NSW GOVERNMENT | Local Land Services Western

Social benchmarking project round 4: Landholder benchmarking

Western Local Land Services

Published by the Local Land Services

Title

First published October 2017

ISBN

More information

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www.lls.nsw.gov.au

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Executive Summary

This report provides social monitoring information in relation to the attitudes, beliefs and practices of landholders in the Western Local Land Services region.

The objectives of the survey were (i) to assess landholder attitudes, beliefs and practices in relation to land management and the broader role and functions of Western Local Land Services, including agricultural production advice, biosecurity, natural resource management; (ii) assess landholder beliefs and attitudes towards Western Local Land Services; (iii) develop baselines against which progress towards targets can be measured; and (iv) where possible compare information against similar baseline information collected in 2014.

All landholders in the Western Local Land Services region with properties of 10 hectares or more were identified and questionnaires mailed to all 1,754 landholders. Questionnaires were returned from 550 landholders, representing a response rate of 31% (This compares with a response rate of 30% in 2014).

Landholder characteristics

Seventy-eight percent of landholders were male, with the median age of landholders being 58 years.

Landholders reported being on their current property for an average of 19 years, with 32% of landholders indicating they did not live on their property full time. In the 12 months prior to the survey, an average of 90% of total family income was obtained from activities on the property.

The majority of landholders (56%) indicated the highest level of education they had attained was a secondary school education.

A third (31%) of all landholders were a member of an industry or producer group, with most landholders being members of farmers associations (55%) and Landcare or Rangecare groups (52%).

An analysis of the 2017 survey data confirmed the six farming styles (landholders categorised in relation to their core beliefs and attitudes towards agriculture and farming) identified in the 2014 survey. The six farming styles included:

1. ***Professional:*** These were landholders who operated efficient properties; were knowledgeable about production and markets; kept their machinery in good condition; and carefully considered any changes that they might make to their property or production.
2. ***Innovator:*** The innovator landholder was somewhat of a risk taker; was the first to undertake new farming practices and was always seeking new and innovative ways of managing their property and their production.
3. ***Struggler:*** The struggler sometimes considers moving out of farming; struggles to achieve outcomes even with the amount of work they undertake; and finds it difficult to progress against rising farm input costs.
4. ***Lifestyle:*** The lifestyle landholder not only farms to make an income, but also enjoys the lifestyle of farming.
5. ***Conservative:*** The conservative landholder is an established farmer who is wary of undertaking new or different farming practices and where farming is central to their lifestyle.
6. ***Risk-averse***: As the label suggests, the risk-averse landholder is averse to taking risks with their property.

Property characteristics

The average property size was 10,500 hectares, with the three most common property uses being growing sheep for wool (48%), growing sheep for meat (41%) and cattle production (36%). In addition, 31% of landholders harvested feral goats and a further 18% undertook dryland cropping.

Ninety-three percent of landholders indicated they were the owner of the property and 97% indicated their property was family rather than corporate owned.

Thirty percent of all landholders had a fulltime manager living on the property, while 8% had a part-time manager for the property

A third of all landholders indicated they had changed enterprises in the past 10 years, with the two most common changes being the introduction of new livestock breeds and an expansion, development or increase in production.

In addition, 25% of landholders indicated they were considering making changes to their enterprise in the next five years, with the two most commonly reported changes being to expand, develop or increase production and change or improve their livestock or pasture management practices.

Only 4% of landholders indicated their property was organically certified, with few landholders selling organically certified products into an organic market or supply chain in the last two years. Only 12% of all landholders indicated they were planning to gain or regain organic 'in conversion' status or certification in the next three years, with main reason for not doing so being the belief that 'there was not need or benefit in doing so'.

The average distance to the closest market for farm products was 338 kilometres.

Twenty-three percent of landholders did not have internet access on their property. Amongst those landholders with internet access 45% reported the internet speed to be 'very slow' or 'slow'.

Training and property management

Just over a third of all landholders (35%) indicated they had undertaken agriculture, grazing or land management related courses in the three years prior to the survey, with there being a significant increase in course attendance in 2017 relative to 2014 (25%).

Three quarters of landholders who attended a course in the past three years had attended a chemical handling course; 16% had attended a grazing for profit course and 15% had attended a course on low stress stock handling. Relative to 2014, significantly fewer landholders attended grazing for profit and phoenix mapping courses. In contrast, significantly more landholders attended courses in low stress stock handling.

The most common type of additional training that was identified and required by landholders was business management training, including accounting, farm financial management and bookkeeping.

Fifty-five percent of landholders indicated they had a succession plan.

The percentage of landholders who reported they had a biosecurity or access policy for their property increased significantly from 17% in 2014 to 27% in 2017.

Twenty-four percent of landholders reported they had a documented or written property management plan.

Property management plans were found to have been developed on average 10 years ago, with nearly half of all landholders indicating they updated their property management plan either 'always' or 'often'.

The most common elements included in a property management plan were an air photo or satellite imagery; fencing requirements; natural or man-made watering points; vegetation types; future plans or developments and soil or land types.

Neighbours and other landholders were identified as the most common sources of information influencing changes made to the property.

Only 23% of landholders indicated they purposefully used fire to improve the condition of their land, with the majority of these landholders using fire for this purpose at least once a year.

Climate change

Forty percent of landholders were unsure if the climate change scenario, as described by the CSIRO, would be likely to occur in the future; while a third of all landholders (32%) believed it likely to occur and a further 28% believed it unlikely to occur.

Across all landholders, 53% indicated climate change would change how they farm and manage their land, with the three most common on farm adaptions being to develop more water storage or dams, improve pasture management and develop bore water supplies.

Carbon farming

Only 9% of all landholders currently had a carbon farming agreement where they earnt Carbon Credit Units.

Of those landholders who had a carbon farming agreement; the majority of landholders earnt carbon credits through ‘revegetation or regeneration’ and through ‘avoiding deforestation of native vegetation’.

Of those landholders who had a carbon farming agreement; 70% indicated there had been additional benefits of carbon farming including more financial capital to invest in infrastructure and financial capital to invest in better managing their property.

Of those landholders who had a carbon farming agreement; 44% indicated there had been disadvantages with carbon farming, including monitoring and auditing requirements and the reduction in grazing production.

Livestock enterprises

Eighty-three percent of all landholders indicated they managed livestock on their property, with two thirds of landholders involved in sheep production, including most commonly the production of Merino sheep for wool or meat and the production of fleece-shedding sheep for meat.

Forty-four percent of all landholders indicated they produced cattle on their property, with 85% of these landholders breeding cattle and 52% fattening cattle.

Fifty-eight percent of all landholders ran goats on their property, with the two most common goat enterprises being harvesting goats and having rangeland goats contained within fencing.

In times of drought, 77% of landholders indicated they would reduce the number of stock to a core herd and 61% indicated they would provide supplementary feed.

Two thirds of landholders indicated that in managing stock on their property they regularly moved stock between paddocks, with two of the most commonly reported reasons for deciding on when to move stock between paddocks being the height of pasture grasses and the level of use of palatable grasses.

The majority of landholders (53%) indicated they managed or controlled stock access to watering points, with two of the most commonly reported reasons for controlling stock access to watering points being to trap feral goats and to control domestic stock movements.

Two thirds of landholders who grazed stock on their property indicated they would consider incorporating total grazing pressure fencing or multi-species exclusion fencing technologies on their property.

When landholders were asked what percentage of groundcover they tried to maintain in their paddocks throughout the year, 61% reported ‘whatever I can’. However, amongst landholders who reported the percentage of groundcover they tried to maintain in paddocks, the average percent of groundcover maintained was 60%.

Thirty-eight percent of landholders indicated that in the last five years they had tried to increase the production of their enterprise.

Amongst those landholders who indicated they had increased livestock production in the last five years, 63% increased reproduction rates, 43% increased the production of meat mass per hectare and 42% increased wool cut per head.

The main reasons underpinning an increase in production were improved ‘grazing management’; ‘the control of predators’ and ‘genetics'.

Two thirds of livestock producers indicated they were likely to increase production in the next five years, with the main reasons for an improvement in livestock production being improved grazing management; the control of predators and reduced competition from feral animals.

Dryland and irrigated cropping

Twenty-three percent of landholders indicated they undertook cropping activities on their property in the last three years.

The average area under cropping was 809 hectares, with just under half of landholders cropping over 1,000 hectares.

Amongst landholders undertaking cropping activities, 28% indicated they irrigated their crops, with an average 40 hectares of crops being irrigated.

Two common cropping practices undertaken by the majority of landholders were stubble retention (75%) and crop rotation (68%).

Forty five percent of landholders who undertook cropping indicated that in the last five years they had increased the production of their enterprise.

Amongst those landholders who indicated they had increased crop production, 85% increased yield and 62%increased crop diversity.

The main reasons underpinning an increase in production were ‘managing seasonal variation’; ‘improvements to equipment and technology’ and ‘variety selection'.

Two thirds of landholders who undertook cropping activities believed they would improve crop production in the next five years, with the main reasons for an improvement in production being improved variety selection, managing seasonal variation and making adjustments to fertiliser programs.

Horticulture

Six percent of landholders reported they undertook horticultural activities on their property in the three years prior to the survey. This was significantly less than the 13% who reported undertaking horticultural activities in 2014.

The average area under horticultural production was 40 hectares.

Fifty-nine percent of landholders who undertook horticultural activities also indicated they used soil amendments, which most commonly included the use of animal manure and compost to condition their soil.

Amongst those landholders who undertook horticultural activities, 97% also indicated that they had a water allocation that they had used in the last three years, with the average allocation being 327 megalitres. Of those landholders who had a water allocation, a third indicated they needed to increase their allocation by an average of six megalitres per hectare.

Seventy-two percent of horticultural production was irrigated through drip irrigation, 12% was irrigated with micro-sprinklers and 9% through overhead irrigation.

Forty-eight percent of landholders reported they had increased production in their horticultural enterprise in the last five years with the two most common areas of increased production in both the 2014 and 2017 surveys being yield and quality improvements

Two of the most frequently reported reasons for production increases in the last five years were adjustments to the nutrition program and improvements to infrastructure.

Seventy-four percent of landholders believed they would improve their horticultural production overt the next five years, with two of the most frequently reported reasons given for future production increases being adjustments to the nutrition program and improvements to infrastructure.

Natural resource management issues

For each of nine natural resource management issues landholders identified (i) the extent of the issue or problem including whether it was a minor, moderate or major problem; (ii) their ability to address the issue on a scale from very low to very high; and (iii) whether the issue was of concern on their property (prevalence).

In terms of assessing the extent of each issue as a problem; that is whether the natural resource management issue is a minor, moderate or major problem; invasive native scrub, ‘other animals’, a decline in the diversity of native plants and animals and total grazing pressure were natural resource management issues that were most problematic to landholders.

Landholders were found to have the highest ability to address wild dogs and problems in accessing water for agricultural purposes; and the least ability to address invasive native scrub and total grazing pressure.

In terms of prevalence, 'other animals' (84%), invasive native scrub (59%) and low groundcover (50%) were problems experienced by the majority of landholders.

An examination of the relationship between (i) the extent of the issue; (ii) landholder’s capacity to address the issue, (iii) the prevalence of the issue and (iv) change between 2014 and 2015 is shown in Figure A.

Four quadrants are shown in Figure A representing differences in the extent of the problem and the ability of landholders to address each issue. The size of the circle represents the prevalence of the issue amongst landholders.

The light blue circle in Figure A represents the position of the issue in 2014 and the dark blue circle the position of the issue in 2017.

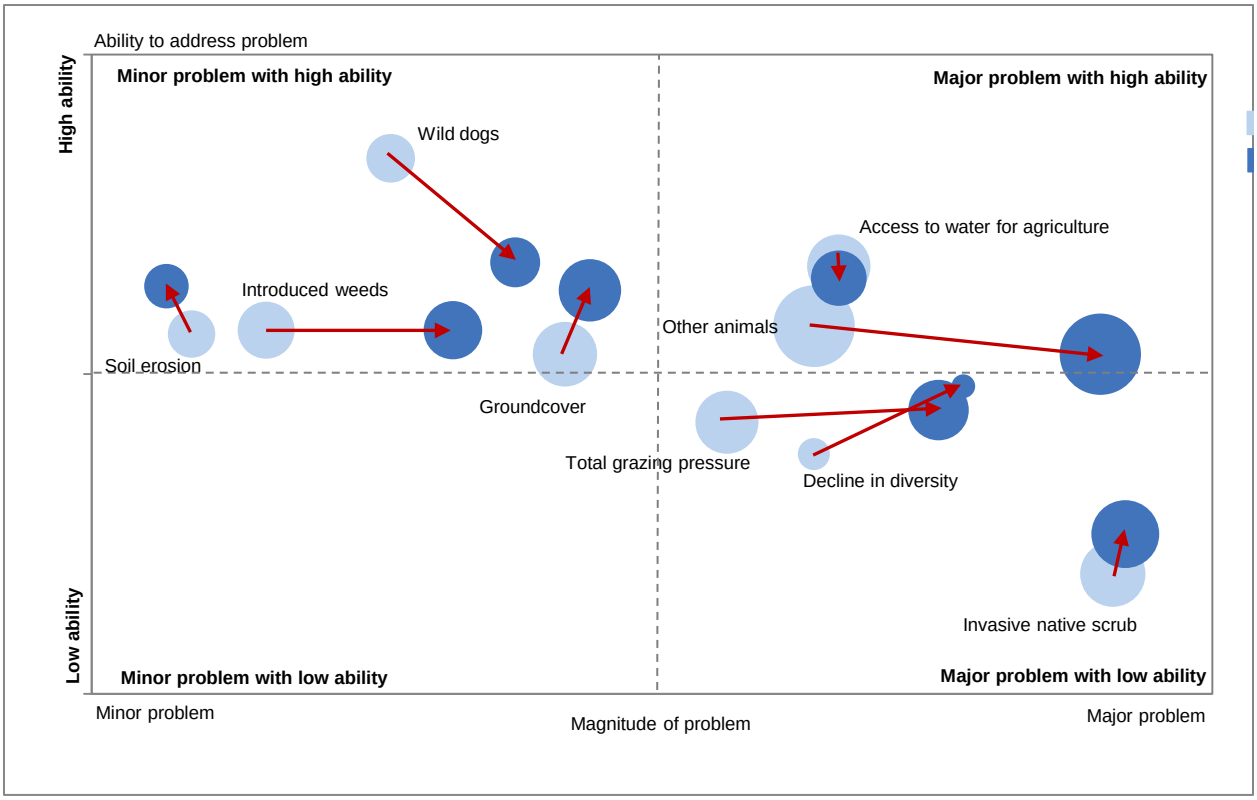
The lower right quadrant is of most interest as it includes those issues which are seen as relatively major problems and for which landholders have relatively low ability to address issues. In this quadrant are found three issues namely (i) total grazing pressure, (ii) invasive native scrub and (iii) the decline in the diversity of native plants and animals.

In addition, the size of the circle represents the prevalence of the issue amongst landholders. For instance, while the decline in the diversity of native plants and animals was seen as a relatively major problem and one in which landholders had relatively low ability to address, it was not regarded as one of the most prevalent natural resource management issues amongst landholders.

On the other hand, total grazing pressure and invasive native scrub were not only relatively major problems, with landholders also having relatively low ability to address each issue; but each issue was a relatively prevalent problem amongst landholders.

In addition, Figure A also shows the magnitude of problems associated with introduced weeds, total grazing pressure, a decline in the diversity of animals and plants and ‘other animals’ had increased since 2014.

Figure A. Landholder ability, extent and prevalence of natural resource management issues between 2014 and 2017



Source: *EBC (2015)*

The majority of landholders had actively managed all natural resource management issues, with wild dogs and total grazing pressure being actively managed by over three quarters of all landholders.

Landholders were least successful in managing invasive native scrub, the decline in the diversity of native plants and animals and 'other animals'; and most successful in managing low groundcover and wild dogs.

Across all natural resource management issues, the resources most commonly available to landholders were (i) practical skills to address the issue; (ii) the knowledge of how to address the issue; (iii) a belief that the issue could be addressed; and (iv) equipment, machinery and materials.

Resource least available to address natural resource management issues were (i) support from business and contractors; (ii) support from neighbours and formal groups; (iii) favourable climate and seasonal conditions; and (iv) favourable land and water conditions.

The capital resources most commonly available to landholders in addressing natural resource management issues were the physical (equipment, machinery and materials); human (knowledge, skills and health) and psychological (optimism and a belief in ability to address the issue) resources.

The capital resources least commonly available in addressing natural resource management issues were those resources associated with social (support from friends, neighbours, businesses); natural (climate, seasons and property condition); and financial (income) capital.

Cultural heritage and property management

The majority of landholders indicated they understood their duty of care towards Aboriginal cultural landscapes; believed they had a good understanding of traditional ecological knowledge; and could identify sites of Aboriginal or historic significance on their property. The majority of landholders also indicated they applied or were interested in applying traditional ecological knowledge to the management of their property.

Awareness of Western Local Land Services

Ninety-two percent of all landholders indicated they had heard of Western Local Land Services prior to receiving the survey which was a significant increase relative to 2014 (84%).

Amongst those landholders who had heard of Western Local Land Services, 57% believed the main activity of Western Local Land Services was funding programs for pest management. In addition, 52% believed the main activity was native vegetation management and 52% believed it to be the administration of national livestock identification tags.

Across all landholders, 55% had contact with Western Local Land Services in the six months prior to the survey, with the primary contact between landholders and Western Local Land Services being in relation to the baiting of pest animals (46%) and general phone, face-to-face, mail or email contact (27%).

Landholders who had contact with Western Local Land Services rated their level of satisfaction with the service provided by Western Local Land Services on a 10 point scale with endpoints which were 'not at all satisfied' (0) and 'very satisfied' (10). The majority of landholders (82%) indicated they were satisfied with the service provided with 30% providing a maximum satisfaction score of ten.

Landholders who had contact with Western Local Land Services were also asked to indicate how likely they would be to recommend the services to a friend using a ten point scale with endpoints 'not at all likely' (0) and 'very likely' (10). This measure of satisfaction is also referred to as a 'net promoter score' as detractors (a score of 6 or less) are subtracted from promoters (scores of 9 or 10), to provide an estimate of how many more promoters than detractors the organisation has. In relation to Western Local Land Services the percentage of promoters (44%) outweighed the percentage of detractors (26%).

Landholders who had contact with Western Local Land Services were asked to indicate what they believed Western Local Land Services did 'really well'. Twenty-four percent of landholders believed staff were knowledgeable, provided good advice and explanations; 22% believed staff were helpful and good; and 17% believed staff communicated well.

When the same landholders were asked what Western Local Land Services could do better, 26% believed they could improve communication and 18% believed they could improve support for staff and rangers.

Significant differences between the 2014 and 2017 surveys

Table A summarises all those questions and responses which showed a statistically significant difference between the 2014 and 2017 surveys.

Of the items included in Table A, the six most important differences between 2014 and 2017 included:

1. An increase in landholders undertaking agriculture, grazing or land management related courses;
2. An increase in landholders with a biosecurity or access policy;
3. A decrease in landholders undertaking horticultural activities;
4. A decrease in landholders reporting a decline in native plants and animals;
5. A decrease in landholders reporting problems with access to water for agricultural; and
6. An increase in the percentage of landholders who had heard of Western Local Land Services.

Table A: Summary of significant differences between the 2014 and 2017 surveys

Table	Question	2014		2017		
Organic production						
32	Sold organic products into a conventional market	Yes	69%	Yes	36%	↓
Training and property management						
39	Undertaken agriculture, grazing or land management related courses	Yes	25%	Yes	35%	↑
40	Courses undertaken: Grazing for profit	Yes	37%	Yes	16%	↓
40	Courses undertaken: Phoenix mapping	Yes	14%	Yes	6%	↓
Biosecurity or access policy						
46	Landholders with a biosecurity or access policy	Yes	17%	No	27%	↑
Property management plans: Components included in plans						
51	Current plantings/block identification	Yes	36%	Yes	19%	↓
Information sources and use						
51	Stock and station agents	Yes	38%	Yes	46%	↑
54	Industry newsletters	Yes	45%	Yes	78%	↑
54	Reading agricultural publications	Yes	75%	Yes	55%	↓
Different sheep, cattle and goat combination enterprises						
72	Runs sheep and goats, no cattle goats	Yes	17%	Yes	27%	↑
72	Runs sheep only	Yes	8%	Yes	13%	↑
Pasture management during drought						
73	Reduce numbers to a core herd	Yes	84%	Yes	77%	↓
73	Sell stock outright	Yes	23%	Yes	15%	↓
Livestock enterprise production: Reasons for future livestock production increases						
84	Grazing management	Yes	70%	Yes	58%	↓
84	Genetics	Yes	44%	Yes	32%	↓
Horticulture						
97	Landholders undertaking horticultural activities	Yes	13%	Yes	6%	↓
Horticulture enterprise production: Reasons for future horticultural production increases						
113	Adjustments to nutrition program (fertilisers)	Yes	36%	Yes	76%	↑
113	Adjustments to pest or disease management programs	Yes	7%	Yes	33%	↑
Invasive native scrub: Control						
123	Control with multiple treatments	Yes	71%	Yes	87%	↑
Invasive native scrub: Available resources						
123	Practical skills to address the issue	Yes	52%	Yes	68%	↑
123	Equipment, machinery & materials to address the issue	Yes	52%	Yes	61%	↑
123	Support from friends and family	Yes	52%	Yes	61%	↑
123	Good markets and income for your products	Yes	16%	Yes	31%	↑

…continued

Table A (continued): Summary of significant differences between the 2014 and 2017 surveys

Table	Question	2014		2017		
Invasive native scrub: Capital resources						
125	Physical capital (higher score more capital)	Mean score	1.91	Mean score	2.41	↑
125	Human capital (higher score more capital)	Mean score	1.47	Mean score	1.87	↑
125	Financial capital (higher score more capital)	Mean score	0.65	Mean score	1.07	↑
125	Natural capital (higher score more capital)	Mean score	0.62	Mean score	0.89	↑
125	Social capital (higher score more capital)	Mean score	0.50	Mean score	0.78	↑
Invasive native scrub: Reason for low ability to manage						
127	Lack of money	Yes	65%	Yes	52%	↓
Low groundcover: Available resources						
142	Knowledge of how to address the issue	Yes	50%	Yes	66%	↑
Soil erosion: active management						
148	Actively managed soil erosion	Yes	35%	Yes	58%	↑
Soil erosion: Capital resources						
152	Physical capital (higher score more capital)	Mean score	2.29	Mean score	2.81	↑
152	Financial capital (higher score more capital)	Mean score	0.52	Mean score	0.81	↑
Soil erosion: Reason for low ability to manage						
154	No help or support from neighbours	Yes	5%	Yes	29%	↑
Other animals						
164	Rabbits a problem	Yes	57%	Yes	43%	↓
Other animals: Ability to successfully mange						
168	Able to successfully manage other animals	Yes	56%	Yes	47%	↓
Other animals: Capital resources						
171	Financial capital (higher score more capital)	Mean score	0.56	Mean score	0.89	↑
Decline in native plants and animals						
174	Decline in native plants and animals a problem	Yes	13%	Yes	7%	↓
Access to water for agricultural purposes						
183	Access to water for agricultural a problem	Yes	51%	Yes	39%	↓
Total grazing pressure: Ability to successfully mange						
198	Able to successfully manage total grazing pressure	Yes	83%	Yes	64%	↓
Total grazing pressure: Available resources						
200	Access to credit and funds to undertake the work	Yes	22%	Yes	36%	↑
Total grazing pressure:: Capital resources						
201	Financial capital (higher score more capital)	Mean score	1.05	Mean score	1.59	↑
Western Local Land Services: Awareness						
213	Heard of Western Local Land Services	Yes	84%	Yes	92%	↑
Western Local Land Services: Main activities						
214	Providing agricultural production advice	Yes	33%	Yes	23%	↓
214	Don't know	Yes	24%	Yes	13%	↓

Source (EBC 2017).

Introduction

Local Land Services brings together agricultural production advice, biosecurity, natural resource management and emergency management into a single organisation. As a regional organisation they are responsible for delivering services that add value to local industries, enhance natural resources, protect industries from pests and disease and help communities respond to emergencies such as flood, fire and drought. Western Local Land Services has undertaken a survey of landholders to inform the delivery of projects and programs within the region.

In 2014 the Western CMA became Western Local Land Services which encompassed a larger geographic area than the previous Western CMA. Using questions drawn from the two previous surveys undertaken by the Western CMA[1] and with the addition of new questions to address the new and broader role of Western Local Land Services a survey of landholders was also undertaken in 2014[2].

The current project implements a fourth survey of landholders using questions from previous surveys and additional questions to address current issues (i.e., carbon farming and climate change) in order to identify changes in landholder attitudes and behaviour over time.

