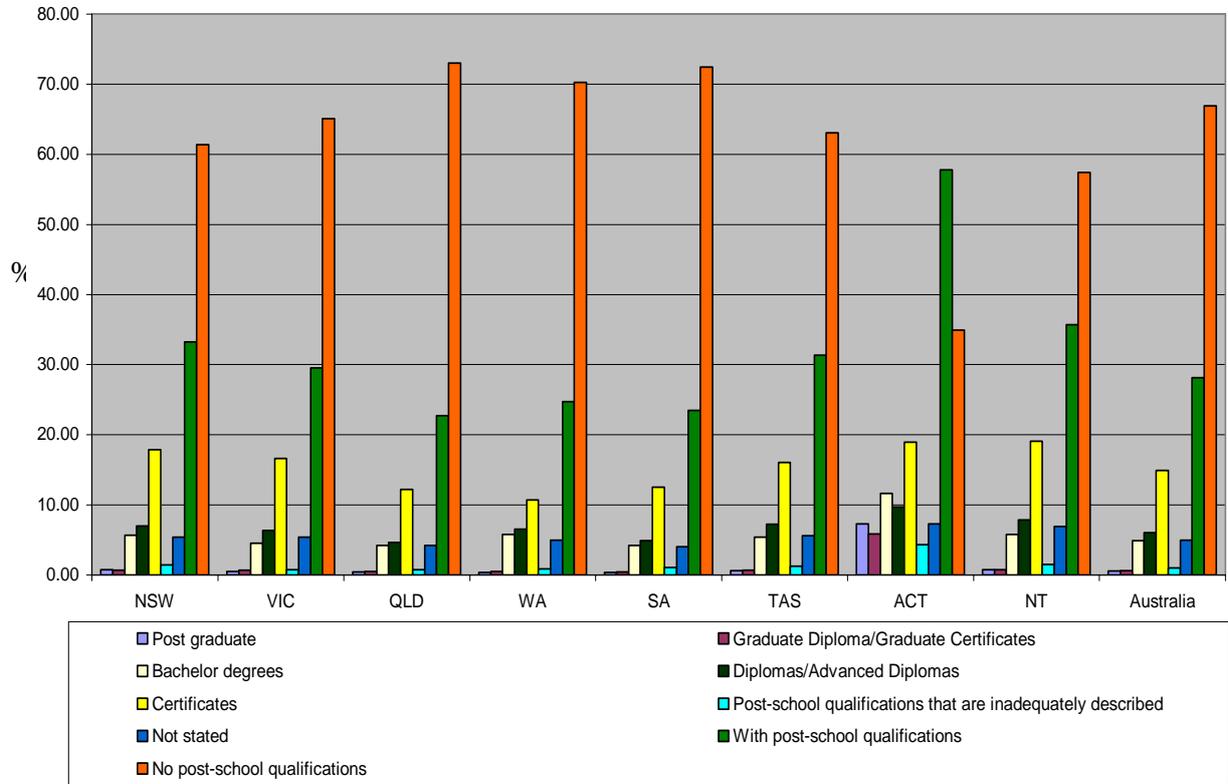


Figure 4 — Qualifications of Farmers and Farm Managers by State and Territory. Source: ABS Census 2001. The green and red columns show the total percentages with and without post-school qualifications respectively for each region

This figure shows that the majority of Farmers and Farm Managers in all regions except the Australian Capital Territory had no post-school qualifications. In terms of regional differences, slightly higher proportions of Farmers and Farm Managers had no post-school qualifications in Queensland, South Australia and Western Australia than in the other States and Territories, but the differences are not large except in the case of the Australian Capital Territory which has a very small farm sector.

5. Rural Producer Survey, 2002

This survey was part of the evaluation of the Agriculture Advancing Australia (AAA) initiative, which was a cooperative activity between Commonwealth, State and Territory Governments, and included a range of programs aimed at the agriculture sector in Australia. The survey has been conducted in 1998, 2000 and 2002, but the focus here is mainly on the 2002 survey (Solutions Marketing and Research, 2003). While there has been some variation in details across surveys, they are telephone surveys of randomly selected farmers drawn from Solutions 'Rural Database', which in 2002 contained 110,000 names profiled by industry sector. There is no farm income criterion used to select respondents in these surveys.

In each of the surveys, respondents are asked to report on activities they have undertaken since the time of the previous survey i.e. the surveys cover a two-year time period in terms of participation in capacity building activities.

While the focus of the surveys is on evaluating the AAA initiative, because of the samples they are based on, they provide information about both participants and non-participants in AAA, and on participation in activities both supported and not supported by AAA.

Details of the 2002 survey can be obtained from the report on the DAFF website (where it is described as 'Solutions' Rural Producer Survey 2002'). However, some of the data presented here have been drawn directly from the survey database held by DAFF, not taken from the Solutions report which has a different focus of interest from this study.

The AAA package as a whole had the objective of promoting a 'self-reliant, competitive, profitable and sustainable rural sector supported by targeted Government measures which focus on building the skills and capacity of rural industries and communities to manage effectively in an uncertain environment' (Solutions Marketing and Research, 2003, p.8). The most relevant component of AAA in relation to this report is the FarmBis Program, which is still continuing and has also been the subject of targeted surveys (see the next section).

5.1 Sample profile

Respondents were interviewed by telephone on the basis that they were 'someone involved in making management decisions for the farm business or property. That is someone responsible for making decisions on finances, general business issues, marketing or production' (Solutions Marketing and Research, 2003, p.17). The final sample size for the 2002 survey was 2,553 respondents. In this survey, 84% of respondents were male and 16% female. The average age of respondents was 52, with a range from 15–86 years. In terms of State and Territory of residence, 28% of respondents were from New South Wales; 21% from Victoria; 22% from Queensland; 14% from South Australia; 11% from Western Australia; 3% from Tasmania; and 2% from the Northern Territory (there were no respondents from the Australian Capital Territory). In terms of role on farm, 87% of respondents described themselves as an owner - operator or spouse of the operator; 2% as the son of the operator; 5% as manager; 4% as business partner; 1% as share farmer; and 1% as an employee.

5.2 Participation by industry

Agriculture as a whole has a number of industry groups or sub-groups within it, and the project terms of reference call for analysis of any differences in farmers' participation by industry. The variations in overall participation and participation in different types of activities across industry groups are shown in Table 6 and Figure 5.

Table 6 — Participation (%) in training by industry group. Rows are sorted in ascending order of overall participation. Source: Solutions Marketing and Research (2003)

Industry group	Participation rate	Demo sites or field days	Conferences	Workshops or short courses	TAFE courses	Uni courses	None of these
Beef	43.6	25.2	19.3	34.2	7.3	2.5	0.3
Dairy	51.8	36.8	26.6	43.7	9.3	4.0	0.0
Sheep and beef	54.5	37.8	23.9	45.7	16.3	1.9	0.3
Sheep	54.5	29.8	20.3	44.5	17.6	1.0	0.0
Vegetables	56.7	27.1	24.5	51.9	11.1	3.1	0.0
Pigs	59.5	40.0	33.2	48.3	12.6	1.2	0.0
Sugar	59.8	34.5	26.7	50.6	5.8	0.2	0.0
Other fruit	60.7	43.0	38.6	56.1	9.2	5.2	0.0
Sheep, beef and grain	61.1	41.5	31.4	53.7	16.6	1.5	0.0
Grain	61.5	41.9	28.4	53.6	15.5	0.9	0.0
Bananas	70.0	43.7	33.3	59.3	10.6	3.6	1.7
Citrus	71.2	44.4	40.2	64.5	17.2	0.0	0.0
Grapes	76.0	53.6	43.7	66.6	12.1	2.9	0.5
Cotton	76.7	43.7	39.0	73.0	14.2	5.7	0.0
<i>Total sample</i>	<i>55.4</i>	<i>35.3</i>	<i>26.6</i>	<i>47.1</i>	<i>12.0</i>	<i>2.2</i>	<i>0.1</i>

Cotton and grapes have the highest overall participation rates with around 76.0% of respondents in these two groups participating in training activities. Beef; Dairy; Sheep and beef; and Sheep industry groups had the lowest participation rates as recorded in this survey.

There is a very strong preference across industry groups for the three informal training activities, particularly the workshops and short courses option. Participation in formal education courses is low.

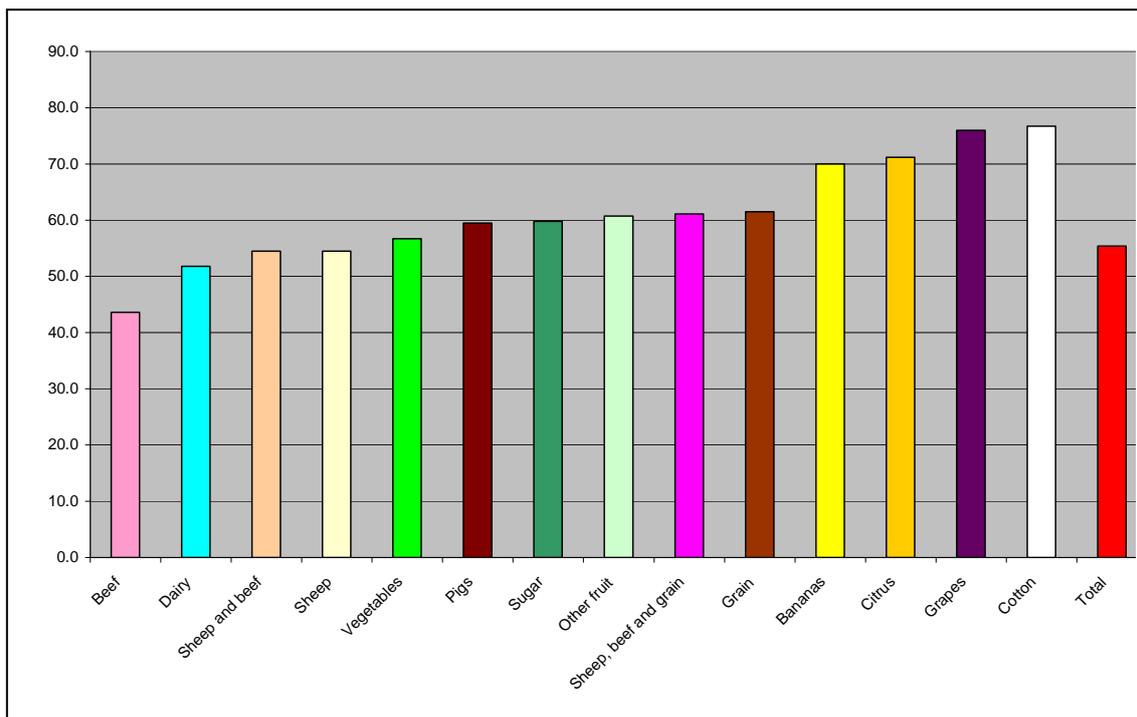


Figure 5 — Overall participation (%) in training by industry group. Source: Solutions Marketing and Research (2003)

5.3 Participation by type of activity

Table 7 reports the type of activities undertaken by those who indicated they had participated in training activities in the 2002 survey.

Table 7 — Participation (%) in different types of activities. Source: Solutions Marketing and Research (2003). Please note that totals are not 100% as activities are not mutually exclusive and respondents may have participated in several types of activities

Type of activity	Participation rate
Demo sites or field days	35.3
Conferences	26.6
Workshops or short courses	47.1
<i>Total — informal training</i>	<i>109.0</i>
TAFE course	12.0
University course	2.2
<i>Total — formal training</i>	<i>14.2</i>
None of the above	0.1
Other	9.3
<i>Total — all types of activities</i>	<i>132.5</i>

The informal training activities are far more popular than the formal ones, with workshops and short courses leading the way, followed by demonstration sites or field days, and conferences.

It is evident from Table 7 that many farmers who do participate are involved in more than one type of activity.

5.4 Participation by State and Territory

In 2002, the survey found that 55.4% of farmers surveyed said ‘Yes’ to the question: ‘During the last two years, have you participated in any training activities to improve your farm management and technical skills?’ This was 3.0% higher than the answer to a similar question in the previous survey conducted in 2000. (Care needs to be taken in comparing responses over the two periods as the questions were framed slightly differently and asked in a different context. In 2000, the question on training was preceded by a question on field days, whereas in 2002 the question on training included field days as a sub-group.)