Objectives

The core objectives of the project were to:

- assess landholder attitudes, beliefs and practices in relation to land management, carbon farming and climate change and the broader role and functions of Western Local Land Services, including agricultural production advice, biosecurity and natural resource management;
- assess landholder beliefs and attitudes towards Western Local Land Services;
- establish a benchmark that will adequately assess the Local Land Service Western Region's progress towards achieving Western Local Land Services key performance indicators (KPIs); and
- where possible, compare information against similar baseline information collected in 2014.

Methodology

There were two core components to the project methodology which included (i) questionnaire design and (ii) the sampling and implementation of the survey.

Questionnaire design

The questionnaire was developed through discussions with Western Local Land Services staff and a review of the questionnaire used in the 2014 survey.

Given that comparisons were to be made between the findings from the 2014 survey and the current survey, it was important to retain relevant questions and question wording. However, some questions were removed from the questionnaire used in the 2014 survey and additional questions included such as those focussing on carbon farming and climate change. In comparison to the 2014 questionnaire some restructuring and reordering of questions also occurred.

[1] Fenton, D.M. (2013). *Western Catchment Management Authority community target monitoring: Social benchmarking survey round 2 (2012/2013)*. Western Catchment Management Authority, Dubbo.
Fenton, D.M. (2009). *Western Catchment Management Authority community target monitoring: Social benchmarking survey.* Western Catchment Management Authority, Dubbo.

[2] Fenton, D.M. (2015). *Catchment action plan: Social benchmarking survey 2017*. Western Local Land Services, Dubbo.

The questionnaire was designed for use as a mail survey, although an equivalent web based survey was also developed if landholders chose to complete the questionnaire online.

The questionnaire focused on several core areas of interest which included:

1. Property and landholder characteristics;
2. Training and property management;
3. Cultural heritage on properties;
4. Use of fire;
5. Carbon farming;
6. Climate change;
7. Awareness of Western Local Land Services;
8. Dryland and irrigated cropping;
9. Horticulture;
10. Livestock enterprises;
11. Organic production;
12. Enterprise change;
13. Invasive native scrub;
14. Introduced weeds;
15. Groundcover;
16. Soil erosion;
17. Wild dogs
18. 'Other animals'
19. The decline in the diversity of native plants and animals;
20. Access to water for irrigation purposes; and
21. Total grazing pressure;

The questionnaire used in the current survey is presented in Appendix A.

Survey sampling and implementation

The sampling frame consisted of all rural landholders identified in the holdings layer in the Western Local Land Services region who had properties of 10 hectares or more. It excluded landholders who were identified as State agencies or departments.

The holdings layer represented holdings which were registered in FARMS and are synonymous with properties. The questionnaire was sent to the occupier of the holding, whereas in the previous 2014 survey the questionnaire was sent to the owner of the property. The owner and occupier are not necessarily the same person as there could be a manger on the property. The occupier is the person who receives the rates notice[3].

Table 1 shows there were 1,754 landholders with properties of 10 hectares or more in the Western Local Land Services region, with the majority of these landholders located in the Cobar Local Government Area (21%). The sample size closely mirrors the population size for each Local Government area. For example, the sample percentage exceeds the population percentage of the Local Government area of Cobar by only 0.89%.

As shown in Table 1 all sample sizes are within 1% of population percentages for each Local Government Area indicating there is no geographic bias in the sample of landholders.

[3] *It should be noted however, that there was no significant difference in the percentage of managers and owners (Table 20) or absentee and resident landholders (Table 7) identified in the 2014 and 2017 surveys.*

Table 1: population and survey sample sizes

Local Government areas (LGAs)	Population of landholders	Percentage in the population	Sample size	Sample percentage	Difference between population and sample percentages
Cobar	389	20.50	114	21.39	0.89
Wentworth	337	16.91	94	17.64	0.73
Bourke	243	11.33	63	11.82	0.49
Brewarrina	222	12.23	68	12.76	0.53
Unincorporated	207	11.69	65	12.20	0.51
Balranald	183	9.89	55	10.32	0.43
Central Darling	178	8.81	49	9.19	0.38
Carrathool (part of LGA)	66	3.96	22	4.13	0.17
Bogan (part of LGA)	59	3.60	20	3.75	0.15
Broken Hill	27	0.72	4	0.75	0.03
Hay (part of LGA)	18	0.36	2	0.38	0.02
Total landholders	1,754	100.00	533	100.00	

Note: *The summing the population or sample of landholders across Local Government area will exceed the total number of landholders in the population (1,754) and sample (533) as landholders may have properties in multiple Local Government areas.*
Source: *EBC (2017).*

Questionnaires were mailed to landholders on the 9th of June 2017, with the survey closing on the 1st of August 2017. One reminder letter was sent to landholders who had not completed and returned questionnaires after the initial questionnaire was mailed to them.

As an incentive to complete and return the questionnaire, landholders could request that they receive a $20 IGA voucher or that $20 be sent to the Royal Flying Doctor Service[4].

The final sample included 550 completed questionnaires, although only 533 could be identified within a specific Local Government Area (Table 1). The completed questionnaires included 499 mail surveys and 51 web based surveys, which represented an overall response rate of 31% (this compares with a 30% response rate in the 2014 survey of landholders).

Analysis of survey data

The analysis of survey data included frequency tables which were used to describe landholder responses to all survey questions. The spatial variation in survey responses is presented in a separate report[5].

Sample size and weights

Table 1 shows that the sample size was in proportion to the number of landholders found within each Local Government Area. As the final sample proportions are within 1% of population proportions for Local Government Areas, no additional weighting of the data has been undertaken.

Multiple response analysis

The questionnaire included several questions which allowed landholders to provide multiple answers or responses. For instance, in reporting the type of Western Local Land Services that were used, landholders may have identified one or any number of specific services. Similarly, in identifying what their property was used for, landholders may again have identified a number of discreet uses.

[4] In the final sample, 61 (11%) requested a $20 IGA voucher, 467 (85%) requested that a donation be sent to the Royal Flying Doctor Service, and 22 (4%) did not indicate any preference for the incentive.
[5] Western West Local Land Services (2015). Social benchmarking round 4: spatial analysis of the survey of landholders. Western Local Land Services, Dubbo

Tables based on the analysis of multiple responses have been identified in the footnote of each table. In these tables a single landholder may be included in multiple rows of the table if they have provided multiple responses to the question. In these tables it is important not to sum across the rows of the table so as to avoid double counting of individual landholders who may be reported in multiple rows.

Capitals framework

In assessing natural resource management issues, a capitals framework has been used to identify the type of resources or assets available to landholders in managing different natural resource management issues. The resources or assets available to landholders have been conceptualised in relation to six capitals with specific questionnaire items used to define each capital.

Table 2 identifies the items within each of the six capitals. Landholders were asked to indicate if the item was available to them in the management of specific natural resource management issues. Summing the items within each of the six capitals produced a score for each landholder. However, as each of the capitals were defined using a different number of items and in order to ensure each of the capitals had equal weight, the score for each capital was weighted by the value shown in Table 2.

Table 2: capitals framework items

Financial capital *(weighted by 2)*
Access to credit and funds to undertake the work Good markets and income for your products
Human capital *(weighted by 0.0)*
Good health so as to undertake the work Practical skills to address the issue The knowledge of how to address the issue Time available to do the work
Natural capital *(weighted by 1.3)*
A property able to support change Favourable land and water conditions on your property Favourable climate and seasonal conditions
Physical capital *(weighted by 4.0)*
Equipment, machinery and materials to address the issue
Psychological capital *(weighted by 2)*
A belief that you could address the issue Optimism about addressing the issue
Social capital *(weighted by 0.0)*
People to help do the work Support from businesses and contactors Support from friends and family Support from neighbours or formal group

Source: EBC (2017).

Comparisons with the 2014 survey period

The analysis presents the findings from the 2014 survey and where appropriate provides a comparison between the 2014 survey findings and current survey findings.

However, some caution should be used in interpreting the findings of this comparison as the methodology used in the sampling of landholders in the 2014 survey was not the same as that used in the current survey. In the 2014 survey questionnaires were sent to the owner of the property, while in the current survey questionnaires were sent to the occupier of the property.

However, while the reader should be aware of this issue, it should be noted that there was no significant difference in the percentage of managers and owners (Table 19) or absentee and resident landholders (Table 7) identified in the 2014 and 2017 surveys. This suggests that while the sampling methodology may have differed between both survey periods, many of the same landholders would have been sampled in both surveys.

Significance tests

When comparing differences between the two survey periods, whether it is a comparison of percentages or means; specific statistical tests of significance have been used to determine whether the differences are simply due to sampling variation or are meaningful differences.

Significance tests have been reported in the footnotes of each table. In the case of open ended questions where landholders could provide multiple responses no significant tests have been undertaken.

A significance level of 0.01 has been used in all cases as given the number of significance tests performed on this data set, a significance level of 0.05 may have identified a number of significant differences by chance alone.

If no significant difference between the 2014 and 2017 survey period is identified there is no discussion in the text in relation to differences between the 2014 and 2017 surveys and the focus is on identifying and discussing the current 2017 survey findings.

The tests of statistical significance should be used as a guide to assessing differences between survey periods. For instance, for a specific variable of interest there may be a significant difference in scores between the two survey periods, however this difference may not always have any practical significance in terms of policy or decision making.

Missing data

Although the total sample included 550 landholders, the analysis of specific questions may be based on a sample which is somewhat lower than the total sample size. This is due to landholders being unable or unwilling to answer the question or landholder's refusing to answer the question.

Landholder characteristics

This chapter provides an analysis and comparison of changes in the characteristics of landholders within the Western Local Land Services region between 2014 and 2017.

Although the question was not asked in the 2014 survey, in the current survey male landholders completed 78% of questionnaires with 22% completed by females (Table 3).

Table 3: "What is your gender?"

Response	Count	Percent
Male	428	78.2
Female	119	21.8
Total landholders	547	100.0

Note: *This question was not asked in the 2014 survey*
Source: *EBC (2017).*

Age of landholders

The median age of landholders in the current survey was 58 years (Table 4). While the age of landholders was not identified in the 2014 survey, the 2009 and 2012 surveys of landholders in the Western Catchment Management Authority[6] region reported the median age of landholders as 55 years.

Table 4:"In what year were you born?"

Age (years)	Count	Percent	Cumulative Percent
20-25	1	0.2	0.2
26-30	9	1.7	1.9
31-35	15	2.8	4.6
36-40	19	3.5	8.1
41-45	34	6.3	14.4
46-50	58	10.7	25.2
51-55	81	15.0	40.2
56-60	111	20.6	60.7
61-65	74	13.7	74.4
66-70	63	11.7	86.1
71-75	29	5.4	91.5
76-80	28	5.2	96.6
81-85	18	3.3	99.9
86+	1	0.2	100.0
Total landholders	540	100.0	
Median years			58.0

Note: *This question was not asked in the 2014 survey.*
Source: *EBC (2017).*

[6] Fenton, D.M. (2009). *Western Catchment Management Authority community target monitoring: Social benchmarking survey.* Western Catchment Management Authority, Dubbo.
Fenton, D.M. (2013). *Western Catchment Management Authority community target monitoring: Social benchmarking survey round 2 (2012/2013)*. Western Catchment Management Authority, Dubbo.

Years owned or managed land in western New South Wales

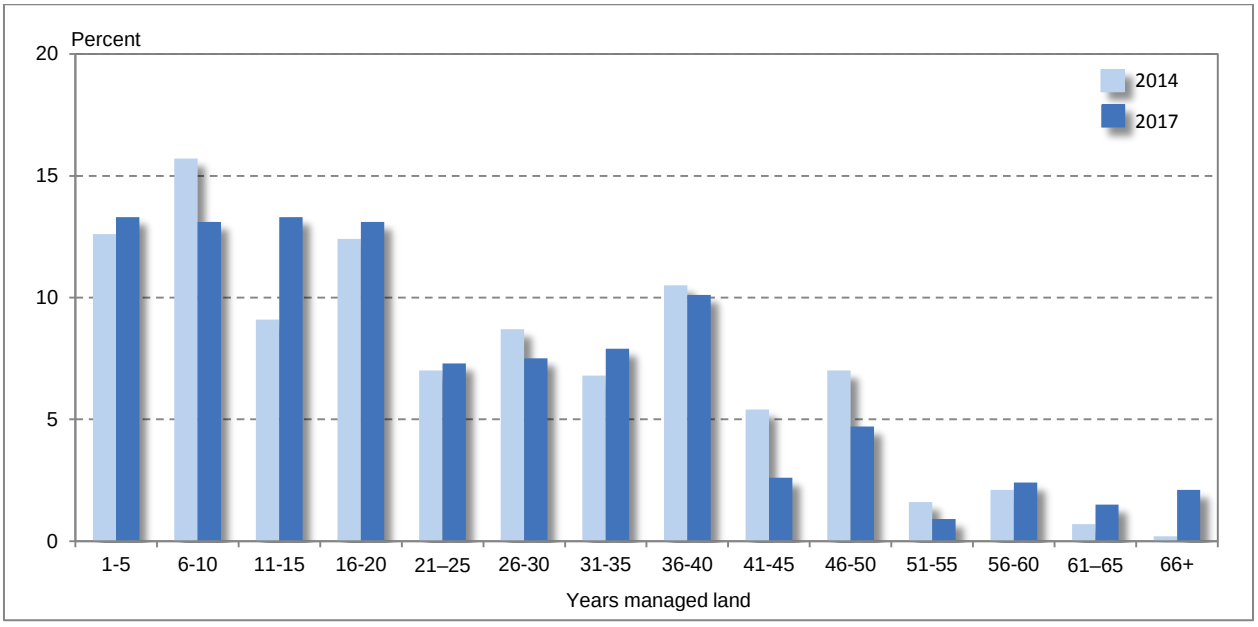
Landholders reported having owned or managed land in western NSW for an average of 20 years (Table 5 and Figure 1).

Table 5:"How many years have you owned or managed land in western NSW?"

Years	2014			2017		
	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
1-5	54	12.6	12.6	71	13.3	13.3
6-10	67	15.7	28.3	70	13.1	26.5
11-15	39	9.1	37.5	71	13.3	39.8
16-20	53	12.4	49.9	70	13.1	52.9
21-25	30	7.0	56.9	39	7.3	60.2
26-30	37	8.7	65.6	40	7.5	67.7
31-35	29	6.8	72.4	42	7.9	75.6
36-40	45	10.5	82.9	54	10.1	85.7
41-45	23	5.4	88.3	14	2.6	88.4
46-50	30	7.0	95.3	25	4.7	93.1
51-55	7	1.6	97.0	5	.9	94.0
56-60	9	2.1	99.1	13	2.4	96.4
61–65	3	0.7	99.8	8	1.5	100.0
66+	1	0.2	100.0	11	2.1	13.3
Total landholders	427	100.0		533	100.0	
Median years			21.0			20.0

Note: *There was no significant difference in the medians between survey years.*
Source: *EBC (2017).*

Figure 1: length of time owned or managed land in western NSW



Source: *EBC (2017).*

Years lived on the property

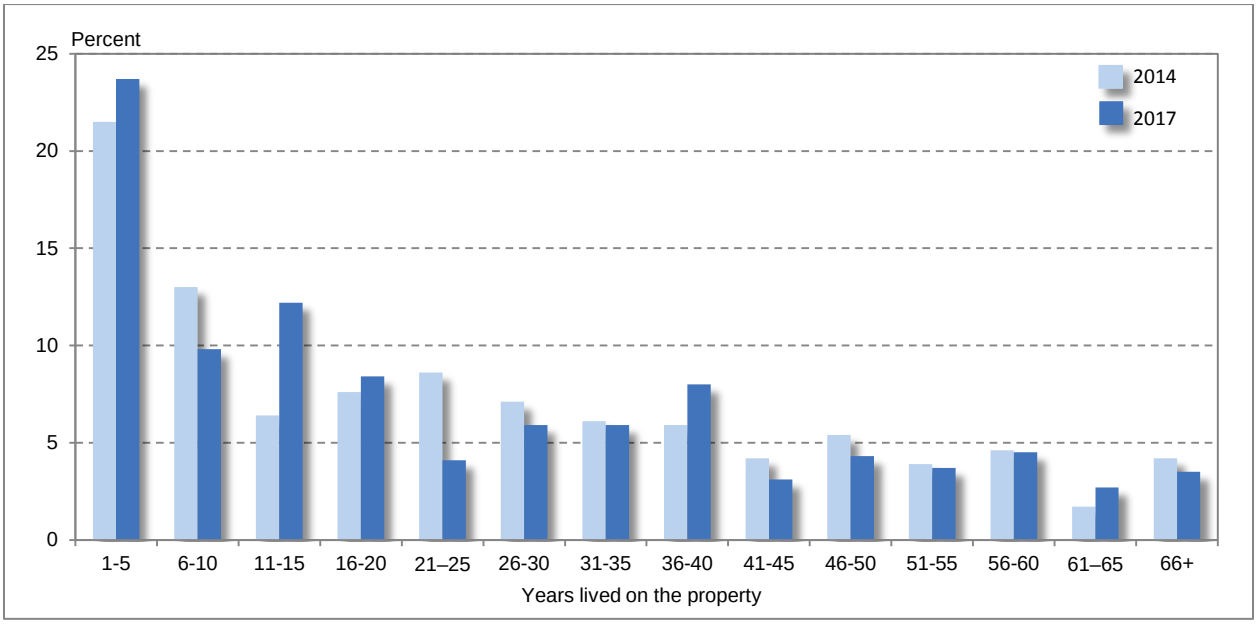
Landholders had lived on their property for an average of 19 years, with a third of all landholders having lived on their property for less than 10 years (Table 6 and Figure 2).

Table 6: “How many years have you lived on your current property?”

Years	2014			2017		
	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
1-5	88	21.5	21.5	121	23.7	23.7
6-10	53	13.0	34.5	50	9.8	33.5
11-15	26	6.4	40.8	62	12.2	45.7
16-20	31	7.6	48.4	43	8.4	54.1
21-25	35	8.6	57.0	21	4.1	58.2
26-30	29	7.1	64.1	30	5.9	64.1
31-35	25	6.1	70.2	30	5.9	70.0
36-40	24	5.9	76.0	41	8.0	78.0
41-45	17	4.2	80.2	16	3.1	81.2
46-50	22	5.4	85.6	22	4.3	85.5
51-55	16	3.9	89.5	19	3.7	89.2
56-60	19	4.6	94.1	23	4.5	93.7
61–65	7	1.7	95.8	14	2.7	96.5
66+	6	1.5	97.3	18	3.5	100.0
Total landholders	409	100.0		510	100.0	
Median years			21.0			19.0

Note: *There was no significant difference in the medians between survey years.*
Source: *EBC (2017).*

Figure 2: length of time lived on current property



Source: *EBC (2017).*

Absentee and resident landholders

Thirty-two percent of landholders may be described as absentee landholders, as they indicated they did not live on their property full time (Table 7).

Table 7: “Do you usually live on your property full-time as an owner operator?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	289	71.7	338	68.1
No	114	28.3	158	31.9
Total landholders	403	100.0	496	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Amongst those landholders who did not usually live on their property (Table 7), 41% indicated they stayed on their property for more than 51 days in a typical year (Table 8). Only 13% of landholders indicated they never stayed on their property.

Table 8: “How many days do you usually stay on your property in a typical year?”

	2014		2017	
Days on property	**Count**	**Percent**	**Count**	**Percent**
0	11	10.7	18	13.4
1 - 5	6	5.8	9	6.7
6 - 10	4	3.9	6	4.5
11 - 20	12	11.7	14	10.4
21 - 50	24	23.3	32	23.9
More than 51	46	44.7	55	41.0
Total landholders	103	100.0	134	100.0

Note: *Based on landholders who indicated they do not usually live on their property full-time as an owner operator (Table 7).*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

Farm income

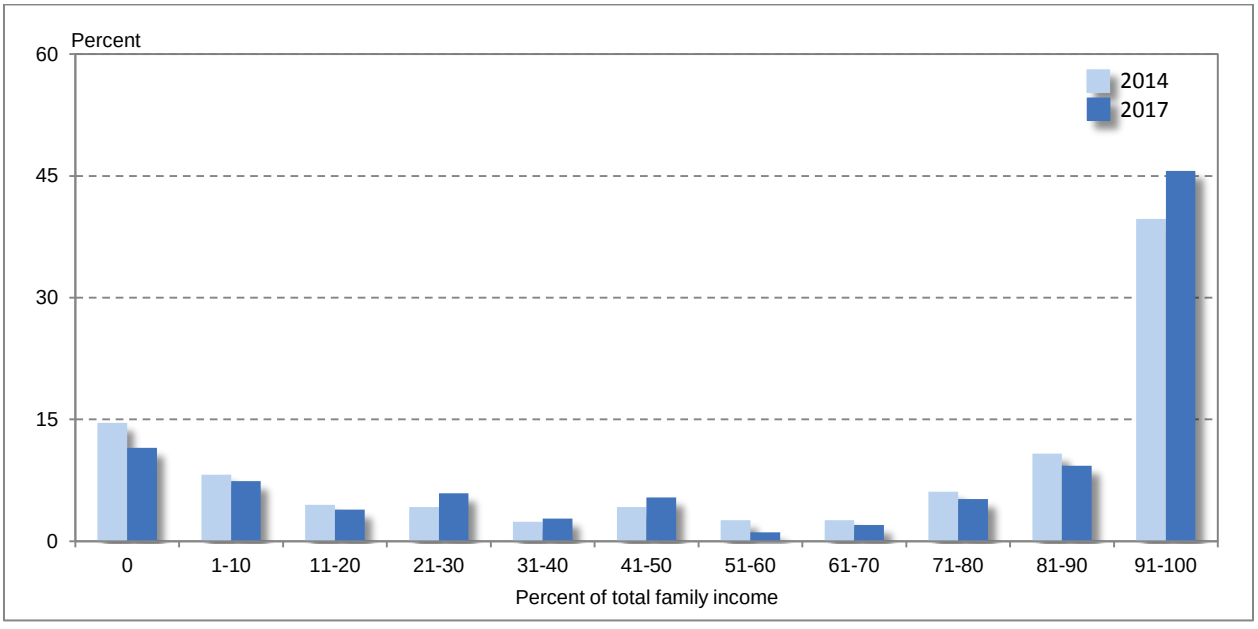
On average and across all landholders, 90% of family income was obtained from activities on their property in the last 12 months (Table 9 and Figure 3). A quarter of all landholders (23%) obtained less than 20% of their family income from the property and 46% obtained over 90% of their family income from their property.

Table 9: "Think about all the income your family received in the past 12 months. Approximately what percentage of your total income was from activities derived on property?"

	2014			2017		
Percentage of income	**Count**	**Percent**	**Cumulative Percent**	**Count**	**Percent**	**Cumulative Percent**
0	55	14.6	14.6	53	11.5	11.5
1 - 10	31	8.2	22.8	34	7.4	18.9
11 - 20	17	4.5	27.2	18	3.9	22.8
21 - 30	16	4.2	31.5	27	5.9	28.6
31 - 40	9	2.4	33.9	13	2.8	31.5
41 - 50	16	4.2	38.1	25	5.4	36.9
51 - 60	10	2.6	40.7	5	1.1	38.0
61 - 70	10	2.6	43.4	9	2.0	39.9
71 - 80	23	6.1	49.5	24	5.2	45.1
81 - 90	41	10.8	60.3	43	9.3	54.4
91 - 100	150	39.7	100.0	210	45.6	100.0
Total landholders	378	100.0		461	100.0	
Median percent			85.0			90.0

Note: *Zero percentage also include three landholders who reported a negative percent. There was no significant difference in the medians between survey years.*
Source: *EBC (2017).*

Figure 3: farm income as a percentage of total family income



Source: *EBC (2017).*

Education

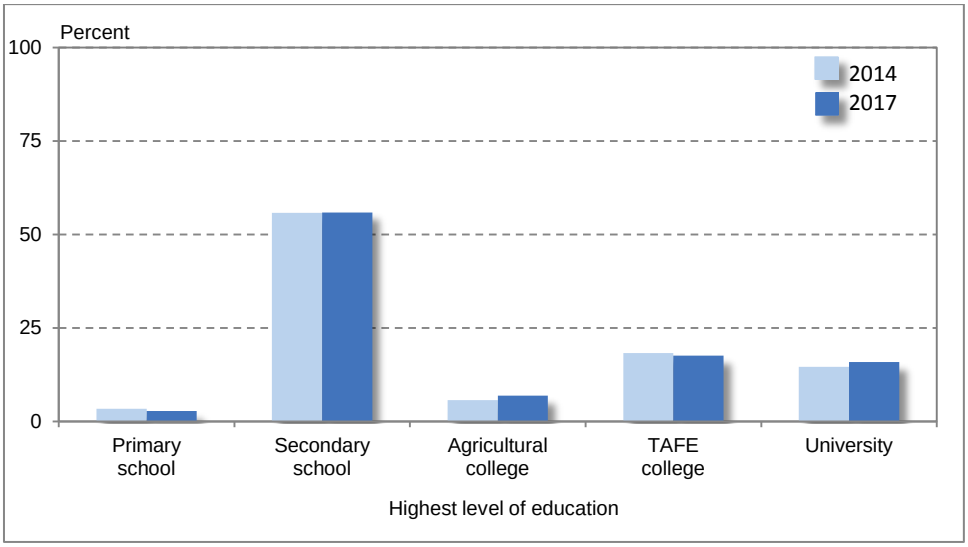
The majority of landholders (56%) indicated the highest level of education they had attained was a secondary school education (Table 10 and Figure 4). However 18% indicated they had obtained a qualification from a TAFE college and a further 16% indicated they had obtained a university qualification.

Table 10: "What is your highest level of education?"

	2014		2017	
Highest level of education	**Count**	**Percent**	**Count**	**Percent**
Primary school	15	3.4	15	2.8
Secondary school	244	55.8	299	55.9
An agricultural college	25	5.7	37	6.9
A TAFE college	80	18.3	94	17.6
A university	64	14.6	85	15.9
Other *(frequency of one)*	9	2.1	5	0.9
Total landholders	437	100.0	535	100.0

Note: *Other included 'trade qualification' (3); 'Royal Australian Navy', 'advanced diploma'; 'none'(2); 'state registered nurse'; motor mechanic; hospital/nursing(2); private college(1); teachers college (1).*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

Figure 4: "What is your highest level of education?"



Source: *EBC (2017).*

Number of family generations living on the property

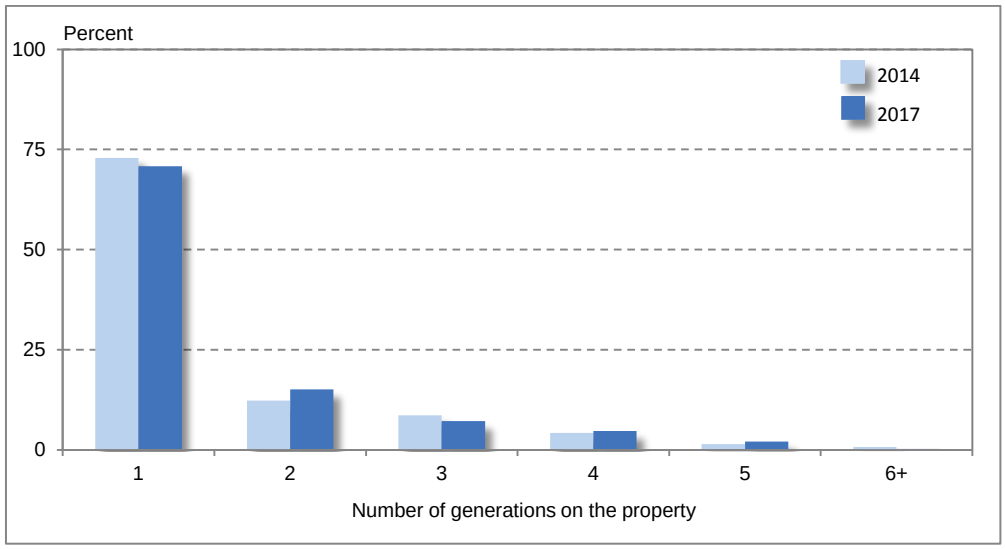
Seventy one percent of landholders indicated their family had been on the property for one generation (Table 11 and Figure 5).

Table 11: “How many past generations of your family have been on the property?”

Number of generations	2014		2017	
	Count	Percent	Count	Percent
1	314	72.9	376	70.8
2	53	12.3	80	15.1
3	37	8.6	38	7.2
4	18	4.2	25	4.7
5	6	1.4	11	2.1
6+	3	0.7	1	0.2
Total landholders	437	100.0	531	100.0
Median number of generations		1.0		1.0

Note: *There was no significant difference in medians between survey years.*
Source: *EBC (2017).*

Figure 5: “How many past generations of your family have been on the property?”



Source: *EBC (2017).*

Involvement in industry or producer groups

A third of all landholders (31%) indicated they were a member of an industry or producer group (Table 12).

Table 12: "Are you a member of an industry or producer group? For example, Landcare, producer discussion group, BestPrac, pest animal control or an Aboriginal Cultural Heritage group?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	147	33.4	167	30.6
No	293	66.6	378	69.4
Total landholders	440	100.0	545	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Table 13 indicates that the majority of groups in which landholders were members were farmers associations (55%) or Landcare or Rangecare groups (52%). There were relatively few groups to which landholders belonged that were involved in water (6%) or environmental management (3%).

Table 13: Membership of industry or producer groups

	2014		2017	
Groups	**Count**	**Percent**	**Count**	**Percent**
Farmers associations				
NSW Farmers	28	20.7	38	26.2
Pastoralists Association of West Darling	10	7.4	11	7.6
Meat Livestock Australia	3	2.2	6	4.1
Victorian Farmers Federation	2	1.5	3	2.1
Citrus Australia	5	3.7	1	0.7
Dried Fruits Australia	3	2.2	1	0.7
Pastoralist's' Association	2	1.5	1	0.7
Agforce	1	0.5	1	0.7
Australian Wool Growers Association	1	0.5	1	0.7
Grain Growers	1	0.5	1	0.7
Murray Valley Winegrowers	1	0.5	1	0.7
Cotton Growers Association	2	1.5	0	0.0
Sunraysia Citrus Growers Inc.	2	1.5	0	0.0
Other groups *(frequency of one)*	4	2.8	12	8.3
Total groups	***69***	***34.3***	***79***	***54.5***
Landcare and Rangecare groups				
Landcare (nonspecific)	27	13.4	22	15.2
Buckwaroon Landcare	8	4.0	12	8.3
Barrier Area Rangecare	12	6.0	6	4.1
Fords Bridge Landcare	2	1.0	6	4.1
Gilgunnia Landcare	1	0.5	4	2.8
Pine Creek Landcare	5	2.5	3	2.1
Topar Landcare	1	0.5	3	2.1
Anabranch Landcare	2	1.0	2	1.4
Western Landcare	1	0.5	2	1.4
Warrego Landcare	0	0.0	2	1.4
Homebush Land care	1	0.5	1	0.7
Lower Lachlan Landcare	1	0.5	1	0.7
Wattle Vale Landcare	1	0.5	1	0.7
Other groups *(frequency of one)*	10	5.0	11	7.6
Total groups	***72***	***35.8***	***76***	***52.4***

Table continued…

Table 14 (continued): Membership of industry or producer groups

Pest animal management				
Pest Management group	7	3.5	13	9.0
Wanaaring Pest Management Group	3	1.5	8	5.5
Ledknapper Wild Dog Action Group Inc	1	0.5	8	5.5
Tilpa Pest Management Group	2	1.0	7	4.8
Culgoa Vertebrate Pest Animal Management Group	0	0.0	3	2.1
Louth Wild Dog Action Group	3	1.5	1	0.7
Other groups *(frequency of one)*	2	1.0	3	2.1
Total groups	***18***	***9.0***	***43***	***29.7***
Producer groups				
Mallee Sustainable Farming Group	2	1.0	4	2.8
Central West Farming Systems	0	0.0	4	2.8
Birchip Cropping Group	1	0.5	2	1.4
Best Practice	8	4.0	1	0.7
MSF Mallee Sustainable Farming	2	1.0	1	0.7
VNTFA Vic no till farmer's association	1	0.5	1	0.7
Wilcannia Best Practice	1	0.5	1	0.7
Belah Croppers Group	3	1.5	0	0.0
Other groups *(frequency of one)*	6	3.0	12	8.3
Total groups	***24***	***11.9***	***26***	***17.9***
Water management				
Paroo River Association	2	1.0	2	1.4
Lower Balonne Floodplain Association	1	0.5	1	0.7
Lower Warrego Water Users Association	1	0.5	1	0.7
South Western Water Users	1	0.5	1	0.7
Australian Floodplain Association	0	0.0	1	0.7
Environmental watering agency	0	0.0	1	0.7
Water NSW Customer Advisory Committee	0	0.0	1	0.7
Barwon Darling Water	1	0.5	0	0.0
Booberio Creek Water Users Association	1	0.5	0	0.0
Northern Basin Advisory Committee	1	0.5	0	0.0
Total groups	***8***	***4.0***	***8***	***5.5***
Environmental management				
Mt Grenfell Board of Management	1	0.5	1	0.7
Barrier Ranges Bushfire	0	0.0	1	0.7
Cobb Highway Management group	0	0.0	1	0.7
World Heritage Group	0	0.0	1	0.7
Willandra World	2	1.0	0	0.0
Australian Rangeland Society and Science	1	0.5	0	0.0
Lake Victoria Committee	1	0.5	0	0.0
Darling River Food and Water	1	0.5	0	0.0
Stipa Native Grass Association	1	0.5	0	0.0
Mungo Joint Management	1	0.5	0	0.0
Total groups	***6***	***3.0***	***4***	***2.8***
Other groups				
Local Land Services advisory groups/committees	1	0.5	3	2.1
Aboriginal Land organisations and groups	0	0.0	2	1.4
Other groups and organisations	0	0.0	4	2.8
Total groups	***1***	***0.5***	***9***	***3.7***
Total groups	201	100.0	245	100.0

Note: Counts and percentages are based on the number of groups and not the number of landholders
Source: EBC (2017).

Farming styles

In addition to describing landholders on the basis of the objective characteristics of their property, their educational level or membership of external groups; it is possible to describe groups of landholders in relation to their beliefs or attitudes towards agriculture and farming – what are known as 'farming styles'. The identification of farming styles is particularly important in targeting agricultural extension and understanding adoption behaviour amongst property owners and farmers[7].

In addition, and although it has not been undertaken in the current report, farming styles themselves may be useful in explaining the variation in landholder responses to many of the questions used in the questionnaire. For example, farming styles may explain why some farmers use services provided by Local Land Services, while other farmers do not; or why farmers vary in their adoption of specific land management, livestock management or biosecurity practices.

In describing the farming styles of landholders, 20 belief statements were identified which represented a range of different beliefs that might distinguish amongst landholders in the region. For each belief statement landholders indicated whether the belief statement was 'a lot like me'; 'somewhat like me'; 'a little like me' or 'not like me' (Figures 6 to 11 and Appendix A).

It would be expected that several of the belief statements identified in Table 16 would be highly correlated. For instance, two belief statements which might be correlated are where a landholder believes 'that sometimes they are going backward even though they work hard' and they also believe 'the increasing cost of farming is making it difficult to keep up'.

In the 2014 survey an examination of the inter-correlations amongst all 20 belief statements identified six farming styles (Table 15)[8]. Each of the farming styles were independent and uncorrelated with each other, although the belief statements *within* each farming style were highly correlated (Figure 6 to Figure 11).

Each of the six farming styles has been labelled based on the variables which are included in the style (Figure 6 to Figure 11). The values shown in Table 16 are loadings from the 2014 survey and show the extent to which each belief statement is correlated with each farming style. Farming styles are described as:

7. ***Professional:*** These landholders operate efficient properties are knowledgeable about production and markets, keep their farm machinery in good condition and carefully consider any significant changes that they might make to their property or production.
8. ***Innovator:*** The innovator landholder is somewhat of a risk taker; is the first to undertake new farming practices and is always seeking new and innovative ways of managing their property and their production.
9. ***Struggler:*** The struggler sometimes considers moving out of farming; struggles to achieve outcomes even with the amount of work they undertake on the farm and finds it difficult to progress against rising farm input costs.
10. ***Lifestyle:*** The lifestyle landholder not only farms in order to make an income, but also enjoys and appreciates the lifestyle of farming.
11. ***Conservative:*** The conservative landholder is an established farmer who is wary of undertaking new or different farming practices and where farming is central to their lifestyle.
12. ***Risk-averse***: As the label suggests, the risk averse landholder is averse to taking risks with their property and as indicated by the belief statements also believes there are less environmentally risky methods of controlling pest animals and plants.

[7] *See for example, Howden, P., Vanclay, F., Lemerle, D., and Kent, J. Farming styles and extension in broad acre cropping. Australian Society of Agronomy (http://www.regional.org.au/au/asa/1998/7/275howden.htm)*

[8] *An examination of the beliefs statements from the 2017 survey found very similar farming styles. However, in order to maintain comparability the farming styles identified in the 2014 survey have been retained.*

There are two ways in which farming styles can be interpreted.

In the first instance each of the farming styles can be considered as 'latent factors' which exist across all landholders. For example, any one landholder may have characteristics of the professional farming style, some of the innovator and lifestyle farming styles, but none of the other farming styles. In this interpretation each landholder has varying degrees of each farming style.

The second interpretation of farming styles[9] indicates there are district groups or clusters of landholders who belong to each farming style and no other. For instance, and using this approach further analysis of the data on farming styles indicates that landholders can be categorised on the basis of their faming styles as shown in Table 15.

Table 15 shows that two thirds (60%) of landholders in the Western Local Land Services region have a 'professional' farming style and an additional 26% have a 'lifestyle' farming style. If it is assumed there are 1,754 landholders in the region (Table 1), this also translates into there being an estimated 1,056 'professional' farmers and 461 'lifestyle' farmers (Table 15).

Table 15 also shows that the percentage of landholders within each farming style is relatively stable, with there being no significant change in percentages between the 2014 and 2017 survey periods.

Table 15: number of landholders associated with each farming style

	2014			2017		
Farming style	**Percent of landholders**	**Landholders in the sample**	**Landholders in the population**	**Percent of landholders**	**Landholders in the sample**	**Landholders in the population**
Professional	61.5	224	1,155	60.2	286	1,056
Lifestyle	27.7	101	521	26.3	125	461
Risk-averse	3.8	14	72	5.7	27	100
Struggler	3.8	14	72	2.7	13	47
Innovator	1.6	6	31	2.9	14	51
Conservative	1.4	5	26	2.1	10	37
Total landholders	100.0	364	1,877	100.0	475	1,754

Note: *Percentages are not significantly different between survey periods.*
Source: *EBC (2017).*

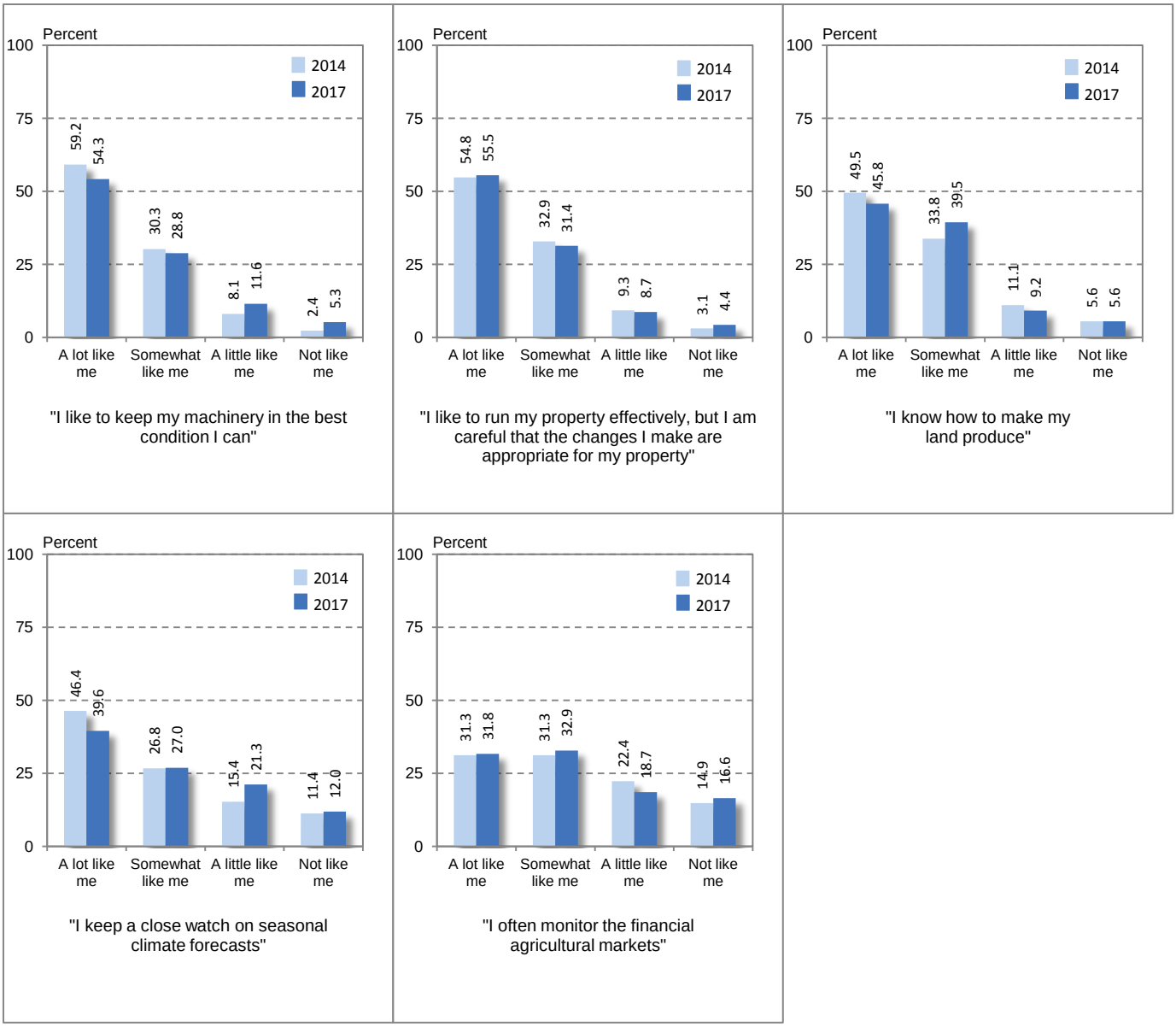
[9] *While the findings have been presented for the second interpretation of farming styles, it is the view of the author of this report that the first approach to interpreting farming styles as latent factors is the most appropriate.*

Table 16: identification of farming styles (loadings from the 2014 survey)

Belief statements	1 Professional	2 Innovator	3 Struggler	4 Lifestyle	5 Conservative	6 Risk averse
1. I like to keep my machinery in the best condition I can	0.737					
2. I like to run my property effectively, but I am careful that the changes I make are appropriate for my property	0.677					
3. I know how to make my land produce	0.666					
4. I keep a close watch on seasonal climate forecasts	0.508					
5. I often monitor the financial agricultural markets	0.498					
6. I like to be at the cutting edge of agricultural change		0.825				
7. I am constantly seeking new ideas about ways of doing things		0.768				
8. I am continually seeking to expand the size of my farm		0.569				
9. The only way to make money at farming is to take risks		0.508				
10. I sometimes feel that I am going backwards even though I work hard			0.873			
11. The increasing cost of farming is making it difficult to keep up			0.755			
12. I often think about moving out of farming or grazing			0.634			
13. Running my property is a good lifestyle for me and my family				0.790		
14. I enjoy running my property even though it can be tough at times				0.658		
15. I am good at what I do on my property				0.552		
16. I am wary of people who tell me that there is a better way of doing things					0.704	
17. I am considered a member of the established farmers in the area					0.589	
18. Farming is my life and I cannot see myself ever doing anything else					0.588	
19. I believe that there are more environmentally friendly ways of controlling weed and insect pests						0.749
20. I don't want to take risks with my property just to make more money						0.617

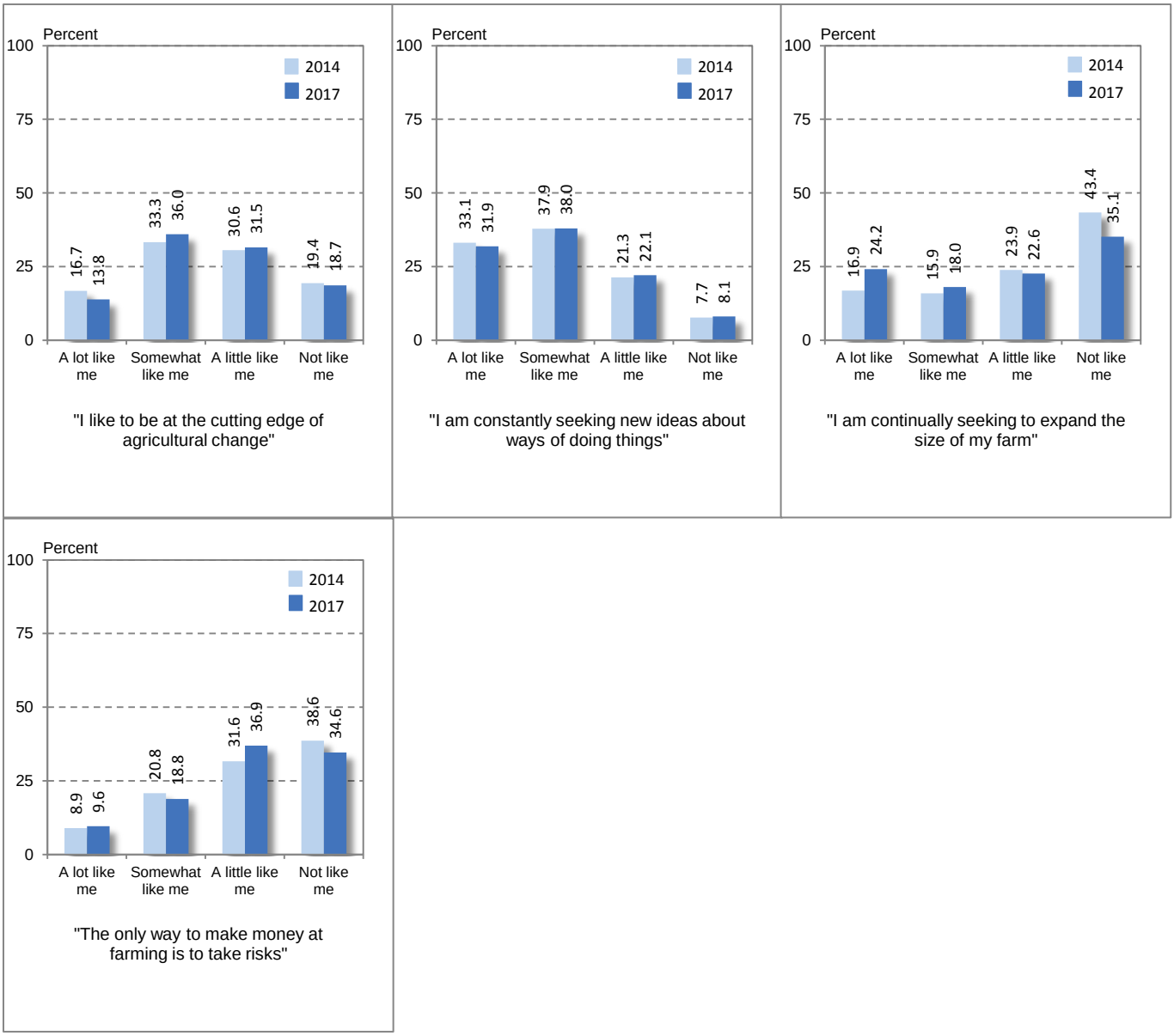
Note: *Based on a varimax rotated factor solution which accounted for 62% of the total variance.*
The values in the table are referred to as loadings and vary between -1.0 and 1.0. A value close to 1.0 or -1.0 indicates a high correlation between the statement and the farming style. Loadings below 0.470 have been excluded from the table.
The analysis was based on 364 landholders as it required each landholder to provide complete data on all statements.
Source: *EBC (2015).*