Table 8 — Participation (%) in different types of activities by State and Territory. Source: Solutions Marketing and Research (2003). Please note that totals do not add to 100% as activities are not mutually exclusive and respondents may have participated in several types

Type of activity	NSW	Vic	Qld	WA	SA	Tas.	NT
Demo sites or field days	37.0	32.4	32.0	33.4	44.1	39.7	27.5
Conferences	27.8	22.2	24.3	22.7	39.3	29.7	32.5
Workshops or short courses	49.2	40.3	45.4	45.3	60.4	47.0	45.0
<i>Total — informal activities</i>	114.0	94.9	101.7	101.4	143.8	116.4	105.0
TAFE course	15.6	12.4	3.8	8.8	20.0	8.3	7.5
University course	2.5	3.9	1.3	0.8	0.9	1.6	0.0
<i>Total — formal activities</i>	18.1	16.3	5.1	9.6	20.9	9.9	7.5
None of the above	0.0	0.1	0.4	0.3	0.0	0.0	2.5
Other	11.1	9.7	9.3	8.7	5.4	4.6	12.5
<i>Total — all types of activities</i>	143.2	120.9	116.1	119.7	170.1	130.9	125.0

The tendency for a higher percentage of South Australian producers to be involved in these activities than producers in the other States and the Northern Territory is reflected in all the activities except university courses. Similarly, South Australian producers on average participated in more kinds of activities than farmers in the other jurisdictions. Queensland producers had a very low rate of participation in formal education and training, mainly due to a very low participation (3.8%) in TAFE courses. By contrast, 20.0% of South Australian producers and 15.6% of New South Wales’ producers reported involvement in TAFE courses.

The TAFE or VET sector is used far more than the university sector, particularly in South Australia, New South Wales and Victoria. This situation may reflect the availability of TAFE colleges in most of the larger towns and cities in those States, as well as the suitability of course offerings for farmers.

Figure 6 shows average participation in each of the regions across the 2000 and 2002 surveys.

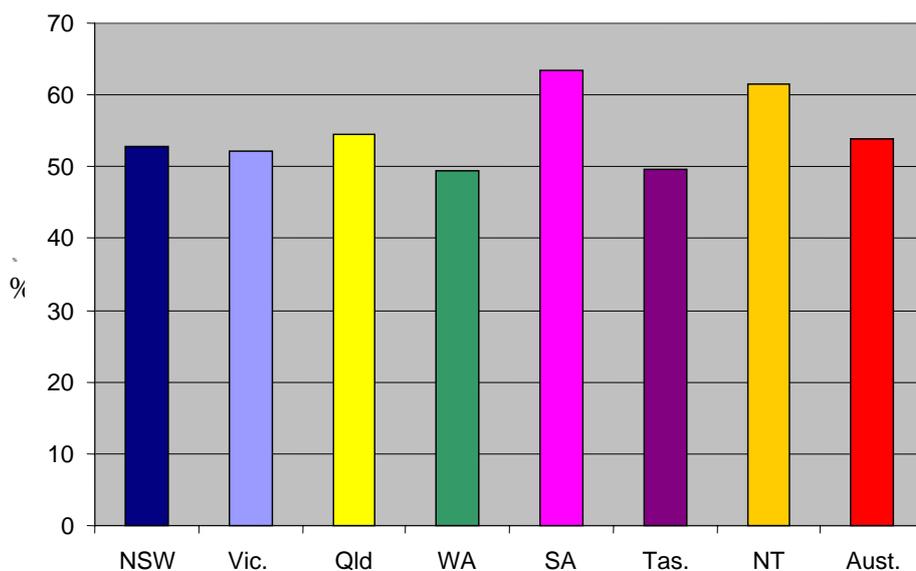


Figure 6 — Average participation (%) in training activities by State and Territory across the 2000 and 2002 surveys. Source: Solutions Marketing and Research (2003)

The variation in the averages across the States and the Northern Territory is relatively small. South Australian producers had the highest participation rate in both surveys, with 59.9% in 2000, and 67.0% in 2002. However, while Victoria had the lowest figure in 2002 (49.6%), Tasmania had the lowest in 2000 (45.3%).

The largest increases in participation over the two surveys were in New South Wales (10.5%), Tasmania (8.5%), and South Australia (7.1%). Participation declined in Victoria (5.3%) and the Northern Territory (18.2%).

5.5 Participation by age group

Table 9 cross-tabulates participation by age groups and Figure 7 shows the overall participation by each age group. After the 25-34 year old group, the level of participation declines with each successive age group. The 20-24 year old group has almost the same level of participation as the 25-34 year old group (75.3% and 76.1% respectively).

The 20-24 year old group has the highest participation in university courses at 21.5%. The next group in age (25-34 years), is also more involved with TAFE and university courses than the older age groups. If the trends observed in respect of participation and education level persist, this could lead to increased participation in training activities in the future.

Table 9 — Participation (%) in training activities by age group (years). Source: Solutions Marketing and Research (2003)

Type of activity	15-19 yrs	20-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65+ yrs	Refused	Total sample
Demo sites or field days	10.1	32.0	45.8	44.1	38.6	30.9	20.4	32.0	35.3
Conferences	20.0	29.6	42.2	29.6	27.6	25.5	15.1	32.8	26.6
Workshops or short courses	10.1	48.5	64.7	57.3	50.3	43.6	25.6	42.2	47.1
TAFE courses	21.1	7.0	16.3	13.2	14.1	12.6	3.1	9.4	12.0
Uni courses	0.0	21.5	7.4	2.9	2.0	1.1	1.1	0.0	2.2
None of these	0.0	0.0	0.0	0.6	0.0	0.0	0.2	0.0	0.1
<i>Participation rate</i>	<i>34.5</i>	<i>75.3</i>	<i>76.1</i>	<i>65.6</i>	<i>57.6</i>	<i>51.9</i>	<i>33.9</i>	<i>0.6</i>	<i>55.4</i>

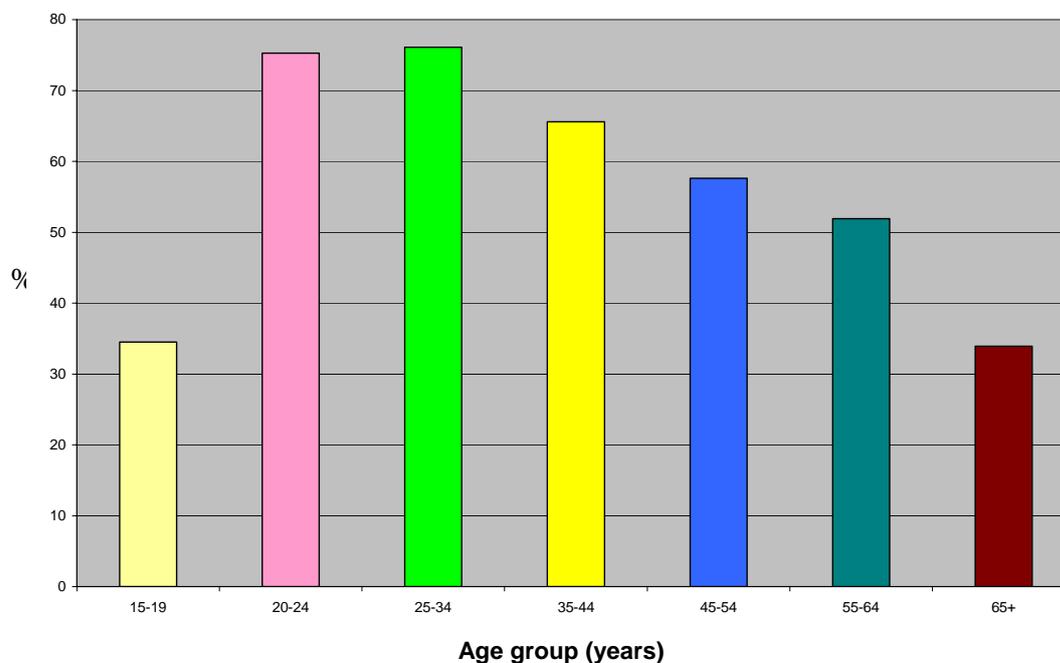


Figure 7 — Overall participation (%) in training activities by age group (years). Source: Solutions Marketing and Research (2003)

5.6 Participation by gender

Participation by men and women was almost identical in both surveys (Table 10), as was the increase in participation over the two years. Women had a slight edge on both occasions. However, it should be noted that women form only a small percentage of respondents to these surveys-16% of respondents to the 2002 Rural Producer Survey were women.

Table 10 — Participation (%) in activities by gender. Source: Solutions Marketing and Research (2003)

	Male	Female
2000	52.2	53.2
2002	55.3	56.0
Change in participation rate	+3.1	+2.8
<i>Ave participation rate across surveys</i>	53.8	54.6

The participation of both men and women in the various types of training activities from the 2002 survey is reported in Table 11.

Table 11 — Participation (%) in different types of activities by gender. Source: Solutions Marketing and Research (2003)

Type of activity	Male	Female
Demo sites or field days	35.6	34.1
Conferences	27.3	23.1
Workshops or short courses	46.8	48.5
TAFE courses	11.5	14.8
University courses	2.2	2.2
None of these	0.1	0.2

The types of activities male and female producers participate in are similar, but with women leaning more to TAFE courses and men attending more conferences.

5.7 Participation by existing educational levels

Table 12 and Figure 8 show respondents' level of existing educational qualifications against participation rate. Table 12 also shows this against the kind of training activity they undertook during the two years prior to the 2002 survey.

Those producers who had a post-school qualification were more likely to have participated in a training activity than those who did not: 69.6% for those with a VET certificate, 66.6% for those with a VET Diploma/Advanced Diploma, and 70.1% for those with a degree or higher qualification. Even those who had completed school years 11 or 12 had a higher participation level than those who had only completed year 10 or less.

Respondents who had never attended school had a very low participation rate (15.7%).

As can be seen from Table 12, the increased levels of participation by producers with higher levels of educational qualifications are spread across all types of activities.

Table 12 — Participation (%) in activities by level of educational qualification. Source: Solutions Marketing and Research (2003). The last row shows overall participation across all types of activities

Type of activity	Never attended school	Year 10 and below	Year 12 and below	Cert. I, II, III, IV	Diploma, Advanced Diploma	Bach. degree or above	Other	Don't know	Total
Demo sites or field days	15.7	29.1	37.5	42.6	44.8	50.0	23.8	5.4	35.3
Conferences	0.8	22.5	24.6	33.9	35.4	40.8	20.0	5.4	26.6
Workshops or short courses	15.7	39.6	48.0	64.2	57.0	64.0	15.8	20.2	47.1
TAFE courses	0.0	8.4	12.1	19.3	17.6	19.4	5.7	10.0	12.0
University courses	0.0	0.8	2.1	2.4	6.4	5.8	0.0	0.0	2.2
None of these	0.0	0.2	0.1	0.0	0.0	0.0	0.0	1.6	0.1
<i>Participation rate</i>	<i>15.7</i>	<i>48.0</i>	<i>57.9</i>	<i>69.6</i>	<i>66.6</i>	<i>70.1</i>	<i>27.0</i>	<i>21.8</i>	<i>55.4</i>

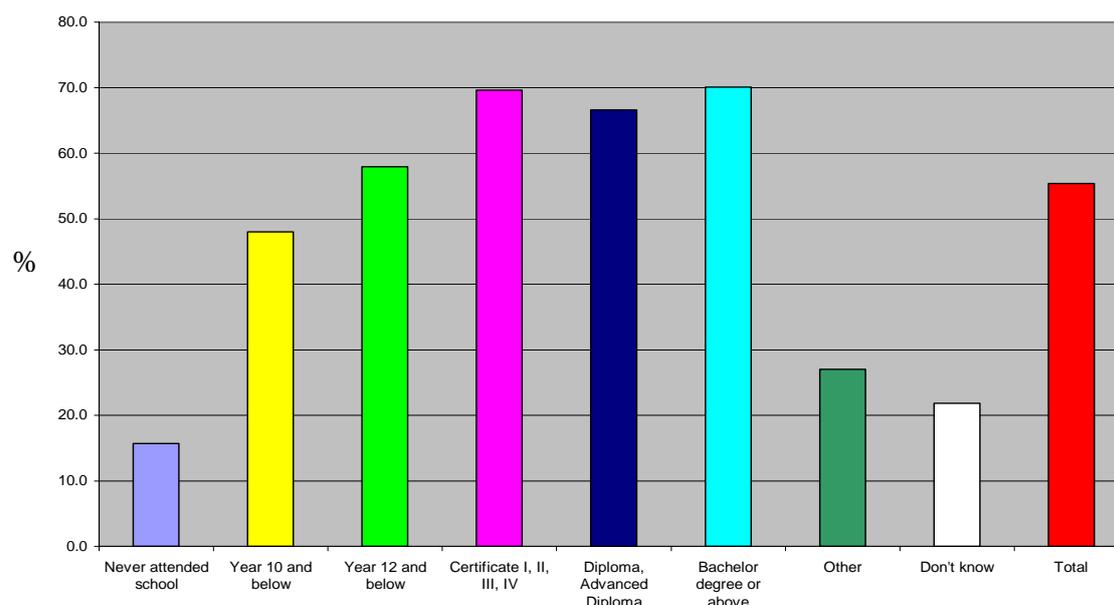


Figure 8—Overall participation (%) across activities by level of educational qualification. Source: Solutions Marketing and Research (2003)

5.8 Participation by farm income (profit or loss)

There is some evidence that farmers with higher levels of educational qualifications are more likely to have profitable farm enterprises than those with lower levels and may participate in other capacity building activities at a higher rate (SCARM, 1998). Table 13 cross-tabulates farm profit or loss against participation in different activities.