Figure 6: 'professional' farming style scales



Source: *EBC (2017).*

Figure 7: ‘innovator’ farming style scales



Source: *EBC (2017).*

Figure 8: 'struggler' farming style scales

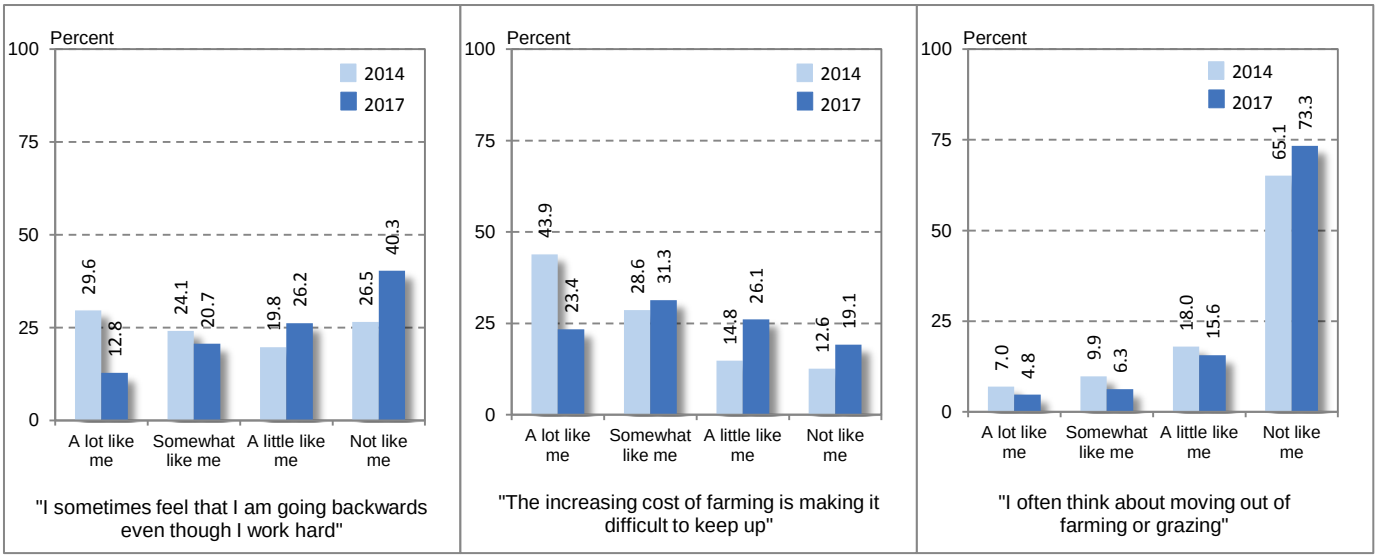


Figure 9: 'lifestyle' farming style scales

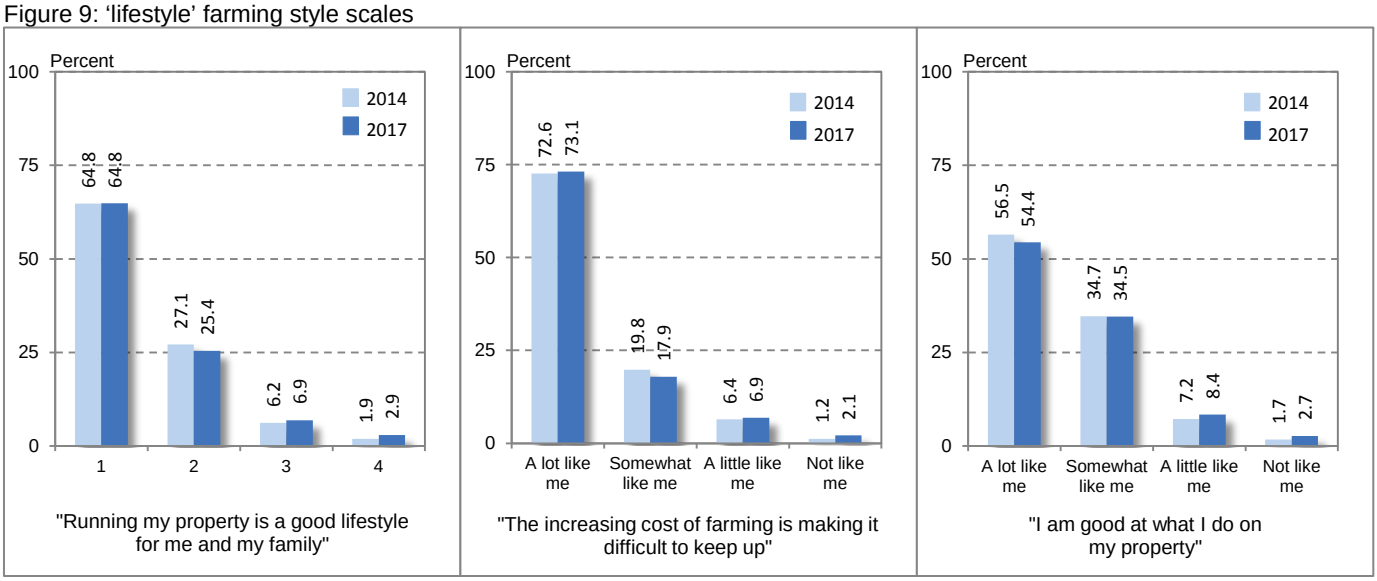


Figure 10: 'conservative' farming style scales

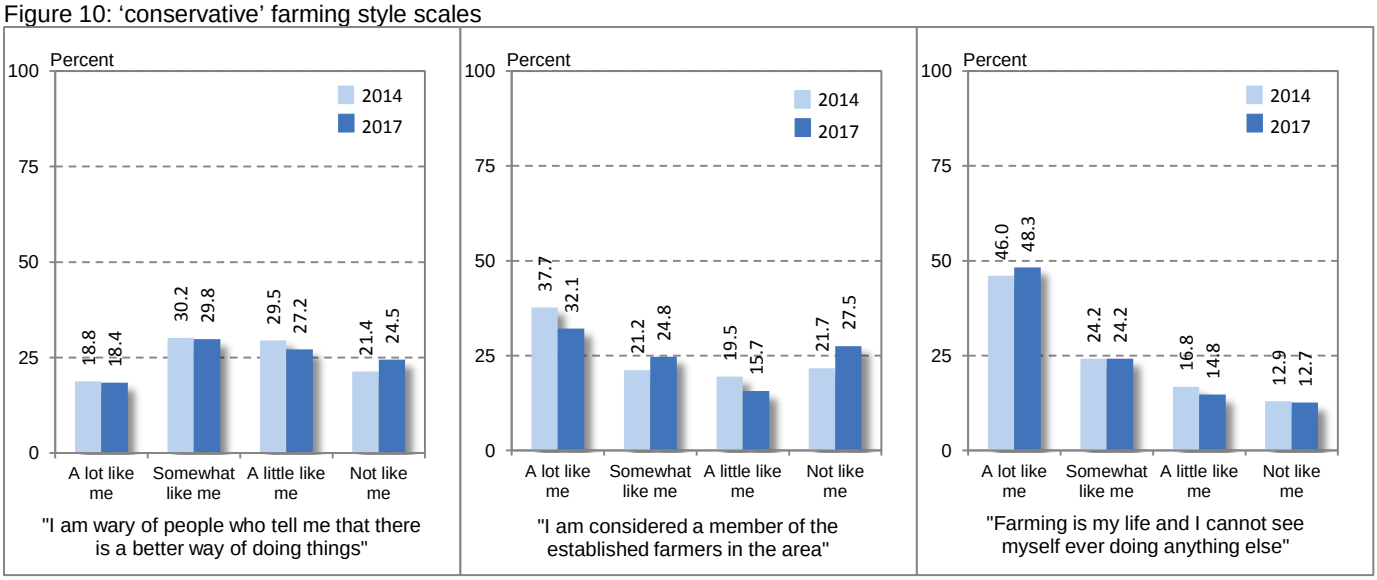
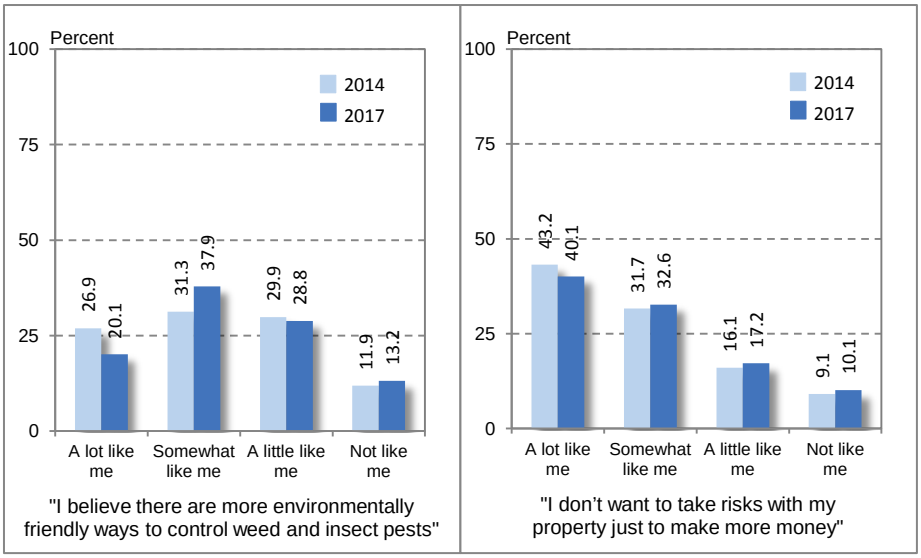
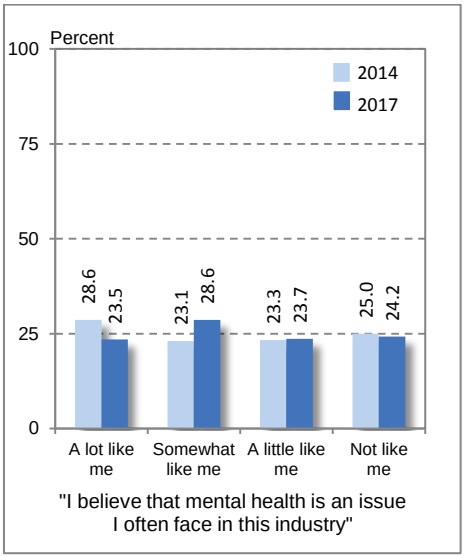


Figure 11: ‘risk averse’ farming style scales



Source: *EBC (2017).*

Figure 12: “I believe that mental health is an issue I often face in this industry”



Source: *EBC (2017).*

Property characteristics

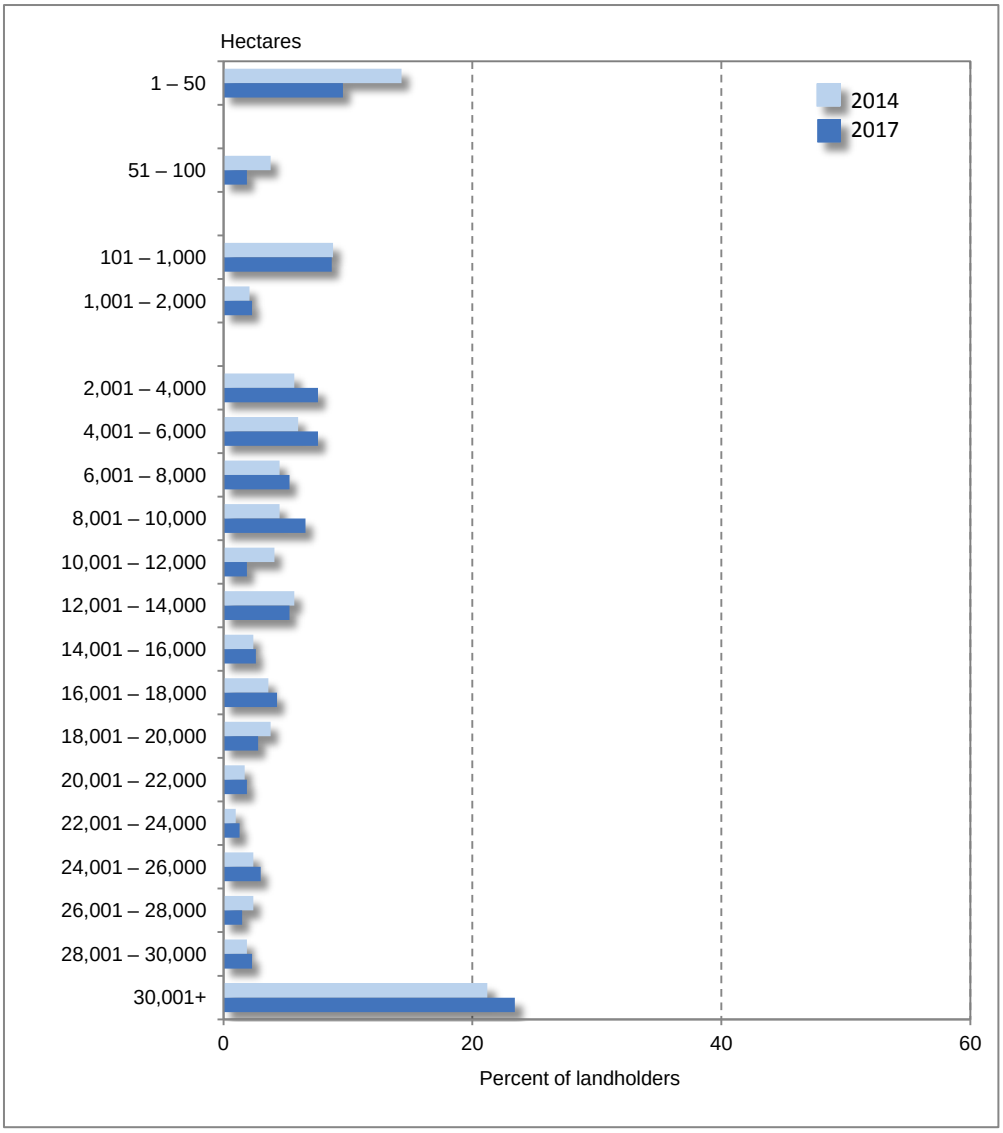
Across all landholders in the Western Local Land Services region, the average property size was 10,500 hectares. As shown in Table 17 and Figure 13, 20% of landholders owned or managed properties of 1,000 hectares or less and a third or 33% owned or managed properties of 20,001 hectares or more.

Table 17: “How large is your property?”

	2014			2017		
Hectares	**Count**	**Percent**	**Cumulative Percent**	**Count**	**Percent**	**Cumulative Percent**
1 – 50	60	14.3	14.3	51	9.6	9.6
51 – 100	16	3.8	18.1	10	1.9	11.5
101 – 1,000	37	8.8	27.0	46	8.7	20.2
1,001 – 2,000	9	2.1	29.1	12	2.3	22.5
2,001 – 4,000	24	5.7	34.8	40	7.6	30.1
4,001 – 6,000	25	6.0	40.8	40	7.6	37.6
6,001 – 8,000	19	4.5	45.3	28	5.3	42.9
8,001 – 10,000	19	4.5	49.9	35	6.6	49.5
10,001 – 12,000	17	4.1	53.9	10	1.9	51.4
12,001 – 14,000	24	5.7	59.7	28	5.3	56.7
14,001 – 16,000	10	2.4	62.1	14	2.6	59.4
16,001 – 18,000	15	3.6	65.6	23	4.3	63.7
18,001 – 20,000	16	3.8	69.5	15	2.8	66.5
20,001 – 22,000	7	1.7	71.1	10	1.9	68.4
22,001 – 24,000	4	1.0	72.1	7	1.3	69.8
24,001 – 26,000	10	2.4	74.5	16	3.0	72.8
26,001 – 28,000	10	2.4	76.8	8	1.5	74.3
28,001 – 30,000	8	1.9	78.8	12	2.3	76.6
30,001+	89	21.2	100.0	124	23.4	100.0
Total landholders	419	100.0		529	100.0	
Median hectares			10,074			10,500

Note: There was no significant difference in the medians between survey years.
Source: EBC (2017).

Figure 13: “How large is your property?”



Source: *EBC (2017).*

Property use

The three most common property uses (Table 18) were growing sheep for wool (48%), sheep for meat (47%) and cattle (36%). In addition in 2017, 31% of landholders harvested feral goats and a further 18% undertook dryland cropping.

Relative to 2014, the 2017 survey indicated there were significant fewer landholders undertaking horticulture (Table 18).

Table 18: "What is your property primarily used for?"

	2014		2017	
Primary use	**Count**	**Percent**	**Count**	**Percent**
Sheep for wool	191	43.9	254	47.6
Sheep for meat	176	40.5	253	47.4
Cattle	184	42.3	192	36.0
Harvesting feral goats	121	27.8	163	30.5
Dryland cropping	64	14.7	94	17.6
Managed goat production	33	7.6	46	8.6
Lifestyle or hobby farming	41	9.4	45	8.3
Recreation	28	6.4	35	6.6
Horticulture	*48*	*11.0*	*29*	*5.4*
Grapes	26	6.0	15	2.8
Citrus	17	3.9	16	2.9
Vines	4	0.9	0	0.0
Stone fruit	2	0.5	1	0.2
Dried fruit	2	0.5	1	0.2
Vegetables	2	0.5	4	0.7
Avocado	2	0.5	2	0.4
Other horticultural uses *(frequency of one)*	7	1.6	6	1.1
Irrigation cropping	35	8.0	24	4.5
Conservation land use	25	5.7	21	3.9
Tourism or farm stays	3	0.7	13	2.4
Aboriginal land use	4	0.9	4	0.7
Other uses	15	3.4	18	3.3
Mining	2	0.5	0	0.0
Aquaculture	2	0.5	1	0.2
No use	2	0.5	7	1.3
Leased	0	0.0	2	0.4
Lake bed cropping	0	0.0	2	0.4
Other *(frequency of one)*	9	2.1	6	1.1
Total landholders	437	100.0	544	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

Property ownership

Ninety-three percent of landholders indicated they were the owner of the property (Table 19).

Table 19: "Please state your role in the ownership or management of the property"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Owner	421	95.7	510	93.4
Manager	14	3.2	19	3.5
Other	4	0.9	17	3.1
Total landholders	440	100.0	546	100.0

Note: Other included 'leased', 'environmental officer'; 'worker', 'family member', 'partner', 'CEO', 'part owner', 'director', 'administrator', 'executor' and 'managing director'.
There was no significant difference in percentages between survey years.
Source: EBC (2017).

Ninety-seven percent of landholders also indicated their property was family rather than corporate owned (Table 20).

Table 20: "Would you say your property in family owned or corporate owned"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Family	398	97.1	489	96.6
Corporate	12	2.9	17	3.4
Total landholders	410	100.0	506	100.0

Note: There was no significant difference in percentages between survey years.
Source: EBC (2017).

Property management

Thirty percent of all landholders had a fulltime manager living on the property, while 8% had a part-time manager for the property (Table 21).

Table 21: "Does a manger or other person who looks after the property live on the property?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes full-time	115	26.7	161	30.2
Yes part-time (more than 51 days)	16	3.7	28	5.3
Yes part time (less than 51 days)	5	1.2	15	2.8
No	295	68.4	329	61.7
Total landholders	431	100.0	533	100.0

Note: There was no significant difference in percentages between survey years.
Source: EBC (2017).

Property decision making

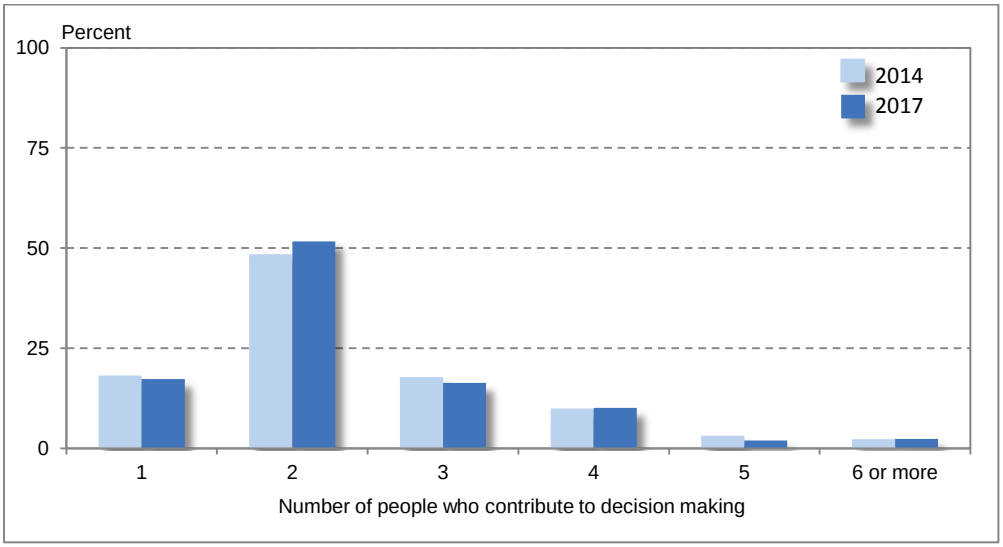
Table 22 and Figure 14 show that 52% of landholders reported that two people are usually involved in decisions made about the property.

Table 22: “How many people contribute to the decisions made on your property?”

Response	2014		2017	
	Count	Percent	Count	Percent
1	80	18.2	94	17.3
2	213	48.5	280	51.7
3	78	17.8	89	16.4
4	44	10.0	55	10.1
5	14	3.2	11	2.0
6 or more	10	2.3	13	2.4
Total landholders	439	100.0	542	100.0

Note: There was no significant difference in percentages between survey years.
Source: EBC (2017).

Figure 14: number of people who contribute to decision making



Source: EBC (2017).

Enterprise change

A third of all landholders indicated they had changed enterprises in the past 10 years (Table 23).

Table 23: "In the last ten years, have you changed enterprises (including expanding or reducing an enterprise) in your business?"

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	136	31.6	174	32.5
No	294	68.4	362	67.5
Total landholders	430	100.0	536	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Amongst those landholders who had changed their enterprise in the last 10 years, the two most common changes (Table 24) were the introduction of new livestock breeds (38%) and the expansion, development or increase in production (22%). These were also the two most common enterprise changes identified in the 2014 survey.

Table 24: "What changes did you make?"

Response	2014		2017	
	Count	Percent	Count	Percent
Changed or introduced new livestock breeds	74	54.8	65	38.2
Expanded, developed or increased production	33	24.4	37	21.8
Changed or introduced new crops or plantings	24	17.8	25	14.7
Reduced or ceased production	16	11.9	25	14.7
Sold, leased or bought property	3	2.2	20	11.8
Changed or improved land management practices	9	6.7	15	8.8
Carbon farming	0	0.0	8	4.7
Changed from cattle to sheep	3	2.2	7	4.1
Commence, improve or increase irrigation or water management	3	2.2	2	1.2
Changed from cropping to livestock production	2	1.5	2	1.2
Other changes *(frequency of one)*	5	3.7	17	10.0
Total landholders	135	100.0	170	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

Twenty-five percent of landholders indicated they were considering making changes to their enterprise in the next five years (Table 25).

Table 25: “Are you considering or planning to make any changes to your enterprise in the next five years?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	110	25.3	131	24.5
No	325	74.7	403	75.5
Total landholders	435	100.0	534	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

The three most common changes being considered by landholders in the next five years (Table 26) were to expand, develop or increase production (39%); change or improve livestock or pasture management practices (26%) and to change or introduce new livestock breeds (18%). These were also the three most common changes being considered by landholders in the 2014 survey.

Table 26: “What changes are you considering or planning?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Expanded, developed or increased production	31	29.2	47	39.2
Changed or improved livestock or pasture management practices	33	31.1	31	25.8
Changed or introduced new livestock breeds	19	17.9	21	17.5
Commence, improve or increase irrigation or water management	7	6.6	11	9.2
Sell, buy or lease property	3	2.8	11	9.2
Reduce or cease production	8	7.5	8	6.7
Change or introduce new crops or plantings	14	13.2	5	4.2
Change, improve or commence natural resource management practices	6	5.7	5	4.2
Change from cattle to sheep	1	0.9	3	2.5
Other changes *(frequency of one)*	12	11.3	10	8.3
Total landholders	106	100.0	120	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

There were a number of factors which landholders indicated contributed to their decision to make changes in the next five years (Table 27). The most commonly reported factors were improving profitability (71%), improving their grazing management (50%) and diversification to reduce risk (39%).

In the 2014 survey significantly more landholders reported seasonal conditions as a factor contributing to their decisions to make changes in the next five years, while in 2017 significantly more landholders reported infrastructure as a factor.

Table 27: "Which of the following factors contributed to your decision to make these changes?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Improving profitability	172	69.1	88	71.0
Improving grazing management	99	39.8	62	50.0
Diversification to reduce risk	81	32.5	48	38.7
Seasonal conditions	*123*	*49.4*	*44*	*35.5*
Markets and marketing alternatives	78	31.3	43	34.7
Infrastructure	*50*	*20.1*	*42*	*33.9*
Reducing labour requirements	91	36.5	37	29.8
Managing seasonal variation	83	33.3	37	29.8
Land types	32	12.9	19	15.3
Success of other producers	37	14.9	17	13.7
Education and training	31	12.4	16	12.9
Other factors *(frequency of one)*	17	6.8	15	12.1
Total landholders	249	100.0	124	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Percentages highlighted in italics are significantly different between the 2014 and 2017 surveys.
'Other factors' included age, retirement, reduced profitability, wild dogs, improved soil health and nutrition.
Source: *EBC (2017).*

Organic status

Only 4% of landholders indicated their property was organically certified, with a further 3% indicating their property had been organically certified in the past (Table 28).

Table 28: "What is your property's organic status?"

Response	2014		2017	
	Count	Percent	Count	Percent
My property is not organically certified and never has been	399	92.1	497	92.7
My property has been organically certified, but is not currently	17	3.9	16	3.0
All or part of my property is organically certified	17	3.9	23	4.3
Total landholders	433	100.0	536	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Amongst the 7% of landholders who were or had been organically certified, only 45% had sold organically certified products into an organic market or supply chain in the last two years (Table 29).