Table 13–Participation (%) in different kinds of activities by farm business income (profit or loss). Source: Solutions Marketing and Research (2003)

Profit or Loss \$	Participation rate	Demo sites or field days	Confer- ences	Work- shops or short courses	TAFE courses	Uni courses	None of these
500,000+	70.3	44.4	39.2	63.0	10.4	2.1	3.1
300,001 to 500,000	58.2	39.9	34.2	51.3	6.2	5.8	0.0
200,001 to 300,000	69.0	50.3	35.6	62.2	23.6	6.4	0.1
100,001 to 200,000	67.0	45.3	34.5	58.9	19.2	2.5	0.0
75,001 to 100,000	63.1	47.7	35.4	56.8	10.7	4.9	0.2
50,001 to 75,000	62.1	46.3	32.3	54.8	14.4	3.6	0.3
20,001 to 50,000	57.4	33.5	25.3	46.7	11.7	1.7	0.1
Break even to 20,000	49.0	26.9	21.1	42.2	8.8	1.1	0.0
<i>Loss below 20,000</i>	50.4	28.7	26.1	42.2	10.2	3.2	0.0
<i>20,001 to 50,000</i>	68.0	52.0	38.7	49.9	3.0	2.2	0.0
<i>50,000+</i>	57.5	37.3	24.1	43.6	6.9	3.3	0.0
Refused/ Don't know	44.7	28.3	19.9	36.9	12.5	0.7	0.0
<i>Total sample</i>	<i>55.4</i>	<i>35.3</i>	<i>26.6</i>	<i>47.1</i>	<i>12.0</i>	<i>2.2</i>	<i>0.1</i>

On the basis of these figures (and the high percentage of 'Refused/don't know' responses should be noted), there is no consistent overall relationship between farm profit or loss and participation in training activities, although there is some tendency for participation to increase with increasing profit levels.

5.9 Participation by farm role

Farms, like most enterprises, can be operated by a variety of corporate structures. In the 2002 Rural Producer Survey, the owner-operator and his or her immediate family accounted for close to 90% of respondents. However, as shown in Table 14, this group was less likely to participate in training than those who were either employed to work on the farm, or who were in some other kind of farm business relationship. It should be noted that the large majority of respondents fall into the owner-operator category and numbers in the other categories are small.

Managers were the second largest group of respondents (5%) after owner-operators, and their participation rate of 67.9% was considerably higher than that of owner-operators (54.1%). These differences are of course likely to relate to who is paying for the training activities in question, and the obligations of employers to provide training for employees. They are also likely to relate to the person's experience on the farm and in their current farm role — it is likely that owner-operators and farm family members will have more experience 'on the job' than many people in other roles, and will have opportunities to learn directly from other family members.

Table 14 — Participation (%) in activities by current role on farm. Source: Solutions Marketing and Research (2003). (The 'Daughter' role was included in the survey but there were apparently no respondents in this category so it has been omitted)

	Owner-operator	Spouse	Son	Business partner	Manager	Share farmer	Employee	Other	Total sample
Type of activity									
Demo sites or field days	34.1	32.5	27.3	49.3	45.5	57.4	63.0	63.3	35.3
Conferences	25.3	21.8	23.0	37.9	38.9	46.7	53.9	63.3	26.6
Workshops or short courses	46.3	43.0	33.9	61.1	58.0	37.3	65.9	63.3	47.1
TAFE courses	11.3	14.5	5.1	22.0	17.9	12.0	13.1	0.0	12.0
Uni courses	1.6	2.3	3.8	3.9	9.6	13.7	1.2	0.0	2.2
None of these	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.1
<i>Participation rate</i>	<i>54.1</i>	<i>51.9</i>	<i>50.9</i>	<i>66.2</i>	<i>67.9</i>	<i>74.9</i>	<i>80.7</i>	<i>63.3</i>	<i>55.4</i>

5.10 Participation in government-run programs

The 2002 survey asked respondents whether they or anyone else from their property had used a range of government programs or benefited from the activity [represented by the program]. Participation in government programs can be considered as a type of capacity building activity, and therefore these results are relevant to this report. (Respondents were also asked about their awareness of the programs but these results are not reported here.) The range of programs listed in this survey was wider than that in any of the other surveys examined (Table 15).

These figures show that the three programs with the highest participation levels are FarmBis, the NLP and the Farm Deposits program.

Table 15 — Participation (%) in a range of government-run programs. Programs are listed in ascending order of participation. Source: Solutions Marketing and Research (2003). NLP — National Landcare Program, NHT — Natural Heritage Trust, NAP — National Action Plan for Salinity and Water Quality

Program	Participation rate
New Industries Development Program	1
Rural Partnership Program	1
Climate Variability in Agriculture	2
Coastcare	2
Environmental Management Systems Incentive	2
National Food Industry Strategy	2
Farm Help/Farm Family Restart	3
Farm Innovation Program	4
Women in Rural Industries	4
Bushcare	4
Murray Darling Initiative 2001	5
Rural Vision Magazine	6
Rivercare	7
NAP	8
NHT	10
Exceptional Circumstances	13
Rural Financial Counselling Service	15
Farm Management Deposits	24
NLP	30
FarmBis	51

5.11 Participation and attitudinal segment

This survey used responses to 24 attitudinal statements and other questions (including participation in AAA), to develop 'psychographic profiles' of rural producers and divide them into five attitudinal segments or clusters. This is reported here because development of these attitudinal groups is aimed at helping identify target audiences for government activities, and may suggest relationships between these segments and future participation in capacity building activities. The segments identified and their percentages among 2002 survey respondents are as shown in Figure 9.

While the survey report does not examine participation in education and training as a whole by attitudinal segment, it does examine participation in the government-run programs listed in the last section by these segments, and suggests some significant differences in participation by segment. In particular, it suggests that the 'Business Person' tends to participate at a relatively high rate in a range of programs; that 'Confident/Established' producers may have little interest in the Farm Innovation Program (and possibly similar programs focused on change); and that a higher percentage of the 'Committed/doing it tough' group tend to use the Rural Financial Counselling Scheme and Farm Help. These findings suggest how the different programs may selectively appeal to, and be used at different rates, by producers in the various attitudinal segments, and that knowledge of the characteristics of these segments could be used in marketing and communication activities.

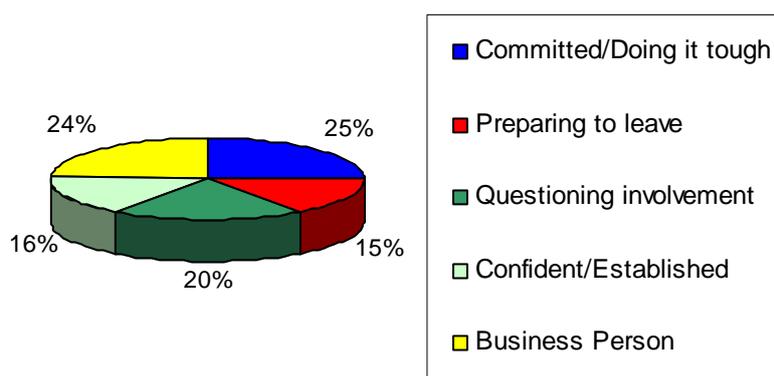


Figure 9 — Farmer attitudinal segments and percentages of respondents falling into each segment. Source: Solutions Marketing and Research (2003)

The successive Rural Producer Surveys have indicated that the 'Business person' and 'Committed/Doing it tough' segments have increased in size over the period 1998 to 2002, and the 'Preparing to leave' segment has diminished, partly reflecting re-structuring in several industries (for example, dairying), and the departure of producers in these industries.

In summary, the relationships observed in the 2002 Rural Producer Survey suggest that the most important factors related to participation in the capacity building activities included in the survey are:

- Level of existing educational qualifications
- Industry group
- Role on farm
- Age group.

On the basis of these findings, the profile of the keen participant in the types of capacity building activities considered in this survey would be a person with university or higher-level VET qualifications, from either the grape or cotton industries, more likely to be a farm employee or share farmer than an owner-operator, and aged between 25 and 34 years. They would be most likely to participate in workshops or short courses rather than other types of activities.

6. Survey of FarmBis participants, 2002

This survey targeted FarmBis Program participants, whose details and telephone numbers were available from a database compiled by DAFF, which coordinates the Program together with the States and Territories (Roy Morgan Research, 2003). As mentioned in the last section, FarmBis began as part of the AAA package of initiatives in 1997. It aims to provide financial assistance to 'primary producers and land managers' to participate in learning activities. Surveys of participants have been conducted in 1999, 2000, 2001 and 2002, but the focus here is on the 2002 survey. The primary purpose of the surveys is to assess the extent to which FarmBis Program outcomes have been achieved, and the effectiveness of FarmBis Program strategies.

The survey respondents are a selected sub-sample of primary producers and land managers who participate in capacity building activities overall. The 2002 Rural Producer Survey, which used a different sampling frame from the FarmBis surveys, found that 51% of respondents had participated in the FarmBis Program in the period up to September 2002 (Solutions Marketing and Research, 2003). The ABS Agricultural Survey reported in the next section found that 18% of respondents had participated in FarmBis in the 2001–02 financial year.

In the 2002 FarmBis survey, quotas were set for farm industry types and for State or Territory to ensure numbers in the different categories were large enough for comparisons to be made, and weightings subsequently applied to correct for any biases introduced. The FarmBis surveys are telephone surveys, and respondents are randomly selected from the lists of FarmBis participants and the sampling process continued until quotas have been achieved. The quotas and weightings are based on parameters for the 'FarmBis population' (i.e. all people participating in FarmBis-subsidised activities), not the Australian farmer population. This needs to be borne in mind in interpreting results as they may not be generalisable to the wider population nor directly comparable with surveys based on different sampling methods.

6.1 Sample profile

The final sample size for the 2002 survey was 1,220. In this sample, 76% of respondents were male, and the majority of respondents (61%) were in the 35-64 year age bracket. Most respondents (62%) had not completed any post-secondary education, and the majority came from farms with annual incomes of \$100,001 or above. During 2002, 29% of respondents had participated in courses or learning activities in addition to those supported by FarmBis.

6.2 Participation by industry

In the 2002 survey, the distribution of FarmBis participants by industry group was as shown in Table 16.

This distribution by industry shows that larger percentages of participants came from traditional broad-acre livestock and grains sectors than from more specialised and intensive industry sectors, and contrasts with industry participation trends reported in a number of other surveys examined in this report. From this it appears likely that the characteristics of the survey sample and the FarmBis population differ from those of the Australian farmer population as a whole.

Table 16 — Distribution of FarmBis participants by industry group. Industries are listed in ascending order of participation. Source: Roy Morgan Research (2003)

Industry group	% of respondents
Vegetable	2
Sugar	2
Viticulture	5
Fruit	6
Other (including pigs, cotton, aquaculture etc.)	8
Sheep/beef	8
Dairy	8
Sheep	13
Beef	15
Grain	15
Grains/sheep/beef	18

6.3 Participation by State and Territory

Table 17 shows the percentage of respondents coming from each of the States and the Northern Territory (there were no respondents from the Australian Capital Territory). This table reflects the quotas set and thus the characteristics of the FarmBis population as a whole.

Table 17 — Distribution (%) of FarmBis participants by State and Territory. Source: Roy Morgan Research (2003)

	NSW	Vic.	Qld	SA	WA	Tas.	NT
<i>% of total sample</i>	20.7	12.3	20.7	20.6	13.2	6.1	6.2

From this table it can be seen that farmers and land managers from New South Wales, Queensland and South Australia are represented in approximately equal numbers among participants, but there is considerably lower participation in the other jurisdictions, with the Northern Territory and Tasmania having the lowest percentage of participants.

6.4 Participation by activity topics

The survey does not include questions about the different kinds of learning activities undertaken by FarmBis participants. This would not be appropriate as the Program mainly subsidises training *courses* and other kinds of activities may not be eligible. However, the survey provides a breakdown of participation by different categories of course topics (Table 18).

This breakdown highlights high levels of participation in General Business Management courses and relatively low participation in natural resource management topics. The survey report indicates that at a more detailed level of analysis within the General Business Management category, the course type with the highest participation rate was Quality Assurance/Total Quality Management, in which just over a third of all respondents (35%) participated. The report indicates that uptake of this course is substantially driven by participants' need to comply with regulations.

Table 18 — Percentages of FarmBis respondents undertaking activities in different topic categories. Topics are ordered by ascending levels of participation. Source: Roy Morgan Research (2003)

Topic category	% of respondents
Marketing	5
Natural Resource Management	7
People Management	9
Financial Management	12
Production Management	16
General Business Management	51

6.5 Factors influencing participation in FarmBis

More than half of survey respondents (53%) reported that participation in previous courses increased their interest in undertaking further farm-related learning activities. Respondents reported that cost subsidies were not an important factor in making an initial decision about whether or not to participate in FarmBis courses (only 4% of respondents indicated that this was the case). However, the availability of a course subsidy did appear to be important in making subsequent participation decisions.

Factors that respondents indicated as being important in influencing future decisions to participate in courses were:

- Course content suiting their needs (43% indicated this was important)
- Suitable time and date (25%)
- Course subsidy available (11%)
- Course run at a suitable location (6%)
- Compulsory requirement (3%).

7. Agricultural Survey, 2001–02

This survey is referred to on the ABS website as *Agricultural survey: farm business operations and management, Australia* (ABS, 2002, see <http://www.abs.gov.au/Ausstats/abs@.nsf/Lookup/5D56735DA7438B65CA256C7C007B94FE>)

The data are from one of the ABS's annual Agricultural Surveys (also called 'Agricultural Commodity Surveys'). The survey of interest covered the financial year 2001-02, and included supplementary questions on farm businesses' knowledge of and participation in training and education, questions which were funded by FarmBis. The ABS also conducts five yearly Agricultural Censuses (which take the place of the Agricultural Survey for that year), the next of which is scheduled for 2006. These surveys or censuses do not regularly include questions on participation in capacity building activities.

The participation questions reported here related to the 2001–02 financial year.

7.1 Sample profile

According to information provided by the ABS, the Agricultural Survey is based on a sample drawn from the population of all farm establishments with an EVAO of \$5,000 or more (ABS, 2003). The sample size for the 2001–02 survey was approximately 35,000 respondents from an estimated total population of 147,000 establishments fitting the EVAO criterion (ABS, 2005). This is a very large survey in comparison with others discussed in this report with the exception of the various Censuses, and the results should be accorded due weight. The ABS does not report the response rate, but it is assumed that it is close to 100% as participation in ABS surveys is required by law.

The total farm population is stratified by State, sub-State region, industry, ANZSIC category, and size (EVAO and area of holding), and sampling is based on this stratification. This is designed to ensure that the sample is representative of the total farm population and findings can be generalised. The survey uses a self-completion questionnaire and survey forms are distributed in June of the relevant year.

No data on participation by age group are provided in the results reported on the ABS website.

7.2 Participation by industry and type of activity

The ABS Agricultural Survey includes a wider range of agricultural industries or industry groups than the Rural Producer Survey. For example, it includes additional categories for nurseries and poultry farms. Results for industry groups from the survey are shown in Table 19 and Figure 10.

Industry groups with a high participation rate are Grape growing and Other crop growing, while those with a low participation rate are Poultry farming and Other livestock farming.

Table 19 — Participation (%) in learning activities by agricultural industry group, 2001–2002. Source: ABS (2002)

Industry group	Demo sites/ field days	Conf- erences	Work- shops/ short courses	TAFE courses	Uni courses	Engaged consultant	Other	Did not participate
Horticulture and fruit growing (excl. grapes)	39.2	19.2	26.1	6.5	0.7	13.6	3.7	34.9
Grape growing	51.1	28.8	36.9	11.1	2.2	20.7	4.2	23.4
<i>Total horticulture and fruit growing</i>	<i>42.8</i>	<i>22.2</i>	<i>29.3</i>	<i>7.9</i>	<i>1.1</i>	<i>15.8</i>	<i>3.8</i>	<i>31.3</i>
Grain, sheep and beef cattle farming	42.6	15.6	25.7	10.5	0.7	12.3	2.1	35.6
Dairy cattle farming	46.8	16.2	26.7	5.1	1.6	16.6	1.9	35.1
Poultry farming	20.2	16.8	13.2	2.5	0.4	6.8	2.8	43.2
Other livestock farming	27.7	13.5	17.2	4.6	0.4	9.7	4.6	41.1
Other crop growing	56.7	24.2	36.6	6.8	1.2	15.9	2.6	25.2
Other	32.7	17.0	22.4	11.5	1.0	12.1	4.6	39.3
<i>Total sample</i>	<i>43.0</i>	<i>17.2</i>	<i>26.6</i>	<i>9.3</i>	<i>0.9</i>	<i>13.3</i>	<i>2.5</i>	<i>34.5</i>

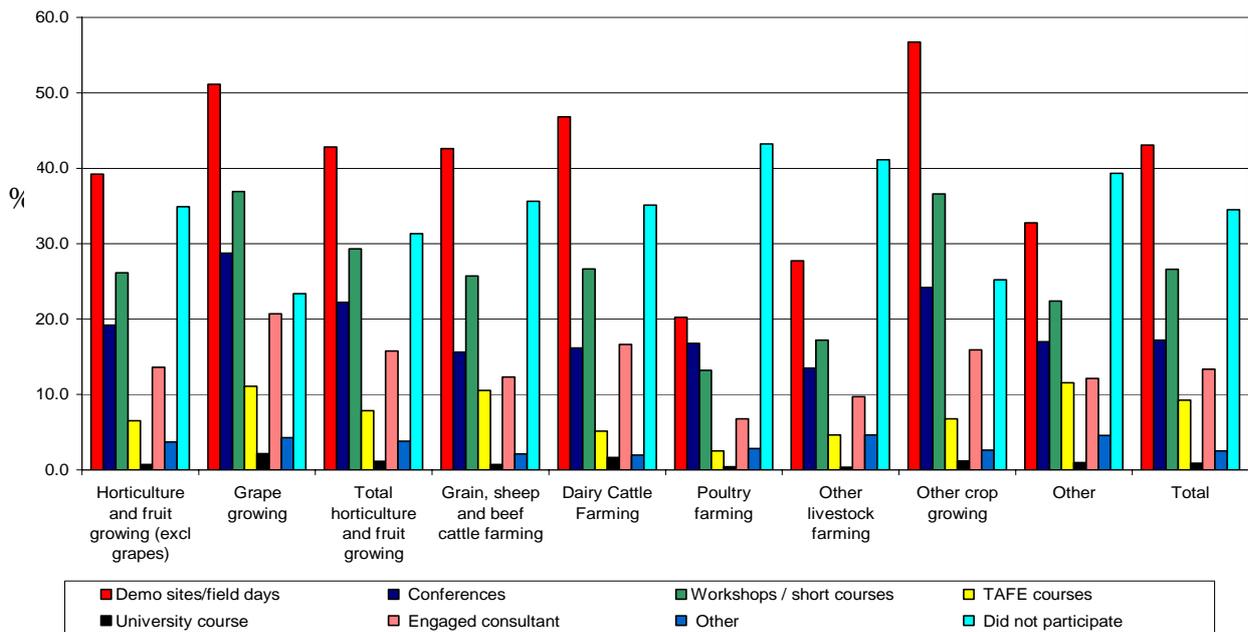


Figure 10 — Participation (%) in learning activities by agricultural industry group, 2001–2002. Source: ABS (2002)

7.3 Participation by State and Territory

This survey posed the question on education and training differently from the Rural Producer Survey. It did not ask if farmers participated in any activity or not, but asked whether they had participated in any kinds of activities specifically listed in the survey. It also referred to 'learning activities' rather than 'training activities'. The list of types of activities was the same as in the Rural Producer Survey, with the addition of an option, 'Engaged a consultant'. Results from the 2001-02 Agricultural Survey are shown in Table 20.

Table 20 — Participation (%) in different types of activities by State and Territory. Source: ABS (2002)

Type of activity	Total sample	NSW	Vic.	Qld	WA	SA	Tas.	ACT	NT
Demo sites or field days	40	42	37	36	46	47	32	33	40
Conferences	16	16	12	14	21	23	13	13	16
Workshops or short courses	25	27	19	23	27	34	19	23	25
TAFE course	9	11	7	3	9	18	5	8	9
Uni course	1	1	1	1	1	1	1	2	1
<i>Total of above*</i>	<i>91</i>	<i>97</i>	<i>76</i>	<i>77</i>	<i>104</i>	<i>123</i>	<i>70</i>	<i>79</i>	<i>91</i>
Engaged a consultant	12	11	10	10	19	17	12	13	12
Other	2	2	2	2	3	4	3	5	2
<i>Participation rate</i>	<i>68</i>	<i>69</i>	<i>66</i>	<i>66</i>	<i>73</i>	<i>73</i>	<i>62</i>	<i>58</i>	<i>68</i>

*Can be greater than 100 as options are not mutually exclusive

From Table 20, the regions with the highest participation rate overall were Western Australia and South Australia (73% participated in at least one activity). Tasmania and the Australian Capital Territory had the lowest participation rates (62% and 58% respectively participated in at least one activity). In relation to types of activities undertaken, on average South Australian farmers participated in more types of activities than farmers in the other jurisdictions, followed by Western Australian farmers. Tasmanian farmers on average undertook the smallest number of different types of activities.

In terms of the popularity of the different types of activities, it is clear that demonstration sites or field days are most popular overall, followed by workshops or short courses, and then conferences. Participation in formal education and training is low, particularly in university courses. South Australian farmers had notably higher participation rates in TAFE courses than farmers in the other States and Territories.

7.4 Participation by gender

Table 21 shows a breakdown of participation in different kinds of learning activities by gender.

These results show that women overall participated at a lower rate than men (61% of women participated versus 67% of men). In particular, women reported less participation in demonstration sites or field days, and in conferences, but similar participation in the other types of activities listed. Reported participation in university courses was very low for both genders (1%).

Table 21 — Participation (%) in different types of training activities by gender, 2001–02.
Source: ABS (2002)

Type of activity	Male	Female	Total sample
Demo sites/field days	47	36	43
Conferences	19	14	17
Workshops/short courses	28	27	27
TAFE courses	10	8	9
Uni courses	1	1	1
Engaged consultant	14	13	13
Other	3	3	3
<i>Participation rate</i>	<i>67</i>	<i>61</i>	<i>66</i>

7.5 Participation in government-run programs

The survey asked a question about participation in a specific set of government-run programs. Results by State and Territory are shown in Table 22.

Table 22 — Participation (%) in government-run programs by State and Territory, 2001–02. Source: ABS (2002). NHT — Natural Heritage Trust, NAP — National Action Plan for Salinity and Water Quality

Program	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total sample
FarmBis	23	10	12	32	23	12	32	14	18
Landcare	23	26	18	16	27	21	23	40	22
Rivercare	5	2	3	2	4	10	2	8	3
Bushcare	2	1	2	2	5	6	2	6	2
Coastcare	-	-	1	1	-	2	-	-	-
NHT	5	4	4	6	9	11	11	11	5
NAP	4	3	3	4	5	3	2	6	4
<i>Participation rate</i>	<i>58</i>	<i>54</i>	<i>48</i>	<i>59</i>	<i>60</i>	<i>54</i>	<i>62</i>	<i>56</i>	<i>55</i>

This analysis indicates lowest overall levels of participation in Queensland (48% participated in at least one of the programs listed). By contrast, participation in these programs overall was highest in the Northern Territory (62% of respondents participated).