Table 29: "In the past three years, have you sold organic certified products into an organic market or supply chain?"

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	12	36.4	17	44.7
No	21	63.6	21	55.3
Total landholders	33	100.0	38	100.0

Note: *Based on those properties previously or currently organically certified (Table 28)*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

Amongst the 17 landholders who had sold organically certified products into an organic market or supply chain in the last three years, 15 or 88% had sold livestock and six (35%) had sold grains (Table 30).

Table 30: "What organic products have you sold to an organic market or supply chain?"

Response	2014		2017	
	Count	Percent	Count	Percent
Livestock	10	83.3	15	88.2
Grains	1	8.3	6	35.3
Horticultural products	1	8.3	1	5.9
Vegetables	0	0.0	1	5.9
Other (hay)	1	8.3	0	0.0
Total landholders	12	100.0	17	100.0

Note: *Based on those landholders who had sold organic products in the last three years (Table 29)*
Source: *EBC (2017).*

In addition, amongst landholders who had been or were organically certified, 13 (36%) had also sold their organic products into a conventional market (Table 31). This was significantly lower than was reported in the 2014 survey, were 69% had sold their organic products into a conventional market.

Table 31: "In the past three years, have you sold organic certified products into a conventional market rather than into an organic market or supply chain?

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	11	68.8	13	36.1
No	5	31.3	23	63.9
Total landholders	16	100.0	36	100.0

Note: Based on those properties previously or currently organically certified (Table 28)
There was a significant difference in percentages between survey years.
Source: EBC (2017).

Thirty-nine percent of the organic products sold into a conventional market were lamb products (Table 32).

Table 32: "What organic products have you sold into a conventional market?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Lambs	6	54.5	5	38.5
Cattle	1	9.1	3	23.1
Sheep	2	18.2	3	23.1
Meat sheep	2	18.2	2	15.4
Livestock *(general)*	0	0.0	2	15.4
Meat and wool	1	9.1	0	0.0
Total landholders	11	100.0	13	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.
Based on those landholders who had sold organic products in the last three years (Table 31).
Source: EBC (2017).

Only 12% of all landholders indicated they were planning to gain or regain organic 'in conversion' status or certification in the next three years (Table 33).

Table 33: "Are you planning to gain or regain organic 'in conversion' status or certification in the next three years?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	37	8.7	60	11.5
No	388	91.1	461	88.5
Total landholders	425	100.0	521	100.0

Note: There was no significant difference in percentages between survey years.
Source: EBC (2017).

The main reason landholders gave for not gaining or regaining organic certification (Table 34) was that they believed there was no need or benefit in doing so (32%); that they needed to use pesticides, herbicides, fertilisers or other chemicals (27%); and that organic certification was not applicable or suitable to their enterprise (22%).

Table 34: "Why aren't you planning to gain or regain organic 'in conversion' status or certification in the next two years?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
No need, benefit or interest	108	38.2	96	32.4
Need pesticides, herbicides, fertilisers and/or chemicals	42	14.8	79	26.7
No applicable, not viable or not suitable	37	13.1	64	21.6
Too much administration and paperwork	11	3.9	14	4.7
Too difficult	7	2.5	14	4.7
Lack of knowledge and understanding	13	4.6	13	4.4
Too costly expensive to establish and/or maintain	32	11.3	12	4.1
Lack of time	8	2.8	7	2.4
Lack of market for product	2	0.7	4	1.4
Too restrictive	3	1.1	3	1.0
Drought	2	0.7	2	0.7
Don't spend sufficient time on the property	2	0.7	1	0.3
Already certified	3	1.1	0	0.0
Other *(frequency of one)*	24	8.5	20	6.8
Total landholders	283	100.0	296	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Based on those landholders who were not intending to become organic in the next three years (Table 33).
Source: *EBC (2017).*

Distance to closest market for products

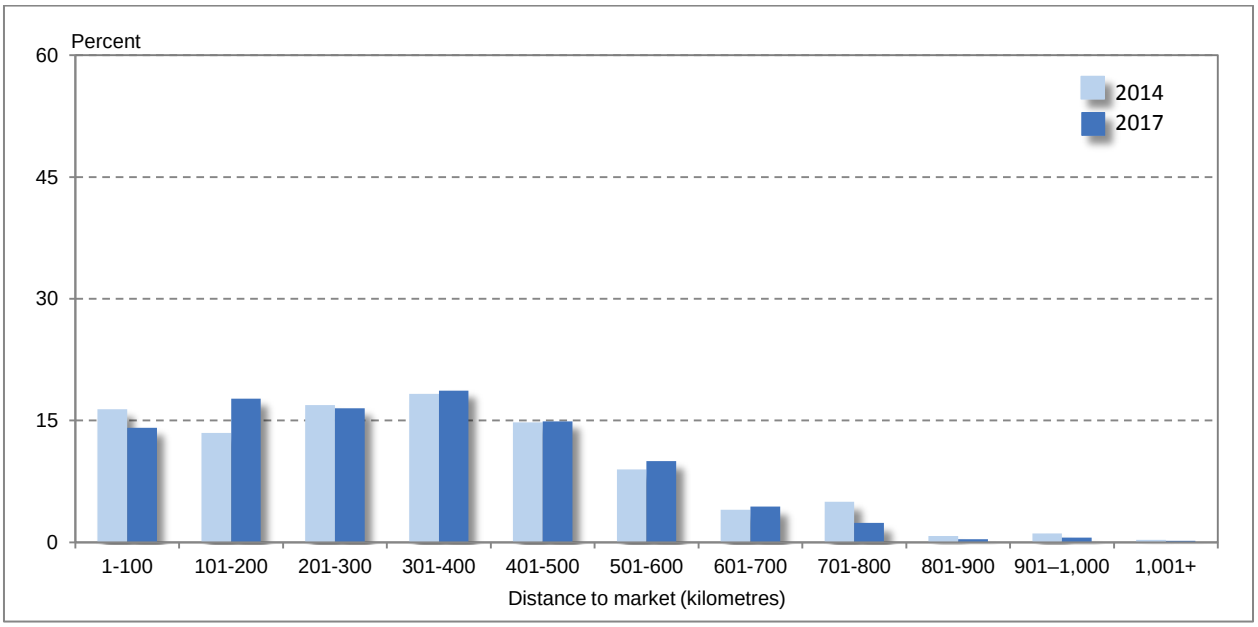
The average distance to the closest market for farm products was 338 kilometres (Table 35 and Figure 15).

Table 35: "What is the distance to your closest market (km)?"

Kilometres to market	2014			2017		
	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
1-100	62	16.4	16.4	71	14.1	14.1
101- 200	51	13.5	29.9	89	17.7	31.9
201 - 300	64	16.9	46.8	83	16.5	48.4
301 - 400	69	18.3	65.1	94	18.7	67.1
401 - 500	56	14.8	79.9	75	14.9	82.1
501 - 600	34	9.0	88.9	50	10.0	92.0
601 - 700	15	4.0	92.9	22	4.4	96.4
701 - 800	19	5.0	97.9	12	2.4	98.8
801 - 900	3	0.8	98.7	2	0.4	99.2
901 – 1,000	4	1.1	99.7	3	0.6	99.8
1,001+	1	0.3	100.0	1	0.2	100.0
Total landholders	378	100.0		502	100.0	
Median kilometres			350.0			338.0

Note: *There was no significant difference in medians between survey years.*
Source: *EBC (2017).*

Figure 15: distance to closest market for products



Source: *EBC (2017).*

Internet access

Seventy-seven percent of landholders indicated they had internet access on their property (Table 36).

Table 36: “Do you have access to the internet on your property?”

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	315	72.1	421	77.2
No	122	27.9	124	22.8
Total landholders	437	100.0	545	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

While 46% of landholders indicated they had ‘average’ access speeds to the internet, 45% also indicated they had ‘slow’ or ‘very slow ‘internet access speeds (Table 37). Only 9% of landholders indicated they had ‘fast’ or ‘very fast’ internet speeds.

Table 37: “Typically, when you access the internet on your property would you say the internet speed is?”

Response	2014			2017		
	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
Very slow	46	15.6	15.6	73	18.5	18.5
Slow	89	30.2	45.8	104	26.3	44.8
Average	136	46.1	91.9	182	46.1	90.9
Fast	22	7.5	99.4	33	8.4	99.2
Very fast	2	0.7	100.0	3	0.8	100.0
Total landholders	295	100.0		395	100.0	

Note: *Based on those landholders who had internet access on their property (Table 36).*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

Training and property management

This chapter provides an analysis of the training and property management characteristics of landholders within the Western Local Land Services region.

Participation in training courses

Thirty-five percent of landholders indicated they had undertaken agriculture, grazing or land management related courses in the past two years (Table 38). This was a significant increase over the 25% who reported having undertaken these courses in 2014.

Table 38: "Have you undertaken any agriculture, grazing or land management related courses in the past three years?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	109	24.7	189	34.9
No	332	75.3	353	65.1
Total landholders	441	100.0	542	100.0

Note: *There was a significant difference in percentages between survey years.*
Source: *EBC (2017).*

Three quarters of landholders (68%) who attended a course in the past three years had attended a chemical handling course; 16% had attended a grazing for profit course and 15% had attended a course on low stress stock handling (Table 39).

Table 39 also indicates a significant decline in the number of landholders who attended 'grazing for profit' and phoenix mapping courses between the 2014 and 2017 surveys.

Table 39: "What courses have you undertaken?"

	2014		2017	
Courses	**Count**	**Percent**	**Count**	**Percent**
Chemical handling	74	67.9	145	76.7
Grazing for profit/Pasture to pocket	*40*	*36.7*	*30*	*15.9*
Low stress stock handling	*1*	*0.9*	*28*	*14.8*
Property planning	23	21.1	27	14.3
Tactical grazing management	13	11.9	25	13.2
Holistic resource management	19	17.4	22	11.6
Succession planning	15	13.8	21	11.1
Pest animal control (inc. wild dog control)	1	0.9	14	7.4
Phoenix mapping	*15*	*13.8*	*12*	*6.3*
KLR Marketing	-	-	11	5.8
Pro-Graze	2	1.8	2	1.1
Other courses*(frequency of one)*	12	11.0	23	12.2
Total landholders	109	100.0	189	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
Based on those landholders who had undertaken an agriculture, grazing or land management related course in the past three years (Table 38).
Low stress stock handling and KLR Marketing were not included in the 2014 survey.
Pest animal control and low stress stock handling was coded from 'other courses' identified by landholders in the 2014 survey.
Other courses included cell grazing for profit; diploma of horticulture; fencing; financial planning; growing Lucerne for profit; land and water; carbon farming; stream watch workshops; erosion management; plant identification; dangerous goods; motorcycle operation; lifetime ewe management; computer training; animal welfare; biosecurity
Source: *EBC (2017).*

Three quarters of all landholders (71%) indicated they changed their practices as a result of what they had learnt from the course (Table 40).

Table 40: “Did you change any of your practices as a result of what you learnt from the course?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	70	72.7	128	71.1
No	27	27.8	52	28.9
Total landholders	97	100.0	180	100.0

Note: Based on those landholders who had undertaken an agriculture, grazing or land management related course in the past three years (Table 38).
There was no significant difference in percentages between survey years.
Source: EBC (2017).

Table 41 indicates the most common reasons for landholders not changing practices as a result of attending courses was that they were already undertaking the practice (71%) or that they had no need or requirement to change (43%).

Table 41: “Why didn’t you change any of your practices as a result of attending the course?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Already undertaking the practices	11	52.4	17	71.1
No need or requirement	3	14.3	16	43.2
Too costly or expensive	1	4.8	1	2.7
Refresher course	1	4.8	1	2.7
Lack of resources	0	0.0	1	2.7
Difficult to apply in current context	0	0.0	1	2.7
Too repetitive	1	4.8	0	0.0
Don’t use chemicals	1	4.8	0	0.0
Didn’t have equipment or technology	1	4.8	0	0.0
Because of drought	1	4.8	0	0.0
Total landholders	21	100.0	37	100.0

Source: EBC (2017).

Twenty percent of all landholders were able to identify additional training needs (Table 42).

Table 42: "Are you able to identify any training you would like to receive to improve the management of your enterprise?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	101	23.8	104	20.2
No	323	76.2	411	79.8
Total landholders	424	100.0	515	100.0

Note There was no significant difference in percentages between survey years.
Source: EBC (2017).

The most common types of additional training needs (Table 43) were business management, including accounting, financial management and bookkeeping (20%); and computer training (18%). These were also the two most commonly reported needs in the 2014 survey.

Table 43: type of training required

	2014		2017	
Type of training	**Count**	**Percent**	**Count**	**Percent**
Business management (inc. accounting, financial, bookkeeping)	17	17.7	18	19.8
Computer training	11	11.5	16	17.6
Livestock management	10	10.4	9	9.9
Pest animal management	5	5.2	8	8.8
Chemical handling and use	7	7.3	4	4.4
Pest plant management	5	5.2	4	4.4
Holistic resource management	2	2.1	4	4.4
Grazing for profit	0	0.0	4	4.4
Soil management	11	11.5	3	3.3
Water management (inc. irrigation)	6	6.3	3	3.3
Agronomy	0	0.0	3	3.3
Flying drones	0	0.0	3	3.3
Low stress stock handling	1	1.0	3	3.3
Phoenix mapping	1	1.0	3	3.3
Pregnancy testing cattle	0	0.0	3	3.3
Succession planning	1	1.0	3	3.3
Grazing management	10	10.4	2	2.2
Pasture management	9	9.4	2	2.2
Property planning	5	5.2	2	2.2
Tactical grazing management	1	1.0	2	2.2
Land management	4	4.2	1	1.1
Fencing	5	5.2	0	0.0
Understanding weather	4	4.2	0	0.0
Property mapping	3	3.1	0	0.0
Plant identification	2	2.1	0	0.0
Other types of training *(frequency of one)*	11	11.5	17	18.7
Total landholders	96	100.0	91	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.
Source: EBC (2017).

Succession plans

Fifty-five percent of landholders indicated they had a succession plan for their property (Table 44).

Table 44: “Do you have a succession plan in place?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	193	49.6	265	55.3
No	196	50.4	214	44.7
Total landholders	389	100.0	479	100.0

Note There was no significant difference in percentages between survey years.
Source: EBC (2017).

Biosecurity or access policy

Twenty-seven percent of landholders reported they had a biosecurity or access policy for their property. This was a significant increase from the 17% of landholders who reported they had a biosecurity or access policy for their property in the 2014 survey (Table 45).

Table 45: “Do you have a biosecurity or access policy for your property?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	72	17.0	143	27.2
No	352	83.0	383	72.8
Total landholders	424	100.0	424	100.0

Note There was a significant difference in percentages between survey years.
Source: EBC (2017).

Property management plans

Table 46 indicates that when property vegetation plans were excluded, 24% of landholders reported that they had a documented or written property management plan.

Table 46: “Do you have a documented or written property management plan (excluding a property vegetation plan)?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	97	22.2	128	23.7
No	339	77.8	411	76.3
Total landholders	436	100.0	539	100.0

Note There was no significant difference in percentages between survey years.
Source: EBC (2017).

Property management plans were found to have been developed on average 10 years ago (Table 47), with 34% of landholders having developed their property management plan within the last five years.

Table 47: “How many years ago was the property management plan first developed?”

	2014		2017	
Years	**Count**	**Percent**	**Count**	**Percent**
1-5	25	27.8	39	33.9
6-10	42	46.7	37	32.2
11-15	10	11.1	19	16.5
16-20	6	6.7	11	9.6
20+	7	7.8	9	7.8
Total landholders	90	100.0	115	100.0
Median years		8.5		10.0

Note: Based on those landholders who had a property management plan (Table 46).
There was no significant difference in medians between survey years.
Source: EBC (2017).

Forty-two percent of all landholders indicated they updated their property management plan either ‘always’ or ‘often’, with 10% reporting they had never updated their plan (Table 48).

Table 48: “How often do you update your management plan?

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Always	16	17.4	15	12.0
Often	27	29.3	38	30.4
Sometimes	19	20.7	28	22.4
Occasionally	20	21.7	31	24.8
Never	10	10.9	13	10.4
Total landholders	92	100.0	125	100.0

Note: Based on those landholders who had a property management plan (Table 46).
There was no significant difference in percentages between survey years.
Source: EBC (2017)

In addition, 43% of landholders indicated they ‘always’ or ‘often’ referred to their property management plan when making decisions (Table 49).

Table 49: “How often do you refer to your property management plan when making decisions? Would it be…”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Always	13	14.1	15	12.1
Often	24	26.1	38	30.6
Sometimes	19	20.7	36	29.0
Occasionally	26	28.3	27	21.8
Never	10	10.9	8	6.5
Total landholders	92	100.0	124	100.0

Note: Based on those landholders who had a property management plan (Table 46).
There was no significant difference in percentages between survey years.
Source: EBC (2017)

The most common elements included in a property management plan (Table 50) were an air photo or satellite imagery mapping (77%); fencing requirements (77%); natural or man-made watering points (72%); vegetation types (58%); future plans or developments (56%); and soil or land types (50%).

Relative to the findings of the 2014 survey, a significantly greater number of landholders reported their property management plan included fencing requirements, while significantly fewer landholders reported they management plan included current plantings or block identification

Table 50: "Which of the following is included in your documented property management plan? Does it include a description or map of …"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
An air photo or satellite imagery mapping	74	86.0	96	77.4
Fencing requirements	54	62.8	95	76.5
Natural or man-made watering points	65	75.6	89	71.8
Vegetation types	50	58.1	72	58.1
Future plans or developments	44	51.2	69	55.6
Soil or land types	48	55.8	62	50.0
Stock or crop management	39	45.3	58	46.8
Pest plants or areas of invasive native scrub	37	43.0	57	46.0
Property vegetation plan	34	39.5	49	39.5
Risk control plan, i.e. weeds, disease	26	30.2	35	28.2
Conservation or sanctuary areas	27	31.4	27	21.8
Current plantings/block identification	*31*	*36.0*	*23*	*18.5*
Irrigation/soil capability maps	21	24.4	13	10.5
Total landholders	86	100.0	124	100.0

Note: *Based on those landholders who had a property management plan (Table 46).*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017)..*

Information sources and use

Neighbours and other landholders (72%) were identified as the most common sources of information that influenced changes made to the property (Table 51).

As shown in Table 51, landholders were significantly more likely in the 2017 survey to report 'stock and station agents' as a source of information when compared to the 2014 survey.

Table 51: "Where do you usually get your information that influences changes you make on your property?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Neighbours and other landholders	283	68.2	371	71.5
Stock and station agents	*156*	*37.6*	*241*	*46.4*
Government agencies and departments	171	41.2	205	39.5
Farmer and community groups (e.g. Landcare)	124	29.9	150	28.9
Agronomist	-	-	107	20.6
Local Government	40	9.6	52	10.0
Other sources *(frequency of one)*	102	24.6	76	15.4
Total landholders	415	100.0	519	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
'The response category 'agronomist' was not included in the 2014 survey.
Source: *EBC (2017).*

In addition to the primary source of information identified in Table 51, Table 52 indicates other common sources of information to be the media (40%); the web or internet (28%); and the landholder themselves (25%).

Table 52: other sources of information that influences changes to properties

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Media (general - inc. books, magazines, newspapers etc)	20	19.6	30	39.5
Web or internet	19	18.6	21	27.6
Individual or self (own decision)	23	22.5	19	25.0
Industry bodies	8	7.8	7	9.2
Family	7	6.9	5	6.6
Field days	5	4.9	2	2.6
Agricultural papers	4	3.9	2	2.6
Farm advisors	10	9.8	1	1.3
Markets and customers	6	5.9	1	1.3
Other growers	3	2.9	0	0.0
Other sources *(frequency of one)*	16	15.7	6	7.9
Total landholders	102	100.0	76	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

Table 53 also shows that an additional and common source of information used by landholders was industry newsletters (78%) and agricultural publications (55%). The number of landholders using industry newsletters increased significantly since the 2014 survey; however the number of landholders using agricultural publications declined since the 2014 survey.

Table 53: “Do you usually obtain information by…”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Industry newsletters	*187*	*45.2*	*403*	*78.4*
Reading agricultural publications	*312*	*75.4*	*282*	*54.9*
Researching products and systems	201	48.6	252	49.0
Industry websites	147	35.5	211	41.1
Conducting trials and field monitoring	94	22.7	140	27.2
Other responses *(frequency of one)*	29	7.0	26	5.1
Total landholders	414	100.0	514	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
Other responses included for example landholders’, own experience; media; web or internet; course or training; word of mouth; self; personnel networks; courses; workshops; phone; and agronomist.
Source: *EBC (2017).*

Climate change

This Chapter examines landholders beliefs about climate change and the type of adaptions they might make to how they would manage their property. Questions related to climate change were not included in the 2014 survey of landholders.

Table 54 shows that 40% of landholders were unsure if the climate change scenario as described by the CSIRO would be likely to occur in the future; while a third of all landholders (32%) believed it likely to occur and a further 28% believed it unlikely to occur.

Table 54: "The CSIRO indicates that future climate in the region is likely to be warmer and drier, with an increase in evaporation and an increase in the number of days of extreme heat, winds and rainfall events. Do you think long term climate change as described by the CSIRO is likely to occur?"

Response	Count	Percent
Yes	174	32.1
No	149	27.5
Don't know	542	40.4
Total landholders	542	100.0

Source: EBC (2017).

Amongst landholders who believed the climate change scenario as described in Table 54 was to likely occur, 70% indicated it would change how they farm and manage their land (Table 55).

Table 55: "If this were to occur over the next 20 years, would this change how you farm and manage your land?"

	All landholders		**Landholders who assume climate change likely to occur** (Table 55)	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	288	52.9	121	69.5
No	147	27.0	34	19.5
Don't know	109	20.0	19	10.9
Total landholders	544	100.0	174	100.0

Note: All landholders includes those who responded 'no' in Table 54 being also classified as 'no' responses in Table 55.
Source: EBC (2017).

The three most common adaptions to climate change as reported in Table 56 included increasing water storage or dams (66%); improving pasture management (43%) and developing bore water supplies (41%).

Table 56: “In what ways would you change how you farm or manage your land to adapt to climate change?”

Response	Count	Percent
More water storage or dams	190	66.2
Improve pasture management	123	42.9
Develop bore water supplies	118	41.1
Destock	99	34.5
Import more feed for livestock	63	22.0
Change type of livestock breeds	62	21.6
Develop or improve irrigation	58	20.2
Change pasture species	41	14.3
Adopt minimum or zero tillage practices	39	13.6
Plant more trees or vegetation	32	11.1
Change crops	28	9.8
Reduce cropping area	16	5.6
Stop farming	11	3.8
Plant fewer crops	10	3.5
Other responses *(frequency of one)*	11	3.8
Total landholders	287	100.0

Note: *Based on those landholders who indicated that in response to climate change they would change how they farmed or managed their land (Table 55).*
This is a multiple response table in which a respondent may be included in multiple rows.
‘Other’ included for example buy land to offset carrying capacity; opportunity cropping; develop feed containment areas; monitor ecosystems; develop sacrifice areas; develop alternative income sources; monitor stock to sell earlier; change enterprises; develop feed growing sheds.
Source: *EBC (2017).*

Carbon Farming

This Chapter examines the occurrence of carbon farming amongst landholders and the perceived benefits and disadvantages of carbon farming. Questions related to carbon farming were not included in the 2014 survey of landholders.

Table 57 indicates that only 9% of landholders currently had a carbon farming agreement where they earnt Carbon Credit Units.

Table 57: "Do you currently have a carbon farming agreement where you earn Australian Carbon Credit Units?"

Response	Count	Percent
Yes	51	9.3
No	497	90.7
Total landholders	548	100.0

Source: EBC (2017).

Of those landholders who had a carbon farming agreement; the majority of landholders (Table 58) earnt carbon credits through 'revegetation or regeneration' (60%) and through 'avoiding deforestation of native vegetation' (54%).

Table 58: "Do you earn carbon credits through…"

Response	Count	Percent
Sequestering carbon through revegetation or regeneration	29	60.4
Sequestering carbon through avoiding deforestation of native vegetation	26	54.2
Sequestering carbon in soil	3	6.3
Reducing livestock emissions	2	4.2
Reducing emissions through increasing the efficiency of fertilizer use	0	0.0
Total landholders	48	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.
Based on those landholders who indicated they had a carbon farming agreement (Table 57).
Source: EBC (2017).

In addition, of those landholders who had a carbon farming agreement; 70% indicated there had been other benefits in addition to carbon storage and reduction in greenhouse gas emissions (Table 59).

Table 59: "In addition to carbon storage and reduction in greenhouse gas emissions, have there been other benefits from carbon farming on your property?"

Response	Count	Percent
Yes	33	70.2
No	14	29.8
Total landholders	47	100.0

Note: Based on those landholders who indicated they had a carbon farming agreement (Table 57).
Source: EBC (2017).