In relation to the different programs listed, Landcare (22%) and FarmBis (18%) were the most popular programs by far. Comparing the rates of participation in the different jurisdictions shows that Queensland had the lowest participation rate overall (52% of Queensland farmers did not participate in any of the programs), while the Northern Territory (38%) had the highest participation rate. The Northern Territory and South Australia had particularly high participation in FarmBis (32%) as compared with the other regions, and the Australian Capital Territory had high participation in Landcare (40%). Participation in the NHT was highest in Tasmania and the two Territories (11%).

8. Catchment-based Landholder Surveys, 2003–05

Information has been extracted from three catchment-based landholder surveys conducted by BRS (Byron, Curtis & Mackay, 2004a, b; in prep, 2006). It should be noted that these surveys use a different sampling method from the surveys previously reported, and potentially include all landholders in the respective catchments with properties above 10 ha in size, not only properties identified as farms or farm businesses. The surveys include a question that asks respondents to indicate their main occupation, so landholders who consider themselves to be farmers can be differentiated from those who have other occupations.

The relevant training participation question in these surveys asked respondents whether they had completed a short course related to property management over the previous 12 months, and responses to this question can be cross-tabulated against respondent characteristics relevant to this project. The question wordings have varied slightly across the different surveys.

It should be noted that the participation question in these surveys is a restricted measure of participation in capacity building activities in terms of types of activities (only short courses are mentioned, not other activities). However, 'related to property management' is a broad description that could cover a wide range of courses, including ones that do not have a direct farming or business focus (for example those dealing with on-farm conservation practices).

8.1 Sample profiles

Details of respondents in the three catchments are given below.

8.1.1 Queensland Murray Darling

There were 821 respondents in this catchment. Of the 559 respondents who indicated their gender, 83 (15%) were women. The average age of respondents was 52 years. Seventeen per cent were under 40 years and 13% over 65.

8.1.2 Lachlan

Of the 737 respondents to this survey, only 436 indicated their gender. Of these, 59 (14%) were women. The average age of respondents was 51 years, and 16% were under 40 and 11% over 65.

8.1.3 Glenelg Hopkins

The total sample size was 1,081. Of the 1,013 respondents who indicated their gender, 147 (15%) were women. The average age of respondents was 52 years, with 15% under 40 and 25% over 65.

8.2 Participation in a short course related to property management by catchment

In the Queensland Murray Darling, 45% of respondents had completed such a short course in the 12 months prior to the survey. Comparable figures for the Lachlan were 48%, and for the Glenelg Hopkins, 47%.

8.3 Participation by age

In all three catchments, younger landholders were significantly more likely to have completed a short course related to property management than older ones. In the Queensland Murray Darling the average age of those who had completed such a course was 48 years versus 56 years for those who had not. The comparable figures for the other catchments were: Lachlan, 49 years versus 54 years; and Glenelg Hopkins, 49 years versus 57 years.

8.4 Participation by gender

In all three catchments, male respondents were significantly more likely than females to have completed this kind of course. The percentages of male to female participation in the three catchments were: Queensland Murray Darling 47% to 31%; Lachlan 52% to 17%; and Glenelg Hopkins 49% to 39%.

8.5 Participation by farm income (property profit)

Respondents from all three catchments who had an on-property profit for the year preceding the survey were significantly more likely to have participated in a short course related to property management than those who did not have such a profit. The participation percentages for those with an on-property profit to those who did not have a profit were as follows: Queensland Murray Darling 58% to 34%; Lachlan 63% to 31%; and Glenelg Hopkins 55% to 31%. However, these differences did not hold for off-farm profit (profit derived from non-farm sources)-this measure did not significantly relate to participation in short courses.

8.6 Farmer and non-farmer participation

Although this topic falls somewhat outside the study's immediate scope, these surveys provide an opportunity to compare farmer and non-farmer participation rates. Table 23 provides the participation figures for landholders with different occupations in the three catchments.

Table 23 — Participation (%) over the previous 12 months in a short course related to property management by landholders' main occupation. Source: Byron, Curtis & Mackay (2004a, b; in prep., 2006)

Landholders' main occupation	Qld Murray Darling	Lachlan	Glenelg Hopkins
Farmer	59	70	61
Professional	33	24	24
Tradesperson	11	18	17
Retiree	6	10	11
Other	23	5	27

These data indicate that landholders who said farming was their main occupation were considerably more likely to have completed a short course related to property management over the previous 12 months than landholders with other occupations.

9. Natural Resource Management on Australian Farms Survey, 2001–02

This survey, conducted by ABARE, asked a question under the heading ‘Activities and learning’ that dealt with participation in natural resource management programs, defined as including the NLP, the NHT, the NAP, and FarmBis (Nelson, Alexander, Elliston & Blias, 2004). The question asked whether the farm had a property representative who had been involved in any of these programs during the two years leading up to 30 June 2002—so this figure may not be comparable with surveys where only participation by the survey respondent was reported. The purpose of the question was to investigate the relationship between farm involvement, respondent characteristics and farm management practices.

9.1 Sample profile

The sample for this survey was 1,329 broad-acre and dairy farms drawn from the ABS Business Register, including only properties with an EVAO of \$22,500 or more. Sample numbers by State and Territory were as follows: New South Wales — 338 farms; Victoria — 280; Queensland — 262; South Australia — 175; Western Australia — 163; Tasmania — 85; and Northern Territory — 26 (Nelson et al., 2004). There were no farms from the Australian Capital Territory. The gender and age breakdown of the overall sample are not reported. As only broad-acre and dairy farms were included in the survey and results are aggregated, participation cannot be examined by industry sector. Nor can participation by age group or gender.

The participation questions asked in this survey covered the two-year period 1 July 2000 to 30 June 2002, and asked the respondent if there was a ‘property representative’ who participated in the relevant programs, so responses relate to the whole farm, not just the respondent.

9.2 Participation in government-run NRM programs by State and Territory

Table 24 shows property participation in a range of government NRM programs by State and Territory.

Table 24 — Property participation (%) in government-run NRM programs. NLP — National Landcare Program, NHT — Natural Heritage Trust, NAP — National Action Plan for Salinity and Water Quality. Source: Nelson et al. (2004, Table 12). (It should be noted that funding for the NAP began after this survey had been conducted, although some consultation had been done, and that the relevant FarmBis Program started later in Queensland than in the other jurisdictions.)

	Aust.	NSW	Vic.	Qld	SA	WA	Tas.	NT
<i>Participation in NLP, NHT, NAP or FarmBis</i>	36	42	35	22	42	40	40	28

As can be seen from the table, participation in the NRM programs included in the survey was highest in New South Wales and South Australia (both 42%), and lowest in Queensland (22%).

9.3 Participation in government-run NRM programs and Landcare or similar groups, and participation in different types of activities

The survey report cross-tabulates property participants and non-participants in a range of government-run programs and Landcare or similar groups, by participation in different types of training activities (Table 25).

Table 25 — Percentage of participants and non-participants in NRM programs (NLP, NHT, NAP), and Landcare or similar groups, undertaking different types of activities between 1 July 2000 and 30 June 2002. Source: Nelson et al. (2004, Table 14)

Type of activity	Participants in NRM programs and Landcare or similar groups	Non-participants in NRM programs and Landcare or similar groups
Demos/field days	74	57
Conferences/workshops/short courses	67	45
Uni/TAFE courses	28	16
Engaged consultant	31	13
Other	2	3
<i>Participation rate</i>	85	73

The table suggests that participants in the natural resource management programs included in the survey, and Landcare or similar groups, were more likely to undertake these activities than non-participants, and that both participants and non-participants showed a marked preference for informal activities (demonstration sites or field days, conferences, workshops or short courses), rather than formal educational courses at universities or TAFE colleges. Similarly, it appears that participants were considerably more likely to have engaged a consultant than non-participants.

10. Small Farms and Other Industries Survey, 2002–03

This ABARE survey sampled 1,703 farms across Australia, including ones engaged in horticulture, cotton, fruit, sugar and grapes, as well as broad-acre and dairy farms. The survey was funded by the NHT. Results are reported on the ABARE website under the heading *Small farms and other industries survey: a profile of sub-commercial and non-broadacre farms* (ABARE, 2005), and in Hodges (2005). Data provided on the ABARE website allow limited cross-tabulations to be obtained, relevant ones of which are reported here.

10.1 Sample profile

The survey included 410 farms in New South Wales; 302 in Victoria; 422 in Queensland; 213 in South Australia; 188 in Western Australia; and 168 in Tasmania (a total of 1,703 properties). The two Territories were not included. Of the total respondents, 78% were male and 22% were female. Of the farms sampled, 271 were engaged in Other Horticulture; 114 in Vegetables; 172 in Grapes; 23 in Apples and Pears; 55 in Fruit Growing (other than already listed); 254 in Beef Cattle; 201 in Intensive Livestock; 93 in Sugar; 100 in Cotton; and 420 in Other Agriculture. In terms of EVAO, the 1,703 farms included 509 with an EVAO of less than \$22,500; 104 with an EVAO of \$22,500-\$50,000; 133 with an EVAO of \$50,000-\$100,000; and 957 with an EVAO greater than \$100,000.

It should be noted that because of the relatively low sample numbers in some industry groups, where low percentages are given in the tables given below they are likely to refer to small numbers of farms and have high relative standard errors (see the ABARE website for details).

10.2 Participation in different types of activities by industry

Table 26 cross-tabulates industry group and participation in different types of capacity building activities. The activities covered in the survey included participation in a range of government-run programs (reported in the next section), and engaging a consultant as well as the usual range of training activities. The relevant question asked about participation in these programs and activities over the two years prior to 30 June 2002.

These data support previous observations that demonstration sites or field days, followed by workshops or short courses, tend to be the most popular kinds of activities, and that these preferences are fairly consistent across industry groups. Substantial numbers of farms in some industry groups, notably Cotton (83% of farms), engaged at least one consultant over the period covered.

Industries with high participation rates, particularly in the first three categories of activities, are Grapes, Cotton, Sugar, and Fruit Growing. By comparison, Beef Cattle, Other Agriculture, and Intensive Livestock have relatively low participation rates across these activities.

Table 26 — Participation (%) in different types of activities by industry group. Source: ABARE (2005)

Industry group	Demo sites/field days	Conferences	Workshops/short courses	TAFE courses	Uni courses	Engaged consultant	Other
Other Horticulture	58	39	48	16	7	29	2
Vegetables	59	27	43	10	1	38	1
Grapes	84	50	58	9	2	26	0
Apples and Pears	58	25	30	6	0	7	3
Fruit Growing	75	63	64	3	0	43	4
Beef Cattle	46	13	24	6	0	8	1
Intensive Livestock	54	41	43	7	1	26	2
Sugar	77	37	52	10	0	33	3
Cotton	79	68	67	14	3	83	2
Other Agriculture	46	24	25	9	1	14	1

10.3 Participation in government-run programs by industry

Table 27 cross-tabulates participation in a range of government-run programs by industry group.

Table 27 — Participation (%) in government-run programs by industry group. NLP — National Landcare Program; MDI — Murray Darling Initiative; NHT — Natural Heritage Trust; NAP — National Action Plan for Salinity and Water Quality. Source: ABARE (2005)

Industry group	NLP	MDI	River-care	Bush-care	Coast-care	Other NHT Programs	FarmBis	NAP
Other Horticulture	16	3	6	5	2	5	27	7
Vegetables	14	0	9	3	0	7	21	4
Grapes	12	8	6	1	0	5	17	11
Apples and Pears	8	0	19	6	9	9	28	0
Fruit Growing	10	0	8	2	0	1	33	1
Beef Cattle	16	2	5	3	0	8	12	3
Intensive Livestock	12	4	5	2	0	4	21	2
Sugar	9	0	13	2	2	3	26	4
Cotton	23	21	16	1	0	14	62	19
Other Agriculture	18	1	6	4	1	7	12	4

In addition to giving some idea of relative rates of participation in the different programs (with FarmBis and the NLP tending to have the highest rates and Coastcare the lowest—the last undoubtedly related to geographical factors), this table suggests relatively high participation in a number of programs among members of the Cotton industry (with particularly high participation in FarmBis of 62%). In relation to the NLP, there was low participation by the Apples and Pears (8%), and Sugar (9%) industry groups. In relation to FarmBis, participation was low in Beef Cattle, Other Agriculture, and Grapes industry groups.