The two most commonly reported additional benefits of carbon farming (Table 60) were that it had provided financial capital to invest in infrastructure on the property (79%) and that it had provided financial capital to invest in better management of the property (73%).

Table 60: "What do you think are the additional benefits?"

Response	Count	Percent
Financial capital to invest in infrastructure on my property	26	78.8
Financial capital to invest in better management on my property	24	72.7
Improved soil condition	13	39.4
Improved soil condition	13	39.4
Reduce erosion	10	30.3
Capital to invest in other land in the region	8	24.2
Capital to invest outside the region	7	21.2
Other responses *(frequency of one)*	1	3.0
Total landholders	33	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Based on those landholders who indicated they had other benefits from carbon farming (Table 59).
Other included 'reduction in livestock numbers'.
Source: *EBC (2017).*

Of those landholders who had a carbon farming agreement; 44% indicated there had been disadvantages from having undertaken a carbon project (Table 61).

Table 61: "Do you think there have been any disadvantages from taking on a carbon project?"

Response	Count	Percent
Yes	21	43.8
No	27	56.3
Total landholders	48	100.0

Note: *Based on those landholders who indicated they had a carbon farming agreement (Table 57).*
Source: *EBC (2017).*

The two most frequently reported disadvantages associated with undertaken a carbon project (Table 62) were reported as the monitoring and auditing requirements (55%) and the reduction in grazing production (50%).

Table 62: "What do you think are the disadvantages?

Response	Count	Percent
Monitoring and auditing requirements	11	55.0
Reduced grazing production	10	50.0
Increased risk of land degradation problems such as pests, weeds, erosion and woody weeds	8	40.0
Changes to property values	8	40.0
Cost of maintaining carbon project areas including fire breaks and fencing	7	35.0
Changes to Crown Lease agreements and succession planning	3	15.0
Other responses *(frequency of one)*	2	3.0
Total landholders	20	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Based on those landholders who indicated there were disadvantages from taking on a carbon farming project (Table 61).
Other included 'increased financial risk' and 'bank lending requirements'.
Source: *EBC (2017).*

Livestock enterprises

Eighty-three percent of landholders indicated they managed livestock on their property (Table 63).

Table 63: “Do you manage livestock (including harvesting goats) on your property?”

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	340	77.8	457	83.2
No	97	22.2	92	16.8
Total landholders	437	100.0	549	100.0

Note *There was a significant difference in percentages between survey years.*
Source: *EBC (2017).*

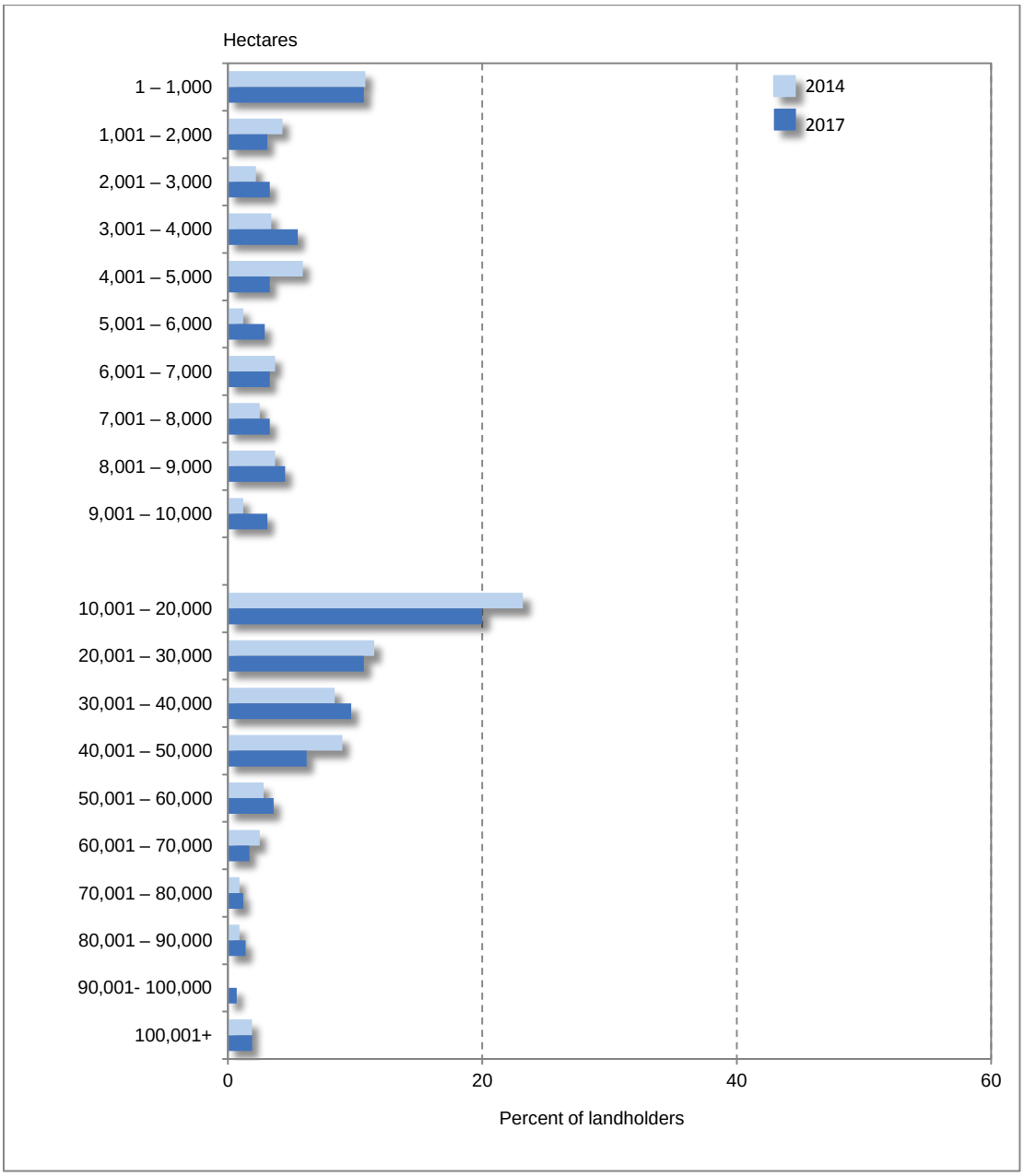
Of those landholders who managed livestock on their property (Table 63), livestock were grazed on an average of 13,148 hectares. In addition, a third of all landholders (31%) had a grazing area of between 10,000 and 30,000 hectares (Table 64 and Figure 16).

Table 64: “What area of your property is grazed by stock?”

Hectares	2014			2017		
	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
1 – 1,000	35	10.8	10.8	45	10.7	10.7
1,001 – 2,000	14	4.3	15.2	13	3.1	13.8
2,001 – 3,000	7	2.2	17.3	14	3.3	17.1
3,001 – 4,000	11	3.4	20.7	23	5.5	22.6
4,001 – 5,000	19	5.9	26.6	14	3.3	25.9
5,001 – 6,000	4	1.2	27.9	12	2.9	28.7
6,001 – 7,000	12	3.7	31.6	14	3.3	32.1
7,001 – 8,000	8	2.5	34.1	14	3.3	35.4
8,001 – 9,000	12	3.7	37.8	19	4.5	39.9
9,001 – 10,000	4	1.2	39.0	13	3.1	43.0
10,001 – 20,000	75	23.2	62.2	84	20.0	62.9
20,001 – 30,000	37	11.5	73.7	45	10.7	73.6
30,001 – 40,000	27	8.4	82.0	41	9.7	83.4
40,001 – 50,000	29	9.0	91.0	26	6.2	89.5
50,001 – 60,000	9	2.8	93.8	15	3.6	93.1
60,001 – 70,000	8	2.5	96.3	7	1.7	94.8
70,001 – 80,000	3	0.9	97.2	5	1.2	96.0
80,001 – 90,000	3	0.9	98.1	6	1.4	97.4
90,001- 100,000	0	0.0	98.1	3	0.7	98.1
100,001+	6	1.9	100.0	8	1.9	100.0
Total landholders grazing stock	323	100.0		421	100.0	
Median hectares grazed			14,480			13,148

Note: *There was no significant difference in the medians between survey years.*
Based on those landholders who managed livestock on their property.
Source: *EBC (2017).*

Figure 16: area of property grazed by stock



Source: *EBC (2017).*

Sheep production

Table 65 indicates that 67% of landholders were involved in sheep production on their property.

Table 65: “Do you run sheep on your property?

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	272	62.2	366	67.4
No	165	37.8	177	32.6
Total landholders	437	100.0	543	100.0

Note There was no significant difference in percentages between survey years.
Source: EBC (2017).

Of those landholders involved in sheep production, 68% were involved in the production of Merino sheep for wool or meat, while 31% produced fleece-shedding sheep for meat (Table 66).

Table 66: “What type of sheep enterprise do you run?”

Response	2014		2017	
	Count	Percent	Count	Percent
Merino sheep for wool and meat	181	67.5	244	68.3
Fleece-shedding sheep for meat	84	31.3	112	31.4
Other sheep for wool and meat	42	15.7	43	12.0
Suffolk Sheep (White and Marino cross)	2	0.7	4	1.1
Adjistment	2	0.7	2	0.6
Stud breeding	2	0.7	2	0.6
Dorper sheep	3	1.1	1	0.3
Cross bred sheep	2	0.7	1	0.3
Damara sheep	0	0.0	1	0.3
Dohne sheep	1	0.4	1	0.3
Poll Merino	1	0.4	0	0.3
South African Meat Marino	2	0.7	0	0.0
Breeding meat rams	1	0.4	0	0.0
Total landholders	268	100.0	357	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.
There was no significant difference in percentages between survey years.
Based on landholders who ran sheep on their property (Table 65)
Source: EBC (2017).

Cattle production

Forty-four percent of landholders indicated they produced cattle on their property (Table 67).

Table 67: “Do you run cattle on your property?

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	214	49.1	238	43.9
No	222	50.9	304	56.1
Total landholders	436	100.0	542	100.0

Note There was no significant difference in percentages between survey years.
Source: EBC (2017).

Amongst those landholders who ran cattle on their property, 85% bred cattle and 52% fattened cattle on their property (Table 68).

Table 68: “What type of cattle enterprise do you run?”

Response	2014		2017	
	Count	Percent	Count	Percent
Cattle for breeding	177	85.5	199	85.4
Cattle for fattening	106	51.2	121	51.9
Other cattle enterprises	11	5.3	11	4.7
Adjistment	6	2.9	10	4.3
Milk production	0	0.0	1	0.4
Cattle trading	2	1.0	0	0.0
Beef sale markets	1	0.5	0	0.0
Bull sales	1	0.5	0	0.0
Feedlot	1	0.5	0	0.0
Store condition to feedlots	1	0.5	0	0.0
Total landholders	207	100.0	233	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.
There was no significant difference in percentages between survey years.
Based on landholders who run cattle on their property.
Source: EBC (2017).

Goat production

Just over half (58%) of all landholders ran goats on their property (Table 69).

Table 69: “Do you harvest or manage goats on your property?

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	240	55.3	316	58.4
No	194	44.7	225	41.6
Total landholders	434	100.0	541	100.0

Note *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

The two most common goat enterprises (Table 70) were harvesting goats (76%) and having rangeland goats contained within fencing (40%).

Table 70: “What type of goat enterprise do you run?”

Response	2014		2017	
	Count	Percent	Count	Percent
Harvesting	176	74.9	238	76.3
Rangeland goats (contained with fencing & low management)	96	40.9	125	40.1
Managed goat enterprises (fencing, animal husbandry)	16	6.8	18	5.8
Other goat enterprises	1	0.4	2	0.6
Total landholders	235	100.0	312	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
There was no significant difference in percentages between survey years.
Based on landholders who ran goats on their property.
‘Other goat enterprises’ included for meat; supply breeding bucks and does; and holding goats
Source: *EBC (2017).*

The percentage of landholders with different combinations of livestock enterprises is shown in Table 71. In both 2014 and 2017, the two most common enterprise combinations were sheep, cattle and goats and sheep and goats.

Relative to 2014, Table 71 also shows significantly more landholders running sheep and goat combination enterprises and sheep only enterprises.

Table 71: different sheep, cattle and goat combination enterprises

Livestock enterprises			2014		2017	
Sheep	Cattle	Goats	Count	Percent	Count	Percent
Yes	Yes	Yes	121	27.9	141	31.8
Yes	*No*	*Yes*	*74*	*17.1*	*122*	*27.5*
Yes	*No*	*No*	*29*	*6.7*	*57*	*12.9*
Yes	Yes	No	45	10.4	42	9.5
No	Yes	No	23	5.3	29	6.5
No	No	Yes	20	4.6	28	6.3
No	Yes	Yes	24	5.5	24	5.4
Total landholders			336	100.0	443	100.0

Note: *Based on landholders with livestock on their property.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
Source: *EBC (2017).*

Pasture management practices during drought

In times of drought, 77% of landholders indicated they would reduce the number of stock they had to a core herd and 61% indicated they would provide supplementary feed (Table 72 and Figure 17).

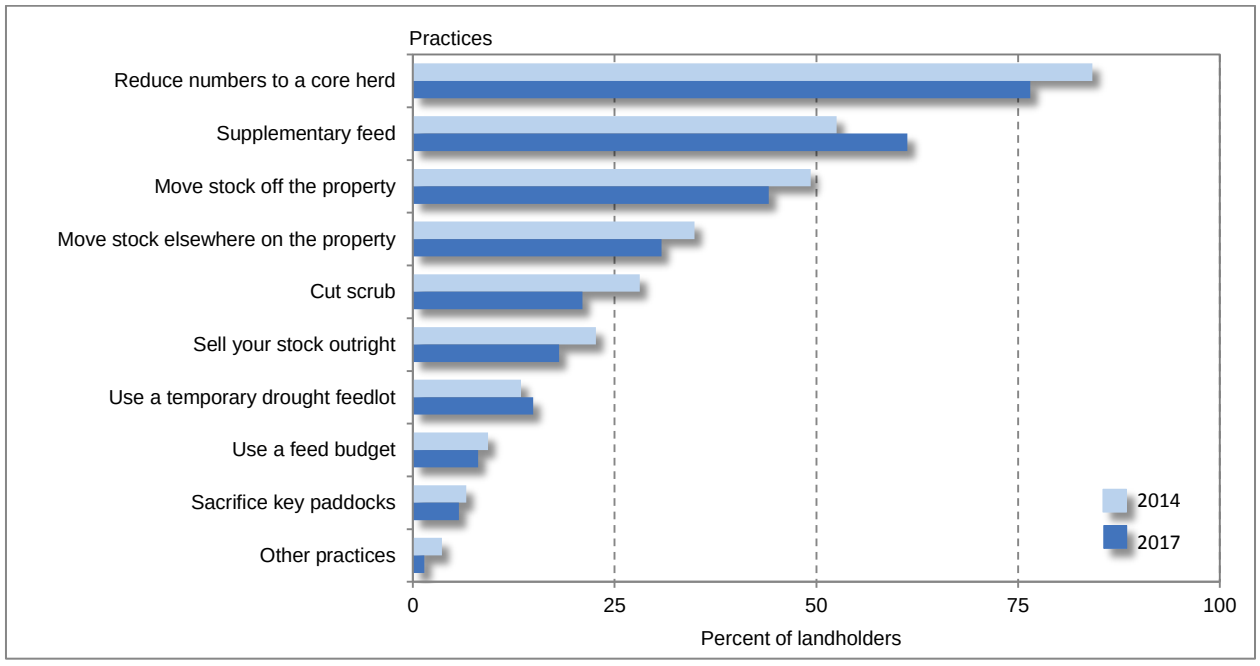
In 2017 relative to 2014, significantly fewer landholders indicated that in times of drought they would reduce numbers to a core herd and sell their stock outright.

Table 72: "How would you manage your pastures in times of drought? Would you.."

Practices	2014		2017	
	Count	Percent	Count	Percent
Reduce numbers to a core herd	*282*	*84.2*	*338*	*76.5*
Supplementary feed	176	52.5	271	61.3
Move stock off the property	165	49.3	195	44.1
Move stock elsewhere on the property	117	34.9	136	30.8
Cut scrub	94	28.1	93	21.0
Use a temporary drought feedlot	45	13.4	80	18.1
Sell your stock outright	*76*	*22.7*	*66*	*14.9*
Use a feed budget	31	9.3	36	8.1
Sacrifice key paddocks	22	6.6	25	5.7
Other practices*(frequency of one)*	12	3.6	6	1.4
Total landholders	335	100.0	442	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
Based on landholders who managed livestock on their property
'Other practices' include cell graze with minimum numbers, chain scrub, conservatively stock, gradually sell off stock early, planned destocking, have a drought plan, install water tanks, invest in bores, irrigate pastures, rotational graze, shoot excess smaller goats, understock in good times to protect feed, manage in stages depending on severity, use a planned grazing system.
Source: *EBC (2017).*

Figure 17: a comparison of pasture management practices in times of drought between survey periods



Source: *EBC (2017).*

Stock and pasture management

Two thirds of landholders (64%) indicated that in managing stock on their property they regularly moved stock between paddocks (Table 73).

Table 73: "In managing your property do you regularly move your stock between different paddocks to allow rest?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Regularly move stock between paddocks	216	65.3	287	64.3
Don't move them	115	34.7	159	35.7
Total landholders	331	100.0	446	100.0

Note: *Based on landholders who managed livestock on their property.*
There were no significant differences in percentages between survey periods.
Source: *EBC (2017).*

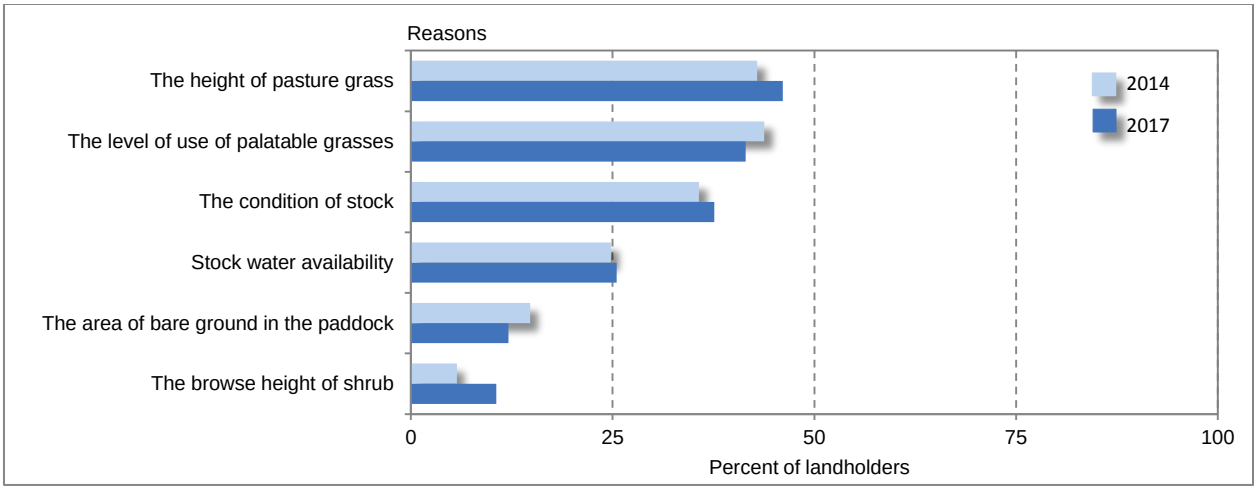
Two of the most commonly reported reasons for deciding on when to move stock between paddocks (Table 74 and Figure 18) were the height of pasture grasses (46%) and the level of use of palatable grasses (42%)

Table 74: "When making decisions about moving stock between paddocks on your property which of the following best describes your reasons to move stock?"

	2014		2017	
Reasons for moving stock	**Count**	**Percent**	**Count**	**Percent**
The height of pasture grass	90	42.9	130	46.1
The level of use of palatable grasses	92	43.8	117	41.5
The condition of stock	75	35.7	106	37.6
Stock water availability	52	24.8	72	25.5
The area of bare ground in the paddock	31	14.8	34	12.1
The browse height of shrub	12	5.7	30	10.6
Total landholders	210	100.0	282	100.0

Note: *Based on landholders who managed livestock on their property and who regularly moved stock between paddocks*
There were no significant differences in percentages between survey periods.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Figure 18: practices used in managing stock on pastures in time of drought between survey periods



Source: *EBC (2017).*

Stock access to watering points

The majority of landholders (53%) indicated they managed or controlled stock access to watering points (Table 75).

Table 75: "Do you manage or control stock access to watering points as part of your management of domestic or feral stock, through for example, fencing off watering points or turning tanks on or off?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Control stock access to watering points	179	54.4	236	52.9
Don't control stock access to watering points	150	45.6	210	47.1
Total landholders	329	100.0	446	100.0

Note: *Based on landholders who managed livestock on their property.*
There were no significant differences in percentages between survey periods.
Source: *EBC (2017).*

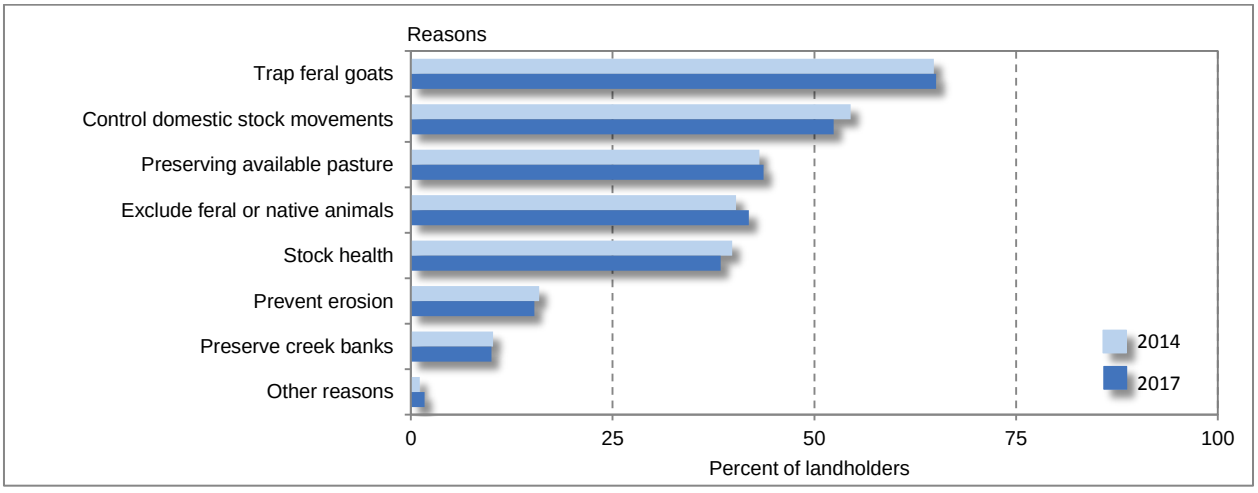
Two of the most commonly reported reasons for controlling stock access to watering points (Table 76 and Figure 19) were to trap feral goats (65%) and to control domestic stock movements (52%).

Table 76: "What are your main reasons for controlling stock access to watering points?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Trap feral goats	114	64.8	149	65.1
Control domestic stock movements	96	54.5	120	52.4
Preserving available pasture	76	43.2	100	43.7
Exclude feral or native animals	71	40.3	96	41.9
Stock health	70	39.8	88	38.4
Prevent erosion	28	15.9	35	15.3
Preserve creek banks	18	10.2	23	10.0
Other reasons *(frequency of one)*	2	1.1	4	1.7
Total landholders	176	100.0	229	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
There were no significant differences in percentages between survey periods.
Based on those landholders who managed livestock on their property and who controlled stock access to watering points.
'Other reason' included increasing or maintaining ground cover; no stock; have to go more than 2kms to water; for mustering; minimise risk of water leaks; reduce kangaroos; trap sheep instead of mustering.
Source: *EBC (2017).*

Figure 19: a comparison of reasons for controlling stock access to water points by survey periods



Source: *EBC (2017).*

Total grazing pressure

Sixty-nine percent of landholders who grazed stock on their property indicated they would consider incorporating total grazing pressure fencing or multi-species exclusion fencing technologies on their property (Table 77).

Table 77: "Would you consider incorporating Total Grazing Pressure (TGP) fencing or multi-species exclusion fencing technologies on your property?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	203	62.7	304	68.8
No	121	37.3	138	31.2
Total landholders	324	100.0	442	100.0

Note: *Based on landholders who managed livestock on their property.*
TGP excludes kangaroos and goats. Multi-species excludes goats, kangaroos, wild dogs and pigs.
There were no significant differences in percentages between survey periods.
Source: *EBC (2017).*

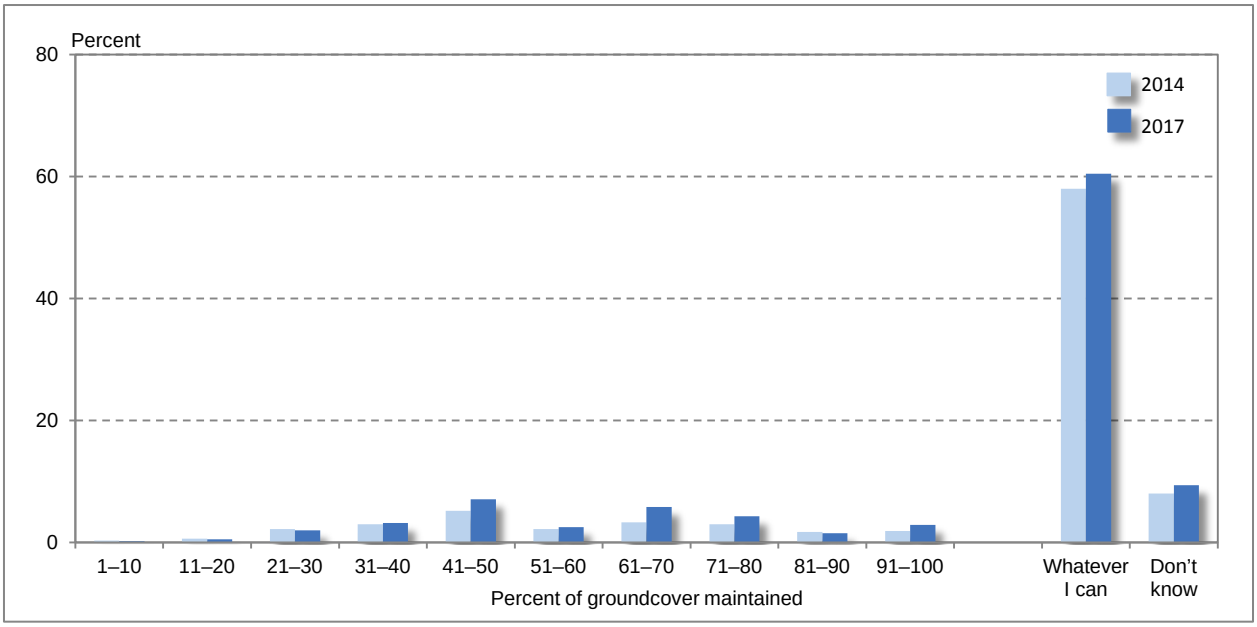
When landholders were asked what percentage of groundcover they tried to maintain in their paddocks throughout the year, 61% reported 'whatever I can' (Table 78 and Figure 20). However, amongst those landholders who reported the percentage of groundcover they tried to maintain in paddocks, the average percent of groundcover maintained in both 2014 and 2017 was 60%.

Table 78: "What percentage of groundcover do you try to maintain in the majority of your paddocks throughout the year?"

	2014		2017	
Percent of groundcover	**Count**	**Percent**	**Count**	**Percent**
1 – 10	1	0.3	1	0.2
11 – 20	2	0.6	2	0.5
21 – 30	8	2.2	9	2.0
31 – 40	11	3.0	14	3.2
41 – 50	19	5.2	31	7.1
51 – 60	8	2.2	11	2.5
61 – 70	12	3.3	25	5.8
71 – 80	11	3.0	18	4.3
81 – 90	6	1.7	7	1.5
91 – 100	7	1.9	13	2.9
Whatever I can	210	58.0	265	60.5
Don't know	29	8.0	41	9.4
Total landholders	362	100.0	438	100.0
Median percent of groundcover		60.0		60.0

Note: *Based on landholders who managed livestock on their property.*
Groundcover was defined as 'any live or dead vegetation, rock or other protective cover that has the capacity to break or stop raindrops making contact with the soil.'
There was no significant difference in the median percentage of groundcover between survey periods.
Source: *EBC (2017).*

Figure 20: a comparison of the percentage of groundcover maintained in paddocks between survey periods



Source: *EBC (2017).*

Livestock enterprise production and profitability

Thirty-seven percent of landholders indicated that in the last five years they had increased production in their livestock enterprise (Table 79).

Table 79: "In the last five years have you increased livestock production in your enterprise(s) irrespective of seasonal conditions?"

Response	Count	Percent
Yes	166	36.9
No	284	63.1
Total landholders	450	100.0

Note: *Based on landholders who managed livestock on their property.*
This question was not included in relation to livestock in the 2014 survey.
Source: *EBC (2017).*

Table 80 showed that most landholders (63%) had increased reproduction rates amongst their livestock in the last five years.

Table 80: "In which of the following areas have you increased production?"

	2014		2017	
Response	Count	Percent	Count	Percent
Reproduction rates	68	51.9	102	63.4
Meat mass (kg) produced per ha	71	54.2	69	42.9
Wool cut per head	52	39.7	67	41.6
Growth rates	41	31.3	46	28.6
Wool (KG) produced per hectare	21	16.0	32	19.9
Other areas *(frequency of one)*	5	3.8	2	1.2
Total landholders	131		161	100.0

Note: *Based on landholders who indicated they had increased production in the last five years.*
There were no significant differences in percentages between survey periods.
This is a multiple response table in which a respondent may be included in multiple rows.
The format of the question was changed in the 2017 survey.
Source: *EBC (2017).*

The main reasons for the livestock production increases (Table 81) were grazing management (56%) and the control of predators (49%). Between 2014 and 2017, Table 81 also shows that the percentage of landholders who reported genetics as a reason for production increases declined significantly from 54% in 2014 to 21% in 2017.

Table 81: "What have been the main reasons that have led to these production increases?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Grazing management	78	60.9	90	55.6
Control of predators	60	46.9	80	49.4
Infrastructure development	57	44.5	69	42.6
Managing seasonal variation	-	-	66	40.7
Animal husbandry	46	35.9	61	37.7
Reduced competition from feral animals	51	39.8	59	36.4
Genetics	*69*	*53.9*	*52*	*32.1*
Stocking rate increase	28	21.9	41	25.3
Nutrition	28	21.9	36	22.2
Stocking rate decrease	20	20	27	16.7
Enterprise change	-	-	22	13.6
Education and training	-	-	14	8.6
Rangeland rehabilitation (e.g., water ponding)	16	12.5	13	8.0
Improved disease/parasite management	-	-	13	8.0
Technology	-	-	11	6.8
External service provider engagement	-	-	7	4.3
Other reasons *(frequency of one)*	-	-	3	1.9
Total landholders	128	100.0	162	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
The percentage base is all landholders who indicated they had increased production in the last five years.
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
The format of the question was changed in the 2017 survey. In the 2014 survey several response categories were not specific to livestock production and have been excluded from the analysis.
"Other reasons' included loan repaid and boarding fees paid; increased land owned; clearing country
Source: *EBC (2017).*

Sixty-five percent of landholders indicated that they believed they would improve their livestock production over the next five years (Table 82).

Table 82: "Do you think you will improve livestock production over the next five years?"

Response	**Count**	**Percent**
Yes	293	65.4
No	155	34.6
Total landholders	448	100.0

Note: *Based on landholders who managed livestock on their property.*
This question was not included in the 2014 survey.
Source: *EBC (2017).*

The main reasons given by landholders for an improvement in livestock production over the next five years included grazing management (58%); the control of predators (56%) and reduced competition from feral animals (54%). These were also the three most commonly reported reasons given by landholders in the 2014 survey.

In addition, both 'genetics' and 'grazing management' were reasons less commonly given by landholders in 2017 relative to 2014.

Table 83: "What do you think will be the main reasons for any improvement in production in the next five years?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Grazing management	*145*	*69.7*	*162*	*58.1*
Control of predators	109	52.4	155	55.6
Reduced competition from feral animals	105	50.5	151	54.1
Infrastructure development	88	42.3	137	49.1
Managing seasonal variation	-	-	129	46.2
Animal husbandry	82	39.4	98	35.1
Genetics	*91*	*43.8*	*88*	*31.5*
Nutrition	49	23.6	74	26.5
Stocking rate increase	68	32.7	68	24.4
Rangeland rehabilitation (e.g., water ponding)	36	17.3	46	16.5
Technology	-	-	42	15.1
Education and training	-	-	41	14.7
Improved disease/parasite management	-	-	38	13.6
Stocking rate decrease	12	5.8	30	10.8
Enterprise change	-	-	28	10.0
External service provider engagement	-	-	14	5.0
Other reasons *(frequency of one)*	-	-	12	4.3
Total landholders	208	100.0	279	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
The percentage base is all landholders who indicated they would increase production in the next five years.
The format of the question was changed in the 2017 survey. In the 2014 survey several response categories were not specific to livestock production and have been excluded from the analysis.
Other reasons included for example; more paddocks to better manage stock; clean up woody weeds; pest minimisation fence; purchase or lease more land; control poachers and theft; clearing invasive scrub; access to finance; fodder cropping
Source: *EBC (2017).*

Dryland and irrigated cropping

Twenty three percent of landholders indicated they undertook cropping activities on their property in the last three years (Table 84).

Table 84: “Did you undertake any cropping activities in the past three years on your property?”

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	86	19.7	127	23.2
No	351	80.3	421	76.8
Total landholders	437	100.0	548	100.0

Note *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

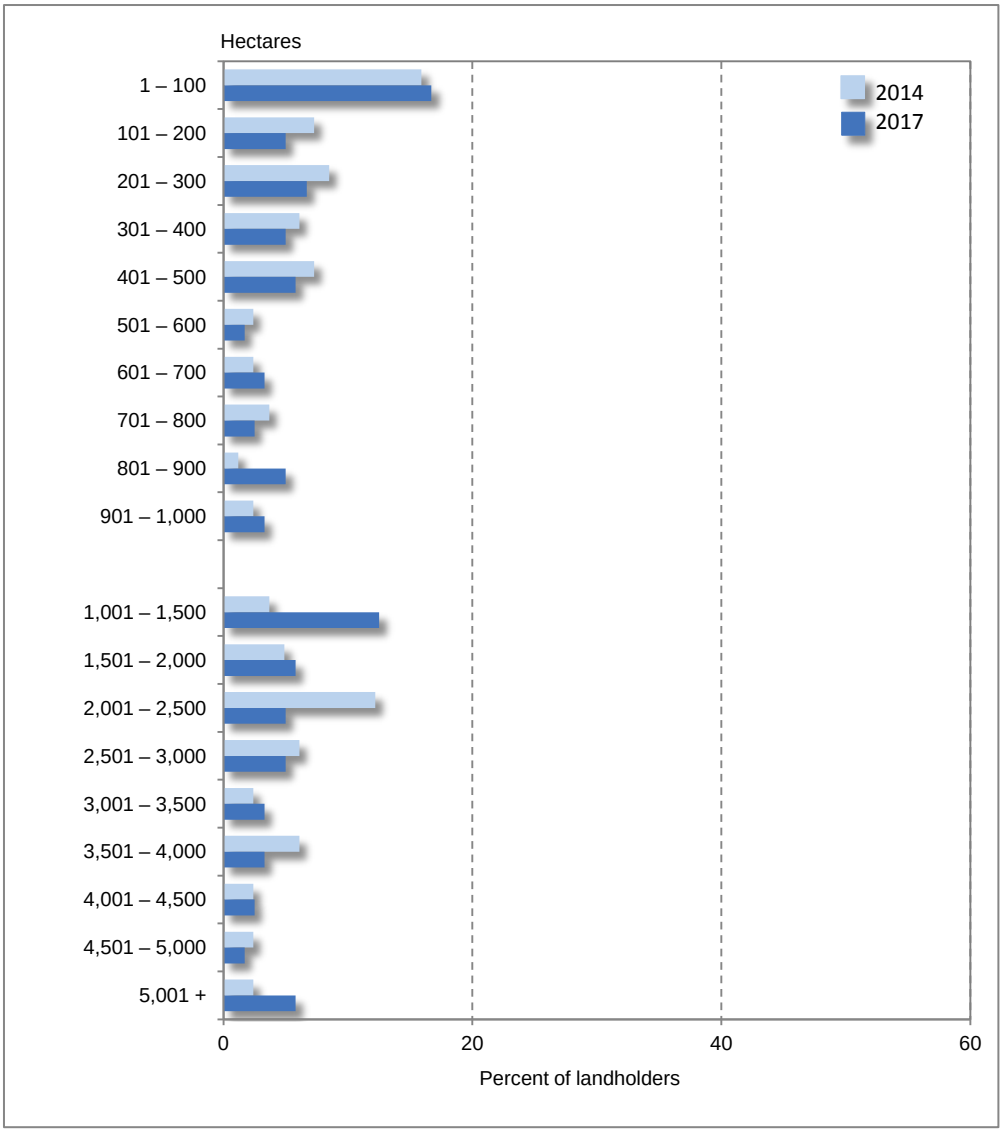
The average area under cropping was 809 hectares, with just over a third of landholders (39%) cropping under 500 hectares (Table 85 and Figure 21).

Table 85: “What area of your property was under cropping?”

Hectares	2014			2017		
	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
1 – 100	13	15.9	15.9	20	16.7	16.7
101 – 200	6	7.3	23.2	6	5.0	21.7
201 – 300	7	8.5	31.8	8	6.7	28.3
301 – 400	5	6.1	37.9	6	5.0	33.3
401 – 500	6	7.3	45.2	7	5.8	39.2
501 – 600	2	2.4	47.6	2	1.7	40.8
601 – 700	2	2.4	50.0	4	3.3	44.2
701 – 800	3	3.7	53.7	3	2.5	46.7
801 – 900	1	1.2	54.9	6	5.0	51.7
901 – 1,000	2	2.4	57.4	4	3.3	55.0
1,001 – 1,500	3	3.7	61.0	15	12.5	67.5
1,501 – 2,000	4	4.9	65.9	7	5.8	73.3
2,001 – 2,500	10	12.2	78.1	6	5.0	78.3
2,501 – 3,000	5	6.1	84.2	6	5.0	83.3
3,001 – 3,500	2	2.4	86.6	4	3.3	86.7
3,501 – 4,000	5	6.1	92.7	4	3.3	90.0
4,001 – 4,500	2	2.4	95.2	3	2.5	92.5
4,501 – 5,000	2	2.4	97.6	2	1.7	94.2
5,001 +	2	2.4	100.0	7	5.8	100.0
Total landholders	82	100.0		120	100.0	
Median hectares			683.7			809.4

Note: *Based on landholders who undertook cropping activities on their property in the three years prior to the survey. There was no significant difference in medians between survey years.*
Source: *EBC (2017).*

Figure 21: area under cropping



Source: *EBC (2017).*

Irrigation of crops

Amongst those landholders undertaking cropping activities in the past three years, 28% indicated they irrigated their crops (Table 86).

Table 86: “Have you irrigated crops in the past three years?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	34	40.5	35	28.0
No	50	59.9	90	72.0
Total landholders	84	100.0	125	100.0

Note: *Based on landholders who undertook cropping activities on their property in the three years prior to the survey. There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

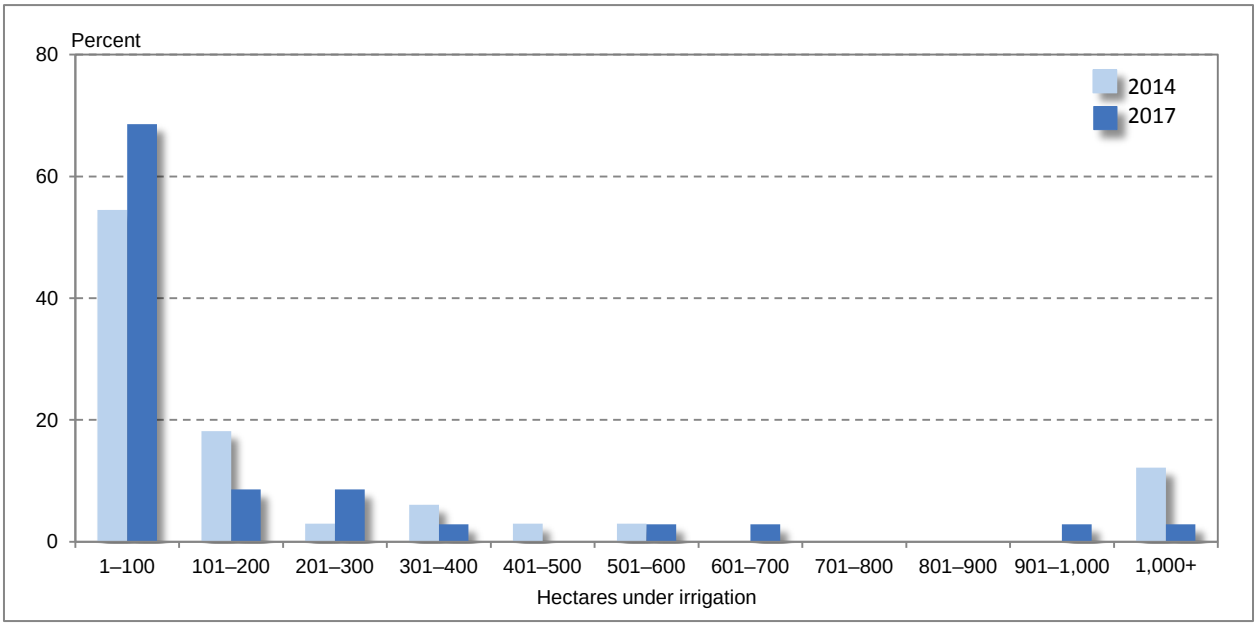
Landholders were found to irrigate an average 40 hectares of crops with approximately two-thirds of landholders irrigating less than 100 hectares (Table 87 and Figure 22).

Table 87: "What area of your property did you irrigate?"

Hectares	2014			2017		
	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
1 – 100	18	54.5	54.5	24	68.6	68.6
101 – 200	6	18.2	72.7	3	8.6	77.2
201 – 300	1	3.0	75.7	3	8.6	85.7
301 – 400	2	6.1	81.8	1	2.9	88.6
401 – 500	1	3.0	84.8	0	0.0	88.6
501 – 600	1	3.0	87.8	1	2.9	91.5
601 – 700	0	0.0	87.8	1	2.9	94.3
701 – 800	0	0.0	87.8	0	0.0	94.3
801 – 900	0	0.0	87.8	0	0.0	94.3
901 – 1,000	0	0.0	87.8	1	2.9	97.2
1,000+	4	12.2	100.0	1	2.9	100.0
Total landholders	33	100.0		35	100.0	
Median hectares			80.0			40.0

Note: *Based on landholders who undertook cropping activities on their property in the three years prior to the survey. There was no significant difference in medians between survey years.*
Source: *EBC (2017).*

Figure 22: area of property under irrigation (hectares)



Source: *EBC (2017).*

Cultivation methods

The average area of cultivation under no tillage was 1,214 hectares; under minimum tillage it was 705 hectares; and under conventional tillage the average area cultivated was 425 hectares (Table 88).

Table 88: "How much of your cropping country did you cultivate using…

No Tillage						
	2014			2017		
Hectares	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
1 – 200	3	12.0	12.0	6	11.8	11.8
201 – 400	3	12.0	24.0	4	7.8	19.6
401 – 600	1	4.0	28.0	5	9.8	29.4
601 – 800	1	4.0	32.0	6	11.8	41.2
801 – 1,000	1	4.0	36.0	3	5.9	47.1
1,001 – 1,500	5	20.0	56.0	2	3.9	51.0
1,501 – 2,000	2	8.0	64.0	6	11.8	62.8
2,001 – 2,500	3	12.0	76.0	5	9.8	72.6
2,501 – 3,000	2	8.0	84.0	4	7.8	80.4
3,001 – 3,500	1	4.0	88.0	1	2.0	82.4
3,501 +	3	12.0	100.0	9	17.6	100.0
Total landholders	25	100.0		51	100.0	
Median hectares			1,335			1,214
Minimum tillage						
1 – 200	9	26.5	26.5	5	25.0	25.0
201 – 400	4	11.8	38.3	2	10.0	35.0
401 – 600	3	8.8	47.1	2	10.0	45.0
601 – 800	5	14.7	61.8	2	10.0	55.0
801 – 1,000	0	0.0	61.8	4	20.0	75.0
1,001 – 1,500	5	14.7	76.5	4	20.0	95.0
1,501 – 2,000	1	2.9	79.4	0	0.0	95.0
2,001 – 2,500	4	11.8	91.2	0	0.0	95.0
2,501 – 3,000	1	2.9	94.1	0	0.0	95.0
3,001 – 3,500	0	0.0	94.1	1	5.0	100.0
3,501 +	2	5.9	100.0	0	0.0	100.0
Total landholders	34	100.0		20	100.0	
Median hectares			654			705
Conventional tillage						
1 – 200	12	41.4	41.4	2	16.7	16.7
201 – 400	3	10.3	51.7	4	33.3	50.0
401 – 600	5	17.2	68.9	3	25.0	75.0
601 – 800	0	0.0	68.9	0	0.0	75.0
801 – 1,000	1	3.4	72.3	1	8.3	83.3
1,001 – 1,500	4	13.8	86.1	1	8.3	91.6
1,501 – 2,000	2	6.9	93	1	8.3	100.0
2,001 – 2,500	1	3.4	96.4	0	0.0	100.0
2,501 – 3,000	0	0.0	96.4	0	0.0	100.0
3,001 – 3,500	0	0.0	96.4	0	0.0	100.0
3,501 +	1	3.4	96.4	0	0.0	100.0
Total landholders	29	100.0		12	100.0	
Median hectares			360			425

Note: *Based on landholders who undertook cropping activities on their property in the three years prior to the survey. There was no significant difference in medians between survey years.*

Source: *EBC (2017).*

In addition to the three cultivation methods of no tillage, minimum tillage and conventional tillage, six landholders indicated they used other cultivation methods as shown in Table 89.

Table 89: “Did you use any other cultivation methods?"

Cultivation method	2014			2017		
	Count	Percent	Total area (hectares)	Count	Percent	Total area (hectares)
Kelly chain	1	12.5	2,023.4	1	16.7	6,070
Chemicals	1	12.5	1,000.0	1	16.7	4,047
Disking	2	25.0	2.0	1	16.7	300
Ripping	2	25.0	5.0	1	16.7	190
Spray	0	0.0	-	1	16.7	101
Aerator	1	12.5	809.4	0	0.0	-
Blade plough	1	12.5	1,618.7	1	16.7	-
Lake bed cropping	1	12.5	-	0	0/0	-
Mulching	1	12.5	100.0	0	0.0	-
Permanent sod	1	12.5	34.0	0	0.0	-
Total landholders	8	100.0		6	100.0	

Note: *Based on landholders who undertook cropping activities on their property in the three years prior to the survey.*
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Cropping practices

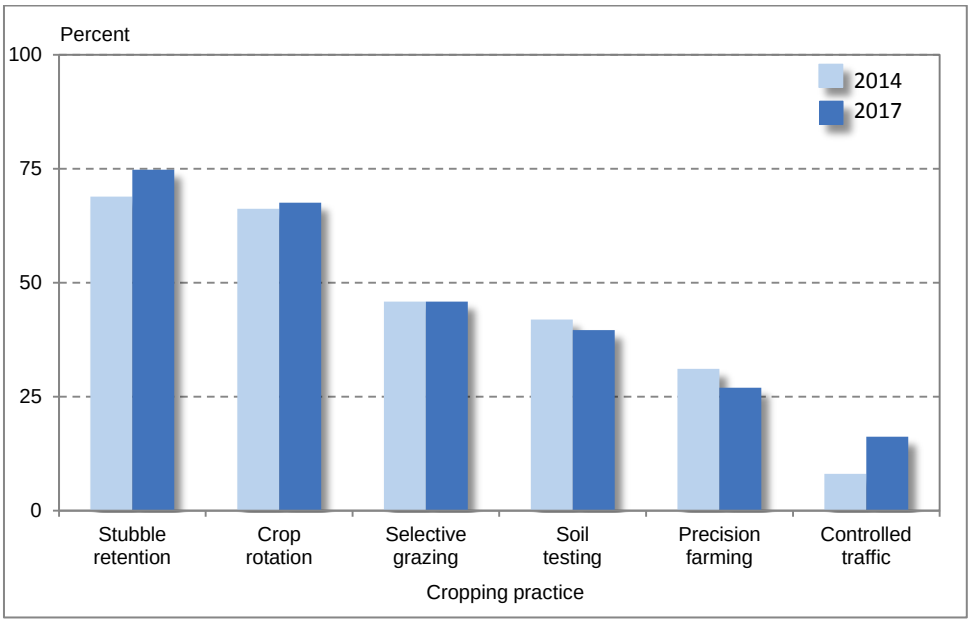
Two cropping practices undertaken by the majority of landholders involved in cropping (Table 90 and Figure 23) were stubble retention (75%) and crop rotation (68%).

Table 90: “Have you undertaken any of the following cropping practices in the past two years?”