10.4 Participation in different types of activities by State

State-by-State participation in the different types of training activities is shown in Table 28.

Table 28 — Participation (%) in different types of activities by State. Source: ABARE (2005)

State	Demo sites/field days	Conf-erences	Work-shops/short courses	TAFE courses	Uni courses	Engaged consultant	Other
NSW	53	29	38	10	3	18	1
Vic.	53	27	32	12	1	17	1
Qld	59	31	39	6	1	24	1
SA	65	33	41	12	4	25	4
WA	56	31	43	6	2	25	1
Tas.	41	21	20	5	1	16	1
<i>Total sample</i>	<i>56</i>	<i>30</i>	<i>37</i>	<i>9</i>	<i>2</i>	<i>21</i>	<i>1</i>

These figures suggest relatively similar patterns of participation in the different types of activities across the various jurisdictions, although South Australia again stands out as having higher participation rates in most activities than the other States, and Tasmania lower. Participation in TAFE courses is lower in Queensland, Western Australia and Tasmania than in the other States. Consultants are engaged by a higher percentage of farms in Queensland, South Australia and Western Australia.

10.5 Participation in government-run programs by State

Table 29 shows State-by-State participation in the various government-run programs included in the survey.

Similarly to the industry breakdown, these figures show marked differences in participation in the different programs as a whole, and also suggest some variations among the States, with Victoria having relatively high participation in the NLP (as might be expected as the Landcare movement began in this State), and Queensland and Western Australia the lowest. In relation to FarmBis, participation is relatively high in New South Wales, Queensland and Western Australia as compared with the other States. The rate of participation in the NAP is considerably higher in South Australia than in the other States.

Table 29 — Participation (%) in government-run programs by State. NLP — National Landcare Program; MDI — Murray Darling Initiative; NHT — Natural Heritage Trust; NAP — National Action Plan for Salinity and Water Quality. Source: ABARE (2005)

State	NLP	MDI	Rivercare	Bushcare	Coastcare	Other NHT Programs	FarmBis	NAP
NSW	16	3	9	4	2	6	21	5
Vic.	21	2	6	3	1	5	14	4
Qld	11	2	6	2	0	5	20	5
SA	14	5	3	1	0	7	14	11
WA	11	1	6	6	1	10	19	4
Tas.	16	1	9	7	1	10	13	1
<i>Total sample</i>	<i>15</i>	<i>2</i>	<i>7</i>	<i>3</i>	<i>1</i>	<i>6</i>	<i>18</i>	<i>5</i>

10.6 Participation in different types of activities by farm income (EVAO)

The farm income measure used in this survey was the EVAO, and this is shown in Table 30, grouped into four categories, against participation in the different kinds of activities.

Table 30 — Participation (%) in different kinds of activities by farm income (EVAO). NLP — National Landcare Program; MDI — Murray Darling Initiative; NHT — Natural Heritage Trust; NAP — National Action Plan for Salinity and Water Quality. Source: ABARE (2005)

EVAO	Demo sites/field days	Conf-erences	Work-shops/short courses	TAFE courses	Uni courses	Engaged consultant	Other
Less than \$22,500	45	17	24	7	1	10	1
\$22,500-\$50,000	67	40	40	9	6	25	2
\$50,000-\$100,000	64	34	40	9	3	25	0
Greater than \$100,000	68	47	59	13	2	37	3

This table indicates that farms in the lowest EVAO category (Less than \$22,500) participated at a lower rate in all the specified kinds of activities than farms in the three higher categories. However, although farms in the Greater than \$100,000 category participated in all but one activity (university courses, where participation overall is very low), at the highest rate, the relationship between increasing EVAO and increasing participation does not hold for all activities when considering the two intermediate EVAO categories.

10.7 Participation in government-run programs by farm income (EVAO)

Table 31 shows a similar breakdown by EVAO categories for participation in the government-run programs included in the survey.

Table 31 — Participation (%) in government-run programs by farm income (EVAO). NLP — National Landcare Program; MDI — Murray Darling Initiative; NHT — Natural Heritage Trust; NAP — National Action Plan for Salinity and Water Quality. Source: ABARE (2005)

EVAO	NLP	MDI	River-care	Bushcare	Coast-care	Other NHT Programs	FarmBis	NAP
Less than \$22,500	16	1	5	3	1	7	11	4
\$22,500-\$50,000	14	2	2	1	1	5	17	10
\$50,000-\$100,000	12	2	11	4	1	5	15	2
Greater than \$100,000	15	5	10	4	1	5	33	7

This table suggests that the relationship between participation in these programs and EVAO is not clear-cut. The most marked difference in the table is the much higher participation (33%) in the FarmBis Program by farms in the Greater than \$100,000 EVAO category, than by farms in the other three categories.

11. Discussion and implications

This chapter summarises findings from previous sections of the report, relates them to the project’s objectives, and attempts to identify any implications for organisations, groups and individuals involved in providing, participating in, or conducting research related to capacity building activities for Australian farmers, with a focus on those that are relevant to the CVCB.

While some factors are difficult to categorise, when compared with the groups of factors influencing farmers’ participation that were identified by Andrew et al. (2004), this report has focused mainly on:

- The learning and educational experience of the farmer e.g. farmers’ prior formal education attainments and their relationship to participation
- Situational, institutional and dispositional factors that may be related to participation e.g. regional locations, industry groups, and farmers’ socio-demographic characteristics (age, gender etc.).

Table 32 briefly summarises the relationships examined and the major findings from the surveys discussed in previous sections, in order to simplify comparisons between them.

Table 32 — Summary of variables examined and major findings from the surveys examined in Chapters 4–10

Topic and survey	Variables examined	Major findings
International comparisons of farmer qualifications <i>Australia</i> -2001 Census of Population and Housing <i>New Zealand</i> -New Zealand Census 2001 <i>Canada</i> – Statistics Canada Census 2001	Formal educational qualifications of Farmers and Farm Managers as compared with counterparts	Australian farmers’ formal educational attainments similar to counterparts in NZ and Canada
Formal educational qualifications of Australian Farmers and Farm Managers and the AFF sector ABS 2001 Census	Formal educational qualifications of Farmers and Farm Managers as compared with Aust. population	34.7% of all Australians 15+ yrs have post-school qualifications as compared to 28.1% of Farmers and Farm Managers. VET qualifications of two groups similar. Some evidence that access to educational institutions may be a barrier for those in remote regions
	Formal educational qualifications of AFF sector as compared with other Aust. industry sectors	AFF sector has lower levels of formal qualifications (33.5% have post-school qualifications) than any sector except Retail (30.3%). Discrepancy greatest for higher ed. qualifications, low for VET qualifications
	Formal educational qualifications of Farmers and Farm Managers by State and Territory	Levels highest in NSW (33.3% have post-school qualifications) and lowest in Qld (22.8%)

Table 32 (Cont.)

Topic and data source	Variables examined	Major findings
Rural Producer Survey, 2002	Participation by industry	Cotton and grapes have highest participation (76.0%); beef; dairy; sheep and beef; and sheep industry groups lowest
	Participation by type of activity	Strong preferences for informal activities, particularly workshops and short courses (47.1% participated)
	Participation by State and Territory	SA producers participate at highest rate both in terms of average participation across the 2000 and 2002 surveys and in terms of total numbers of activities undertaken in 2002 survey; Qld producers have lowest participation, particularly in TAFE courses
	Participation by age group	Overall participation highest in 25–34 yr age group and declines steadily thereafter
	Participation by gender	Average participation by men and women across 2000 and 2002 surveys similar; in 2002 survey women lean slightly more to TAFE courses and men to conferences
	Participation by existing educational qualification	Participation increases with increasing qualification level
	Participation by farm income (profit or loss)	No consistent overall relationship but some tendency for participation to increase with increasing profit
	Participation by farm role	Those in employee and other roles tend to participate more than owner–operators
	Participation in government-run programs	Highest participation in FarmBis, NLP and Farm Deposits
Survey of FarmBis Participants, 2002	Participation by industry	Highest percentages of participants from traditional broad-acre livestock and grains sectors
	Participation by State and Territory	Highest participation in NSW (20.7%), Qld (20.7%) and SA (20.6%). Lowest in NT (6.2%) and Tas. (6.1%)
	Participation by activity topic	Most popular topic General Business Management (51% of respondents)
Agricultural Survey, 2001–02	Participation by industry	High participation from Grape growing and Other crop growing; low participation from Poultry farming and Other livestock farming
	Participation by type of activity	Demo sites or field days most popular, followed by workshops or short courses. Participation in formal activities low
	Participation by State and Territory	SA and WA have highest participation (both 73%); Tas. and ACT lowest (62% and 58%). Tas. farmers on average undertook lowest no. of activities
	Participation by gender	Women participate at slightly lower rate overall than men (61% versus 67%); women participate less in demo sites or field days, and conferences than men
	Participation in government-run programs	Participation lowest in Qld (48%), and highest in NT (62%). Landcare (22%) and FarmBis (18%) most popular

Table 32 (Cont.)

Topic and data source	Variables examined	Major findings
Catchment-based Landholder Surveys, 2003–05	Participation in short course related to property management	Participation highest in Lachlan Catchment (48%), slightly lower in Glenelg Hopkins (47%) and Qld Murray Darling (45%)
	Participation by age	Younger landholders significantly more likely to have undertaken course
	Participation by gender	Male landholders in all three catchments significantly more likely to have undertaken course than female ones
	Participation by farm income	Landholders with on-property profit significantly more likely to have undertaken course than those without on-property profit. Not related to off-property profit
	Participation by farmers and non-farmers	Farmer landholders more likely to participate than non-farmers
Natural Resource management on Australian Farms Survey, 2001–02	Participation in government-run NRM programs by State and Territory	Participation highest in NSW and SA (42%), lowest in Qld (22%)
	Participation in NRM programs and Landcare or similar groups, and participation in different types of activities	Participants in these programs more likely to undertake other kinds of activities than non-participants (85% versus 73%). Marked preferences for informal activities
Small Farms and Other Industries Survey, 2002–03	Participation in different types of activities by industry	Demo sites and field days, followed by workshops and short courses most popular. High participation by Grapes, Cotton, Sugar and Fruit Growing; low by Beef Cattle, Other Agriculture, and Intensive Livestock
	Participation in government-run programs by industry	FarmBis and NLP most popular programs. Cotton has high participation, particularly in FarmBis (62%)
	Participation in different types of activities by State	Similar patterns across jurisdictions but SA has higher participation in most activities than other States. Participation in TAFE low in Qld, WA and Tas.
	Participation in government-run programs by State	Vic. has highest participation in the NLP, Qld and WA the lowest. FarmBis participation high in NSW, Qld and WA
	Participation in different types of activities by farm income (EVAO)	Relationship not linear although farms in lowest EVAO category participate at lowest rate in all activities included
	Participation in government-run programs by farm income (EVAO)	Relationships not clear-cut. High participation (33%) in FarmBis by farms in greater than \$100,000 category

11.1 Industry

The ABS 2001 Census of Population and Housing provided information allowing broad comparisons to be made between the formal educational qualifications of people employed as Farmers and Farm Managers, and people employed in other Australian industry sectors. These demonstrated that Farmers and Farm Managers tend to have lower levels of formal qualifications than people in most other industry sectors, with the discrepancy being greatest for higher educational qualifications (where only 9.8% of Farmers and Farm Managers had these qualifications as compared with an industry average of 25.0%); and relatively small for VET

qualifications (where 23.7% of Farmers and Farm Managers had these qualifications compared with an industry average of 26.1%).

A number of possible implications can be drawn from these findings. Lower participation in university-based education may reflect the influence of a range of factors, for example farmers' perceptions that course offerings or qualifications are not relevant to their occupation, discrepancies between types of activities and farmers' preferred ways of learning, and difficulties in attending higher education campuses due to situational factors (costs, distance etc.). Universities, particularly regional and non-metropolitan campuses, can increase the relevance of their services by using participatory curriculum design methods (working with farmers, industry and regional communities to design curricula and courses tailored to the needs of potential students in their regions). Many already do this, as well as in some cases entering into formal partnerships with industry or other non-government organisations. As university course costs increase, cost may be becoming a more significant barrier for many farmers, and for farm family members who may choose to take up farming in the future. Government can and does help overcome cost barriers by providing scholarships, bursaries, allowances and other kinds of financial support or subsidies to students. These can be selectively targeted towards under-represented groups, including farmers and their families. The analysis presented in Herrería et al. (2004) suggests that distance is also a barrier, as across the AFF sector as whole, higher educational qualifications were lowest among people in Remote regions. Providing more regionalised services, distance learning opportunities, or financial support to enable farmers to spend time away from the farm or employ farm help, can help overcome these kinds of barriers.

In terms of participation by different industry groups within agriculture, the major sources of information on this topic were the Rural Producer Survey conducted for the AAA program, and the ABS Agricultural Survey. Synthesising information from the different surveys is complicated by use of different industry categories, different time periods and to some extent different kinds of activities, but it suggests marked variations across industry groups.

In terms of overall participation in the usual range of activities covered in the surveys, the data suggest that some highly specialised and intensive horticultural industries like grape growing, cotton, citrus and banana production tend to have high participation rates, while traditional broad-acre livestock industries like cattle, sheep and other livestock farming tend to have lower rates. The ABS Agricultural Survey similarly suggests overall participation is high in grape growing and other horticulture and fruit growing; but low in poultry farming and the livestock and grains industry sectors.

The industry participation data from the Survey of FarmBis Participants, 2002, are at variance with the findings of the other surveys, reflecting the characteristics of the FarmBis population as a whole.

In terms of participation in government-run programs, the Small Farms and Other Industries Survey suggests high participation by the cotton industry in a number of government programs. This survey also indicates that a relatively high percentage of cotton farms employed one or more consultants in the period covered by the survey. Conversely, when examining the most popular of the government programs, industry groups like apple and pears, and sugar had relatively low participation in the NLP, while beef cattle and grapes had low participation in FarmBis.

Variations in industry participation rates are likely to relate to factors like the inherent nature of these industries and their associated farming practices, rate of industry innovation and change, the nature of the activities provided and their relationship to industry needs, and how these activities are targeted, marketed and delivered in their respective regions. Variations in industry participation rates cannot necessarily be attributed to the characteristics of the farmers in different industries, nor to their attitudes to capacity building activities in general. Differences may relate in some cases to concentrations of particular ethnic groups in some industries, with

associated cultural traditions that may tend to lead to them avoiding participation in activities organised predominantly by and for Anglo-Australians. Another factor is industry age structures and rates of entry to or exit from industries—for example, the traditional grain and livestock industries tend to have older age profiles and fewer new entrants than many other industries. New entrants are probably likely to seek training particularly if they have no family history in the industry in question.

11.2 Type of capacity building activity

From the surveys reviewed here there is clear and consistent evidence from a number of surveys that farmers tend to prefer informal capacity building activities rather than formal courses at educational institutions. Of the types of activities examined in these surveys, there were strong preferences for activities grouped as workshops and short courses, and demonstration sites and field days, and to a lesser extent, conferences. This confirms findings of other studies reviewed in this report.

These preferences are likely to be due to a number of factors including availability of activities in the local area, costs incurred, and time. Preferred activities are ones that are likely to take the farmer away from the farm for only relatively short periods and that are either free of charge or relatively inexpensive to attend.

The implication here is that training providers need to use these types of activities as much as possible and perhaps investigate other kinds of informal activities as well. Applying adult learning principles and providing activities that allow farmers to interact directly and learn from one another in relatively informal settings are likely to foster participation.

11.3 Region

The surveys examined in this report allow participation to be examined across the Australian States and Territories. In the Rural Producer Survey, average participation rate over the 2000 and 2002 surveys was highest in South Australia, the Northern Territory, and Queensland. In terms of total numbers of activities undertaken over the two-year period leading up to the 2002 survey, New South Wales and the Australian Capital Territory, followed by Victoria and Queensland, were the leaders. In terms of preferences for different types of activities, it was notable that Queensland farmers had low levels of participation in formal education and training, especially TAFE courses.

In the ABS Agricultural Survey, overall participation across all activities was highest in South Australia and Western Australia, and lowest in Tasmania and the Australian Capital Territory. The very small and atypical nature of Australian Capital Territory farming has already been noted.

The ABARE Small Farms and Other Industries survey also suggests high participation by South Australian farmers in a range of activities, and low participation by Tasmanian farmers. Tasmanian, Queensland and Western Australian farmers stand out as having low participation in TAFE courses in comparison with the other jurisdictions.

In the catchment-based landholder studies, farmers in the Queensland Murray Darling had a slightly lower average rate of participation in short courses related to property management (59%) than farmers in the Victorian Glenelg Hopkins Catchment (61%) or the New South Wales Lachlan Catchment (70%).

In terms of participation in government-run programs, the ABS Agricultural Survey, the ABARE Natural resource management on Australian farms survey, and the ABARE Small farms and other industries survey examined participation in a limited range of natural resource

management programs. The first ABARE survey found that participation was highest in South Australia and New South Wales (42% in both), and lowest in the Northern Territory and Queensland (28% and 22% respectively). The second ABARE survey indicates that Queensland and Western Australian farmers had low participation in the NLP but relatively high participation in FarmBis. The ABS Agricultural Survey indicates slightly lower participation in government-run programs in Queensland (42% of farmers there did not participate in any of the programs listed), and higher participation among Northern Territory farmers (38% did not participate). It should be emphasised that timing of surveys in relation to implementation of particular programs in the various jurisdictions has an important influence on participation figures and needs to be considered in interpreting results.

These regional differences are likely to be influenced by availability of opportunities, which is in turn related to numbers of providers or organisers of activities and to total population. States with larger regional populations like New South Wales, Victoria and Queensland are likely to have an advantage in this regard. However, the evidence presented here does suggest that Queensland farmers tend to be under-represented in a number of government-run programs, and, together with Tasmanian and Western Australian farmers, also participate in TAFE courses at a lower rate than farmers in the other jurisdictions. It was also noted in Chapter 4 that Queensland farmers have the lowest percentage of Farmers and Farm Managers with post-school qualifications among the jurisdictions, and levels of these formal educational attainments are related to attitudes towards further education and training.

These differences, particularly as they relate to Queensland farmers, may warrant further investigation to see if they are related more to the nature of providers, programs or courses offered, to the attitudes of farmers themselves, or to both.

11.4 Demographic measures

11.4.1 Age

Evidence reviewed in this study confirms previous findings that older age groups among farmers tend to have lower participation rates than younger ones. This closely parallels observations about the formal educational attainments of different age groups and the influence of these attainments on willingness to undertake further education and training, as on average, older farmers are likely to have lower level formal education attainments than younger ones. In the 2002 Rural Producer Survey, participation in training activities decreased almost linearly from the 25-34 year age group (76.1% participation), to the 65 year and older age group (33.9% participation).

Similarly, in all three catchment-based landholder surveys, younger respondents were more likely to have completed a short course related to property management than older ones.

11.4.2 Gender

The gender evidence examined in this study is somewhat difficult to interpret. It is likely that in many cases, sample selection methods and framing of questions introduce systematic but unintended biases towards over-representation of males among respondents. For example, the catchment-based landholder surveys typically use ratepayer lists in which male 'heads of households' are likely to be named first in multi-person households, and who will therefore appear first in addresses on mail surveys. In traditional farm family households it may be more likely that the male partner will identify as a farmer, or consider that they have primary responsibility for farm management and decision-making, than the female partner. Many farm women have off-farm occupations and may define themselves in terms of their off-farm occupations rather than their on-farm ones. This may also mean that they may tend not to respond to surveys focused on collecting farm-related data. All of this contributes to the fact that many farm surveys have relatively small numbers of female respondents (for example 16% of

respondents to the 2002 Rural Producer Survey were female, and 24% of the 2002 FarmBis survey respondents). Participation in training activities by both genders is also likely to be influenced by the time taken up by household and child-care responsibilities, which typically fall more to women than men.

In the 2000 and 2002 Rural Producer Surveys, male and female participation in training activities was very similar, with an average participation rate across the two surveys of 53.8% by men and 54.6% by women. Women tended to favour TAFE courses slightly more than men, and conferences less. Participation in other types of activities was similar and both genders showed a preference for workshops and short courses, and demonstration sites and field days.

In the ABS Agricultural Survey, women participated in training activities at a lower rate than men overall (61% of women participated versus 67% of men); while in the catchment-based landholder surveys, male landholders in all three catchments were significantly more likely to have undertaken a short course related to property management than female ones. This is likely to reflect that fact that in multi-person households, men are more likely than women to see themselves as having primary responsibility for property management.

11.4.3 Educational level

Cullen (1997) has expressed concerns about relatively low levels of formal education in the Australian workforce generally when compared with other nations. The figures examined in this study confirm low levels of formal educational attainments among Farmers and Farm Managers as compared with other Australian occupational groups, but on the basis of the limited international comparisons made here, farmers in Australia, New Zealand or Canada appear to be similar in this respect.

Some of the strongest findings in this report and in other related work, are that there is a consistent positive relationship between formal educational attainment levels and participation in a range of capacity building activities. In the 2002 Rural Producer Survey, participation in training activities increased fairly consistently from a low of 15.7% among those who had never attended school, to a high of 70.1% among those who had completed a Bachelor degree or higher level qualification. Even those who had completed school years 11 or 12 had a higher participation rate than those who had only completed year 10 or less.

However, in the 2002 survey of FarmBis participants, people who had not completed any post-secondary education comprised the majority of respondents (62%), suggesting that this program has been relatively successful in reaching people with lower levels of formal education.

There is clearly a need to encourage Australian farmers, and people intending to become farmers, to continue their formal education and accept the notion of lifelong learning. Trend data suggest this is happening among farmers as part of a broader trend towards 'upskilling' of the Australian workforce. ABS population data indicate that during the past 10 years, the Australian population has become more highly educated — between 1994 and 2004 the proportion of people aged 25–64 years with a vocational or higher education qualification rose from 44% to 58%. In particular, newer entrants to farming tend to have higher educational attainments than older ones, which by itself is a positive sign for farmer participation in capacity building activities in the future.

Of course, low levels of formal education do not necessarily mean that farmers lack the skills to farm effectively, as the many types of informal capacity building activities discussed in this report all need to be considered. Nonetheless, increasing participation in formal education is especially important in view of the positive relationship between farmers' formal educational attainments and willingness to participate in a wide range of capacity building activities.

11.4.4 Income

Relationships between farm income and participation in capacity building activities are not clear cut. This is partly due to the many different ways that farm finances can be measured, and also to the increasing contribution of off-farm income to many farm households. It might be expected that on-farm income would be more likely to be related to participation rates than off-farm income, and this was borne out by findings in catchment-based landholder surveys where landholders with an on-property profit were significantly more likely to have undertaken a short course related to property management than those who did not have such a profit, but this did not apply to landholders with an off-farm profit.

In the 2002 Rural Producer Survey a measure of farm profit or loss was used, and this measure did not appear to have any overall consistent relationship with participation in training activities, although there was some tendency for participation to increase with increasing farm profit.

An important consideration is that some of the most popular types of training activities, particularly workshops, demonstration sites and field days, may not have any costs associated with them apart from travel costs and time to attend. This contributes to their popularity among farmers, particularly those farmers with lower farm incomes who may not have much cash to spare.

These relationships are also confounded by cause and effect uncertainties. Are farms with higher incomes more likely to participate in capacity building activities because they have higher incomes, or do they have higher incomes because they participate in more capacity building activities? Without longitudinal studies involving the same properties it is difficult to answer this question.

11.5 Other participation factors

This review has very briefly examined some other factors relevant to participation rates and the kinds of activities that contribute to building capacity. They include farm roles and course topics.

11.5.1 Farm roles

Farm roles and business structures may be a very important factor in participation, as indicated in the 2002 Rural Producer Survey where it was found that farm employees and share farmers participated at considerably higher rates than people with most other farm roles (although it needs to be borne in mind that numbers of respondents in non-owner-operator categories were low). This is likely to relate to people's experience in their current farm roles; whether they have had opportunities to learn how to carry out these roles in informal ways, particularly from family members; and to employer training obligations to employees and associated financial support to attend training activities (study leave, payment of course fees or travel costs etc.). Having this kind of support minimises opportunity costs for participants and helps overcome any financial or time barriers to participation.

Tonts & Black (2002) have examined the changes occurring in farm business structures, reporting that corporate farms (farms owned by a group of shareholders), comprised about 6% of Australian farms in 1997, a percentage that has probably now increased significantly. These kinds of farms are prominent in the cotton, viticulture, poultry and pig industries. The other type of non-traditional farming is contract farming (where farms contract with other firms upstream or downstream in the production chain), which is well-established in a range of industry sectors. However, contract farming can still involve traditional owner-operated family farms, whereas corporate farming is likely to mean that some or all farm workers are employees not owner-operators. The implications of these changes for capacity building, extension and training do not appear to have been explored.

In the three catchment-based landholder surveys, landholders who did not identify themselves as farmers were significantly less likely to have participated in a short course related to property management than farmers. This reflects the fact that non-farmer landholders had other occupational roles and income sources, and were not necessarily focused on property management activities or reliant on farm income. This raises the broader questions of occupational identities and under what circumstances rural landholders identify themselves as farmers (Barr, 2004).

11.5.2 Activity topics

Some information has been presented on participation in activities covering different topics. For example, the 2002 survey of FarmBis participants indicated strong preferences among respondents for General Business Management courses. This subject clearly needs much further investigation and a broadening of scope to cover a wider range of course topics, programs and providers. This is likely to be a demanding task even to include all the vocationally oriented activities with a direct relationship to farming, let alone the broad range of activities contributing to general education and training for farmers or the community as a whole. Providing relevant topics also raises questions of conducting skills audits and training needs analyses to help identify what particular farmer groups require in terms of topics and subjects.

11.5.3 Other factors that could be investigated

One of most obvious additional factors that is highly likely to be relevant to participation is ethnicity and cultural background. Agricultural industries vary substantially in the ethnic backgrounds of their members, and some agricultural practices have strong roots in particular ethnic groups and their traditions. In Australia there is also small but significant participation in some industries by Aboriginal people. Ethnic origin and the relationship of agricultural practices to cultural traditions are likely to be significant influences on attitudes towards and participation in capacity building activities. This aspect warrants further investigation, particularly in industries that have many participants from non-English speaking backgrounds.

11.6 Does this report establish a baseline?

The challenge posed in this project was to determine a baseline for farmers' participation in capacity building activities. While this report has presented and reviewed a range of relevant studies, it has highlighted the difficulties of establishing a baseline of this kind. The challenges are largely related to the definitional questions, the wide range of possible activities that can be included, and the complexities of measuring participation in these activities. Any surveys that seek to provide participation measures must make decisions about who to sample (how to define farms and farmers, whether to cover individuals, households or businesses); what geographical scale to cover; what methods to use (mail, telephone etc.); how to frame questions; what activities to include; and what time periods to cover. The surveys reviewed here differed in these respects, limiting the comparability and generalisability of the data they obtained. Similar issues have been highlighted in discussing the broader issues of social and economic data for natural resource management (National Land and Water Resources Audit, 2005).

The ABS Census of Population and Housing and the statistics it provides about formal educational attainments is the best baseline available in that it covers the entire population, is repeated every five years, asks questions in a similar way, and uses a consistent methodology. However, as discussed in Chapter 1, capacity building goes well beyond formal education, so the Census only goes a small part of the way towards establishing the baseline sought here. The best possibility for improving on Census data is probably to work towards incorporating a consistent set of questions in future ABS Agricultural Surveys and Censuses, and approaches could be made to the ABS for this purpose. These surveys have large sample sizes and could build on the initial questions and findings from the 2001–02 Agricultural Survey. Also, the fact

that these surveys and censuses are part of a regular, ongoing series makes it potentially possible to obtain trend data which could be very useful in monitoring and evaluating the success of future capacity building activities. Consistent methods applied over time are needed to provide reliable trend data.

So this report has highlighted some of the practical difficulties of establishing a baseline, but it has shown that there are data available at the national and regional level that provide lessons about capacity building and suggest further avenues to pursue in achieving the linked goals of improving farmers' participation and ensuring that activities offered meet their needs.

12. Recommendations

These recommendations have been ordered according to the sectors to which they best relate, and suggest ways the CVCB could work with these different sectors both to directly improve participation and to further understanding of participation levels and the factors influencing them.

12.1 Formal education system

There are challenges in the findings reported here for the formal education system, particularly the university sector. This sector is under pressure from a number of directions and it is clearly not the provider of choice for many farmers. Formal educational institutions may need to improve the relevance of their courses and activities and their recognition of prior learning or prior competencies if they wish to increase farmers' participation. This is probably best done through better engagement between the relevant institutions and regional industry or community groups, and particularly through participatory curriculum design. Making more use of short courses, workshops and field work would help match capacity building activities to farmers' preferences; and reducing costs, providing targeted financial support to farmers to attend courses, and increasing opportunities to undertake distance learning, would all help overcome participation barriers.

Recommendation 1: While it may not be the CVCB's role to work directly with individual institutions, it is recommended that it work with relevant organisations representing the formal education sector, farmer representative groups, and its industry partners, to encourage participatory curriculum, course and activity design in the formal education sector to better suit farmers' needs and preferences; and to develop additional ways of overcoming cost and distance barriers faced by farmers, particularly those in remote regions.

12.2 Industry

This study suggests there are marked differences in participation across industry groups. Some of these differences are related to the intrinsic characteristics of the industries themselves and their practices, or to the socio-demographic characteristics of people comprising the different industries; while others are related to structural and adjustment pressures currently facing industries. Low participation from the broad-acre livestock industries and grain farmers suggests the need for selective targeting of these industries in capacity building programs and activities. Industry groups can help by either organising these kinds of activities themselves, working with other providers to offer relevant activities, and using their networks and influence to foster participation by industry members.

Recommendation 2: That the CVCB and its partners support and encourage development of detailed social profiles that describe the socio-demographic characteristics of members of different industries within agriculture, and enable comparisons of ethnic and cultural differences across industries. This will help design programs and activities to meet the needs of different industries, improve targeting of communication and marketing activities, and improve participation in capacity building activities. Focus should be on currently under-represented industries, particularly the broad-acre livestock and grains industries.

It is further suggested that the CVCB consider supporting further work on identifying farming styles or farming segments within particular industries or regions, to help design and target capacity building activities for farmers in these industries and regions. These analyses go beyond simple socio-demographic or socio-economic characteristics and allow more detailed segments to be described incorporating a number of these measures as well as other behavioural and attitudinal characteristics.

12.3 Government agencies offering natural resource management programs

Government agencies have a responsibility to ensure that the programs and activities they support use public resources as effectively and efficiently as possible, and that they are appropriately monitored and evaluated. For these assessments to be made, programs and other activities need to have clearly defined aims, objectives and target audiences. Wherever possible, participation in programs and activities needs to be set in a broader perspective in relation to these aims and intended audiences. For this reason, where farmers as a whole are the target audience, comparisons need to be made if possible between the characteristics of participants and those of the whole Australian farmer population. The same applies to activities with a more specific focus on particular sub-groups, industries or regions. Only by comparing characteristics of participants with the characteristics of the entire target audience can under-represented groups be identified accurately, and program communication or marketing be refined accordingly.

Recommendation 3: That the CVCB incorporates this evaluation principle into its own capacity building and communication activities wherever possible, and encourages its members to do likewise. This will lead to improved evaluations, and better understanding of who is and is not participating in these activities.

In terms of States and Territories, there are some concerns about possible under-representation of Queensland farmers, particularly in government programs. Relevant Commonwealth and Queensland Government agencies could seek industry and community group advice about how to improve participation in capacity building activities in this State, and seek endorsements for their activities to help counter any negative attitudes towards government and its activities. Involvement of regional staff who have credibility within their communities is also likely to improve participation in government programs and activities.

Recommendation 4: That the CVCB and its members support further investigation of regional differences in participation, with a particular focus on following up observations about possible under-representation of Queensland farmers, particularly in government programs and formal education and training. This needs to involve cooperative activities with relevant Queensland agencies and organisations involved in providing capacity building programs and activities.

12.4 Landcare and related voluntary groups

While this report does not include a comprehensive review of this topic, evidence presented here and in other studies suggests that participation in Landcare and related groups does assist in building capacity and improving farmers' abilities to deal with natural resource management issues in particular. These groups need to maintain and if possible build their membership, take account of farmers' activity preferences, and use these kinds of activities as much as possible in their own programs.

Recommendation 5: That the CVCB and its members support further work to enable the capacity building contribution of voluntary groups to be better identified and described. The CVCB and its members may also want to consider how they can better use the networks established by these groups to disseminate the results of the research they support, and encourage incorporation of research results into group activities.

12.5 All providers and organisers of capacity building activities

All players, including the ones mentioned above and those in the private sector, need to recognise farmers' learning styles and preferences, and wherever possible put this knowledge into practice. They also need to recognise the desirability of relating capacity building activities to local or regional issues and to farmers' immediate needs; and the advantages of involving local actors in organising, designing and delivering activities.

Recommendation 6: That the CVCB and its members encourage adoption of the capacity building lessons drawn in this report in their own and others' capacity building activities, and see that these lessons are communicated as widely as possible to the range of organisations involved in providing capacity building activities for farmers.

12.6 Research organisations and researchers

A major challenge in this report has been finding data that are comparable. The different surveys examined here varied widely in their purposes and focus, ways samples were identified and selected, the wording of relevant questions, and how data were presented. While this variation is inevitable, there is a case for trying to develop more systematic and comparable ways of measuring farmers' capabilities and participation in capacity building activities. Partly as a result of the variation in surveys and difficulty of making comparisons, this study has relied more than intended on ABS Census data and on examining formal educational qualifications. This is the area where data collection is most standardised and where longer term trend data can be obtained. Many of the surveys examined here were 'one-offs', or were associated with evaluating limited term program initiatives.

Recommendation 7: That the CVCB and its members work with major survey and data collection agencies to identify ways of encouraging collection of more consistent and comparable data on farmers' participation in capacity building activities. These would include the agencies responsible for collecting the data reported here, private sector providers or their umbrella organisations, organisations collecting data in the VET and Higher Education sectors, and relevant research organisations.

As Bamberly et al. (1997) have noted, there is a need to improve the ways farmers' skills and qualifications are measured, and improve ways of recognising informal learning. This is an issue researchers need to address in designing surveys. In particular, a wider range of capacity building activities could be incorporated, including measures of participation in relevant government programs and voluntary groups, as was done in the ABARE Natural Resource Management on Australian Farms survey.

Recommendation 8: That the CVCB and its members support further work on developing better methods of identifying the contribution made by informal capacity building activities, and encourage use of these methods in future surveys.

As part of efforts to improve consistency and develop a more comprehensive summary of existing research, we suggest that the surveys identified here could form the basis of a searchable database, inventory or archive that allows interested parties to more readily identify research information relevant to their needs; provides them with summary information about the various surveys and their methods ('metadata'); and allows them to synthesise or build on previous findings. This database could be made accessible through the CVCB website, with links to other relevant websites, including those of DAFF and the National Land and Water Resources Audit. The work undertaken here would also lend itself to further development into a

more comprehensive bibliography of published research that could be linked to the database. In this study, we found there were particular issues with locating 'grey literature' (generally held within government agencies, and mainly consisting of consultancy reports that are not formally published), and a need to make this literature more accessible to others.

This kind of database could also help relevant Research and Development Corporations, the CVCB and researchers identify priorities for future research in the area of rural capacity building, and contribute to developing the coordinated national systems for data collection and dissemination of research results suggested by Marsh & Pannell (1999).

Recommendation 9: That the work reported here be used as a basis for developing an interactive database and bibliography of research on capacity building for Australian farmers, and that these information sources are made accessible through the CVCB website with links to the websites of its members and other agencies involved in providing capacity building activities or conducting related research.

Appendix 1 Terms of Reference

The project's terms of reference were as follows:

1. Review current published work on farmer participation rates in capacity building activities in rural Australia especially work published in the last three years.
2. Consult with CVCB members on data available from their records and from service providers regarding participation rates in their capacity building activities. Tenderers should particularly note that Land and Water Australia, the National Land and Water Resources Audit and DAFF FarmBis may have information of relevance to this project.
3. Determine base line participation rates using at least the following categories:
 - a. Industry,
 - b. Type of capacity building activity,
 - c. Region,
 - d. Demographic measures including age, gender, educational level, income.
4. Where possible compare these participation rates to other industries and other countries and identify areas of difference.
5. Determine the implications of the analysis for capacity building in rural Australia and recommend actions that the CVCB and its members might take to improve participation.
6. Develop and implement a communications strategy for the project outputs to ensure that relevant CVCB members and stakeholders are aware of and make use of the outputs.
7. Report on the outcomes of the project using the CVCB reporting framework.

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