Response	2014		2017	
	Count	Percent	Count	Percent
Stubble retention	51	68.9	83	74.8
Crop rotation	49	66.2	75	67.6
Selective grazing	34	45.9	51	45.9
Soil testing	31	41.9	44	39.6
Precision farming	23	31.1	30	27.0
Controlled traffic	6	8.1	18	16.2
Total landholders	74	100.0	111	100.0

Note: *Based on landholders who undertook cropping activities on their property in the three years prior to the survey.*
There was no significant difference in medians between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Figure 23: a comparison of cropping practices between survey periods



Source: *EBC (2017).*

Cropping enterprise production and profitability

Forty-five percent of landholders who undertook cropping activities indicated they had increased production in their cropping enterprise in the last five years (Table 91).

Table 91: "In the last five years have you increased production in your cropping enterprise(s) irrespective of seasonal conditions?"

Response	Count	Percent
Yes	56	44.8
No	69	55.2
Total landholders	125	100.0

Note: *Based on landholders who undertook cropping activities on their property in the three years prior to the* ***survey.***
This question was not included in the 2014 survey.
Source: *EBC (2017).*

The most commonly reported area of production increase (Table 92) was to yield (86%) and crop diversity (62%).

Table 92: "In which of the following areas have you increased production?"

Response	Count	Percent
Yield (either per hectare or per crop)	47	85.5
Crop diversity (e.g. legumes)	34	61.8
Management system efficiency	25	45.5
Protein content	13	23.6
Total landholders	55	100.0

Note: *Based on landholders who indicated they had increased production in the last five years.*
This is a multiple response table in which a respondent may be included in multiple rows.
This question was not included in the 2014 survey.
Source: *EBC (2017).*

The three most frequently reported reasons (Table 93) that led to an increase in cropping production were managing seasonal variation (54%); improvements to equipment or technology (54%) and variety selection (52%).

Table 93: "What have been the main reasons that have led to these production increases?"

Response	Count	Percent
Managing seasonal variation	29	53.7
Improvements to equipment or technology	29	53.7
Variety selection	28	51.9
Growing different or additional crops	25	46.3
Technology	20	37.0
Adjustments to fertilizer program	17	31.5
Adjusting sowing densities	17	31.5
Increase in production area	17	31.5
Other technology introductions	14	25.9
Improved disease/parasite management	12	22.2
Adjustments lto pest or disease management programs	10	18.5
Enterprise change	7	13.0
External service provider engagement	5	9.3
Education and training	4	7.4
Other reasons *(frequency of one)*	1	1.9
Total landholders	54	100.0

Note: *Based on landholders who indicated they had increased production in the last five years.*
This is a multiple response table in which a respondent may be included in multiple rows.
This question was not included in the 2014 survey.
Other reasons included storing moisture.
Source: *EBC (2017).*

Two thirds of landholders who undertook cropping activities believed they would improve crop production in the next five years (Table 94).

Table 94: "Do you think you will improve crop production over the next five years?"

Response	Count	Percent
Yes	83	67.5
No	40	32.5
Total landholders	123	100.0

Note: *Based on landholders who undertook cropping activities on their property in the three years prior to the survey.*
This question was not included in relation to cropping in the 2014 survey.
Source: *EBC (2017).*

Variety selection (56%) and managing seasonal variation (48%) were the two most frequently reported reasons landholders gave for believing they would increase cropping production in the next five years (Table 95).

Table 95: "What do you think will be the main reasons for any improvement in production in the next five years?"

Response	Count	Percent
Variety selection	44	55.7
Managing seasonal variation	38	48.1
Adjustments to fertilizer program	36	45.6
Growing different or additional crops	36	45.0
Improvements to equipment or technology	34	43.0
Technology	31	39.2
Increase in production area	28	35.4
Adjusting sowing densities	21	26.6
Improved disease/parasite management	21	26.6
Other technology introductions	17	21.5
Education and training	11	13.9
Adjustments to pest or disease management programs	11	13.9
External service provider engagement	9	11.4
Enterprise change	5	6.3
Other reasons *(frequency of one)*	3	3.8
Total landholders	79	100.0

Note: *Based on landholders who indicated they were likely to increase production in the next five years.*
This is a multiple response table in which a respondent may be included in multiple rows.
This question was not included in the 2014 survey.
Other reasons included water availability, increasing soil organic matter and water availability.
Source: *EBC (2017).*

Horticulture

Six percent of landholders reported they undertook horticultural activities on their property in the three years prior to the survey (Table 96). This was significantly less than the 13% who reported undertaking horticultural activities in 2014.

Table 96: “Did you undertake any horticultural activities in the past three years on your property?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	57	13.1	33	6.0
No	379	86.9	515	94.0
Total landholders	436	100.0	548	100.0

Note: *There was a significant difference in percentages between survey years.*
Source: *EBC (2017).*

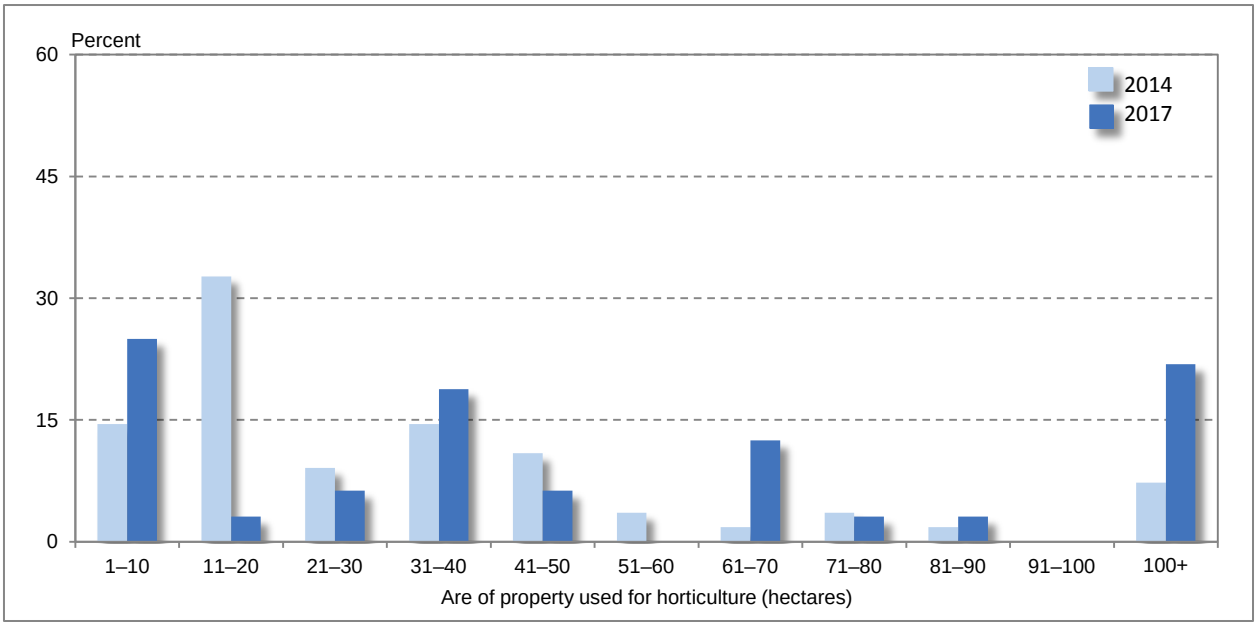
Table 97 and Figure 24 show that an average of 40 hectares was used for horticultural production.

Table 97: “What area of your property is used for horticultural production?”

	2014			2017		
Hectares	**Count**	**Percent**	**Cumulative Percent**	**Count**	**Percent**	**Cumulative Percent**
1 – 10	8	14.5	14.5	8	25.0	25.0
11 – 20	18	32.7	47.2	1	3.1	28.1
21 – 30	5	9.1	56.3	2	6.3	34.4
31 – 40	8	14.5	70.9	6	18.8	53.1
41 – 50	6	10.9	81.8	2	6.3	59.4
51 – 60	2	3.6	85.4	0	0.0	59.4
61 – 70	1	1.8	87.2	4	12.5	71.9
71 – 80	2	3.6	90.9	1	3.1	75.0
81 – 90	1	1.8	92.7	1	3.1	78.1
91 – 100	0	0.0	92.7	0	0.0	78.1
100+	4	7.3	100.0	7	21.9	100.0
Total landholders	55	100.0		32	100.0	
Median hectares			25.0			40.0

Note: *Based on landholders who undertook horticultural activities on their property in the three years prior to the survey*
There was no significant difference in medians between survey years.
Source: *EBC (2017).*

Figure 24: area of the property used for horticultural production (hectares)



Source: *EBC (2017).*

Horticultural practices

The most common horticultural management practice (Table 98) was chemical control and slashing (75%).

Table 98: "What do you use in your plantings?

Response	2014		2017	
	Count	Percent	Count	Percent
Chemical control and slashing	42	87.5	24	75.0
A traditional cover crop	15	31.2	14	43.8
Cultivation	12	25.0	12	37.5
Compost	10	20.8	12	37.5
Other *(frequency of one)*	2	4.2	0	0.0
Total landholders	48	100.0	32	100.0

Note: *Based on landholders who undertook horticultural activities on their property in the three years prior to the survey*
In the 2014 survey the question was asked "what do you use in your orchard"
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Fifty-nine percent of landholders who undertook horticultural activities on their property also indicated they used soil amendments (Table 99).

Table 99: "Have you used soil amendments?"

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	36	66.7	19	59.4
No	18	33.3	13	40.6
Total landholders	54	100.0	32	100.0

Note: *Based on landholders who undertook horticultural activities on their property in the three years prior to the survey*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

The majority of those landholders using soil amendments (Table 100) used animal manure to condition their soil (65%).

Table 100: “What type of soil amendments have you used?

Soil amendments	2014		2017	
	Count	Percent	Count	Percent
Animal manure	26	72.2	11	64.7
Compost	16	44.4	10	58.8
Gypsum	17	47.2	7	41.2
Cut cover crop from mid row	16	44.4	7	41.2
Total landholders	36	100.0	17	100.0

Note: *Based on landholders who used soil amendments (Table 99).*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Fifty-three percent of landholders using soil amendments indicated the application was undertaken once a year (Table 101).

Table 101: “In a typical year, how often would you apply soil amendments?

Frequency of application	2014		2017	
	Count	Percent	Count	Percent
Once	16	44.4	10	52.6
Twice	8	22.2	2	10.5
Three times	0	0.0	1	5.3
As required	12	33.3	6	31.6
Total landholders	36	100.0	19	100.0

Note: *Based on landholders who used soil amendments (Table 99).*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

Water allocations

Amongst those landholders who undertook horticultural activities, 97% also indicated that they had a water allocation that they had used in the last three years (Table 102).

Table 102: “Do you have a water allocation that you have used in the last three years?”

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	53	94.6	32	97.0
No	3	5.4	1	3.0
Total landholders	56	100.0	33	100.0

Note: *Based on landholders who undertook horticultural activities on their property in the three years prior to the survey*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

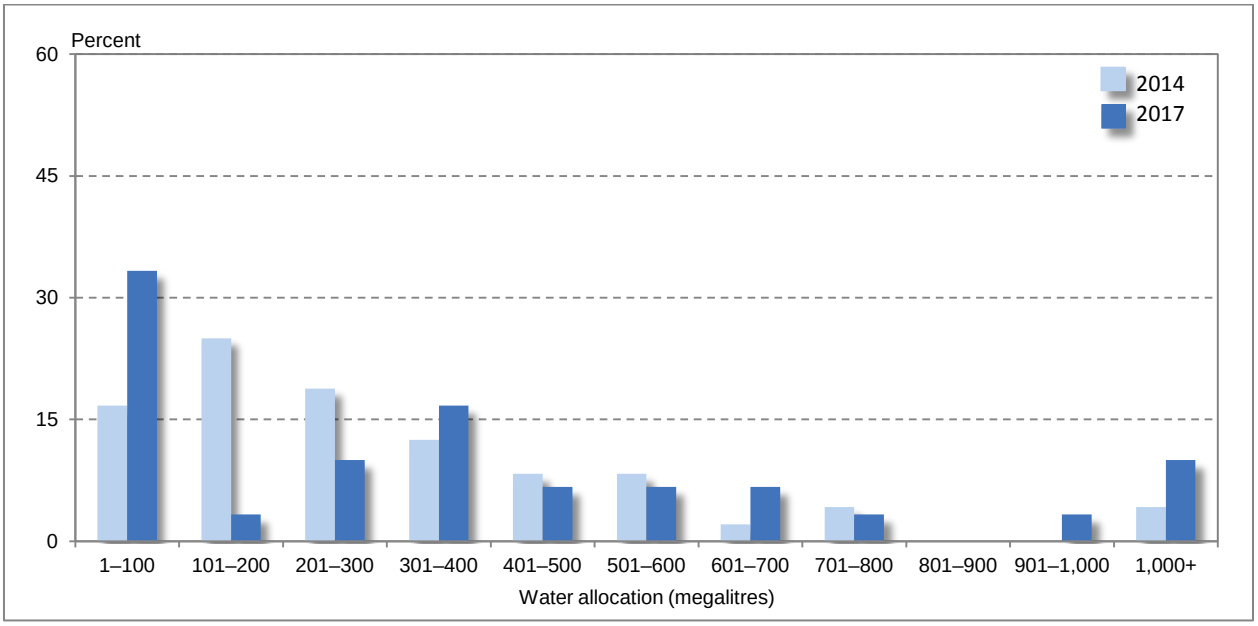
Table 103 and Figure 25 indicate the average current water allocation amongst horticulturalists was 327 megalitres.

Table 103: “What is your current water allocation?”

Megalitres	2014			2017		
	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
1 – 100	8	16.7	16.7	10	33.3	33.3
101 – 200	12	25.0	41.7	1	3.3	36.6
201 – 300	9	18.8	60.5	3	10.0	46.6
301 – 400	6	12.5	73.0	5	16.7	63.3
401 – 500	4	8.3	81.3	2	6.7	70.0
501 – 600	4	8.3	89.6	2	6.7	76.6
601 – 700	1	2.1	91.7	2	6.7	83.3
701 – 800	2	4.2	95.9	1	3.3	86.6
801 – 900	0	0.0	95.9	0	0.0	86.6
901 – 1,000	0	0.0	95.9	1	3.3	90.0
1,000+	2	4.2	100.0	3	10.0	100.0
Total landholders	48	100.0		30	100.0	
Median megalitres			249			327

Note: *Based on landholders who undertook horticultural activities on their property in the three years prior to the survey and who also indicated they had a current water allocation.*
There was no significant difference in medians between survey years.
Source: *EBC (2017).*

Figure 25: current water allocation volumes (megalitres)



Source: *EBC (2017).*

Of those landholders who had a water allocation, a third (34%) indicated they needed to increase their allocation (Table 104).

Table 104: “Do you see a need to increase your water allocation?”

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	17	32.7	11	34.4
No	35	67.3	21	65.6
Total landholders	52	100.0	32	100.0

Note: *Based on landholders who undertook horticultural activities on their property in the three years prior to the survey and who also indicated they had a current water allocation.*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

The average increase in allocation required by each landholder was six megalitres per hectare (Table 105).

Table 105: “By how much would you increase your water allocation?”

Megalitres per hectare	2014			2017		
	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
1.0 – 2.0	6	35.3	35.3	2	20.0	20.0
2.1 – 3.0	6	35.3	70.6	2	20.0	40.0
3.1 – 4.0	4	23.5	94.1	0	0.0	40.0
4.1 – 5.0	1	5.9	100.0	1	10.0	50.0
5.1 – 6.0	0	0.0	100.0	1	10.0	60.0
6.1 +	0	0.0	100.0	4	40.0	100.0
Total landholders	17	100.0		10	100.0	
Median megalitres			3			6

Note: *Based on landholders who undertook horticultural activities on their property in the three years prior to the survey and who also indicated they had a current water allocation.*
There was no significant difference in medians between survey years.
Source: *EBC (2017).*

The reasons for requiring an increase in water allocations were varied (Table 106); with several landholders indicating the increase in allocation was needed to plant a greater area or to have permanent water to match the planting area.

Table 106: “Why do you need to increase your water allocation?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Planted greater area	1	6.7	2	18.2
To have permanent water to match planting area	1	6.7	2	18.2
Increase production	1	6.7	1	9.1
Purchase on the temporary market	0	0.0	1	9.1
Save buying it	0	0.0	1	9.1
Security	0	0.0	1	9.1
Trees growing	1	6.7	1	9.1
Trees require more water than wine grapes	1	6.7	1	9.1
Asset building	1	6.7	0	0.0
Dry conditions and drought	4	26.7	0	0.0
Need more water	2	13.3	0	0.0
Not enough - forced to sell through low prices	1	6.7	0	0.0
To grow other crops to be more viable	1	6.7	0	0.0
Young plantings getting older	1	6.7	0	0.0
Total landholders	15	100.0	11	100.0

Note: *Based on landholders who undertook horticultural activities on their property in the three years prior to the survey and who also indicated they had a current water allocation.*
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Irrigation methods

Seventy-two percent of horticultural production was irrigated through drip irrigation, 12% was irrigated with micro-sprinklers and 9% through overhead irrigation (Table 107).

Table 107: "What percentage of your horticultural production is irrigated with…"

Drip irrigation						
	2014			2017		
Percentage	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
0	11	22.0	22.0	4	12.9	12.9
1 – 10	4	8.0	30.0	0	0.0	12.9
11 – 20	0	0.0	30.0	1	3.2	16.1
21 – 30	1	2.0	32.0	0	0.0	16.1
31 – 40	1	2.0	34.0	2	6.5	22.6
41 – 50	1	2.0	36.0	4	12.9	35.5
51 – 60	1	2.0	38.0	0	0.0	35.5
61 – 70	2	4.0	42.0	0	0.0	35.5
71 – 80	3	6.0	48.0	3	9.7	45.2
81 – 90	1	2.0	50.0	0	0.0	45.2
91 – 100	25	50.0	100.0	17	54.8	100.0
Total landholders	50	100.0		31	100.0	
Mean percent			63.5			71.7
Micro sprinklers						
0	33	66.0	66.0	24	77.4	77.4
1 – 10	0	0.0	66.0	1	3.2	80.6
11 – 20	3	6.0	72.0	3	9.7	90.3
21 – 30	3	6.0	78.0	0	0.0	90.3
31 – 40	1	2.0	80.0	0	0.0	90.3
41 – 50	1	2.0	82.0	1	3.2	93.5
51 – 60	0	0.0	82.0	0	0.0	93.5
61 – 70	0	0.0	82.0	0	0.0	93.5
71 – 80	0	0.0	82.0	1	3.2	96.8
81 – 90	2	4.0	86.0	0	0.0	96.8
91 – 100	7	14.0	100.0	1	3.2	100.0
Total landholders	50	100.0		31	100.0	
Mean percent			21.7			11.5
Overheads						
0	41	82.0	82.0	27	87.1	87.1
1 – 10	0	0.0	82.0	1	3.2	90.3
11 – 20	0	0.0	82.0	0	0.0	90.3
21 – 30	0	0.0	82.0	0	0.0	90.3
31 – 40	0	0.0	82.0	0	0.0	90.3
41 – 50	1	2.0	84.0	1	3.2	93.6
51 – 60	1	2.0	86.0	0	0.0	93.6
61 – 70	1	2.0	88.0	0	0.0	93.6
71 – 80	1	2.0	90.0	1	3.2	96.8
81 – 90	1	2.0	92.0	0	0.0	96.8
91 – 100	4	8.0	100.0	1	3.2	100.0
Total landholders	50	100.0		31	100.0	
Mean percent			14.8			9.2

Note: *Based on all landholders who undertook horticultural activities on their property in the three years prior to the survey and who also indicated they had a current water allocation.*
Percentages may not sum to 100% due to other irrigation methods being used, which included furrow, lake bed flooding and flood.
There was no significant difference in mean percentages between survey years.

Source: *EBC (2015*

Horticulture enterprise production and profitability

Forty-eight percent of landholders reported they had increased production in their horticultural enterprise in the last five years (Table 108).

Table 108: "In the last five years have you increased production in your horticultural enterprise(s) irrespective of seasonal conditions?"

Response	Count	Percent
Yes	15	48.4
No	16	51.6
Total landholders	31	100.0

Note: *Based on landholders who undertook horticultural activities on their property in the five years prior to the survey.*
This question was not included in relation to horticulture in the 2014 survey.
Source: *EBC (2017).*

The two most common areas of increased production in the 2014 and 2017 surveys were yield and quality improvements (Table 109).

Table 109: "In which of the following areas have you increased production?"

	2014		2017	
Response	Count	Percent	Count	Percent
Yield (either per hectare or per crop)	27	77.1	15	100.0
Quality improvements (1st, 2nds etc)	15	42.9	8	53.3
Grow times	3	8.6	0	0.0
Protein content	3	8.6	0	0.0
Other areas *(frequency of one)*	3	8.6	0	0.0
Total landholders	52	100.0	15	100.0

Note: *Based on landholders who undertook horticultural activities on their property in the three years prior to the survey*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
The format of the question changed between the 2014 and 2017 surveys.
Source: *EBC (2017).*

Two of the most frequently reported reasons given for production increases in the last five years (Table 110) were adjustments to the nutrition program (67%) and improvements to infrastructure (47%).

Table 110: "What have been the main reasons that have led to these production increases?"

	2014		2017	
Response	Count	Percent	Count	Percent
Adjustments to nutrition program (fertilisers)	15	48.4	10	66.7
Improvements to infrastructure I.e., irrigation systems)	15	48.4	7	46.7
Other technology introductions	10	32.3	5	33.3
Variety selection (genetics)	8	25.8	5	33.3
Adjustments to pest or disease management programs	10	32.3	4	26.7
Increasing or adjusting planting densities	3	9.7	4	26.7
Increase in production area	14	45.2	3	20.0
Growing different or additional lines	8	25.8	2	13.3
Total landholders	31	100.0	15	100.0

Note: *Based on landholders who undertook horticultural activities on their property in the three years prior to the survey*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
The format of the question changed in the 2014 survey.
Source: *EBC (2017).*

Seventy-four percent of landholders believed they would improve their horticultural production overt the next five years (Table 111).

Table 111: “Do you think you will improve horticultural production over the next five years?”

Response	Count	Percent
Yes	23	74.2
No	8	25.8
Total landholders	31	100.0

Note: *Based on landholders who undertook horticultural activities on their property in the five years prior to the survey.*
This question was not included in the 2014 survey.
Source: *EBC (2017).*

Two of the most frequently reported reasons given for past production increases (Table 110) were adjustments to the nutrition program and improvements to infrastructure; these were also the two most commonly reported reasons given for future production increases (Table 112).

Table 112 also shows that relative to 2014, there had been a significant increase in the number of landholders who believed they would increase production through adjustments to their nutrition program and adjustments to their pest or disease management programs.

Table 112: “What do you think will be the main reasons for any improvement in production in the next five years?”

	2014		2017	
Response	Count	Percent	Count	Percent
Adjustments to nutrition program (fertilisers)	*16*	*36.4*	*16*	*76.2*
Improvements to infrastructure I.e., irrigation systems)	15	34.1	11	52.4
Increase in production area	21	47.7	10	47.6
Adjustments to pest or disease management programs	*3*	*6.8*	*7*	*33.3*
Other technology introductions	7	15.9	6	28.6
Variety selection (genetics)	14	31.8	6	28.6
Growing different or additional lines	18	40.9	6	28.6
Increasing or adjusting planting densities	10	22.7	4	19.0
Total landholders	44	100.0	21	100.0

Note: *Based on landholders who believed they would increase horticultural production on their property in the next five years.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
This is a multiple response table in which a respondent may be included in multiple rows.
The format of the question changed between the 2014 and 2017 surveys.
Source: *EBC (2017).*

Use of fire

Twenty-four percent of landholders indicated they purposefully used fire to improve the condition of their land (Table 113), with the majority of landholders (10%) using fire for this purpose only once a year.

Table 113: “In the past 2 years how often have you purposefully used fire to improve the condition of your land?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
None	351	80.5	412	76.4
Once	23	5.3	52	9.6
2-3 times	42	9.6	46	8.5
More than 4 times	20	4.6	29	5.4
Total landholders	436	100.0	539	100.0

Note: There was no significant difference in percentages between survey years.
Source: EBC (2017).

Invasive native scrub

More than half (59%) of all landholders indicated that during the time they had been on their property, invasive native scrub had been a problem (Table 114).

Table 114: "During the time you have been on your property has invasive native scrub ever been a problem?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	237	54.5	319	58.5
No	198	45.5	226	41.5
Total landholders	435	100.0	545	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Forty-five percent of landholders indicated invasive native scrub to be a major problem on their property (Table 115).

Table 115: "In your opinion, would you say invasive native scrub on your property is a…."

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Minor problem (1)	48	20.4	65	20.8
Moderate problem	87	37.0	108	34.6
Major problem (3)	100	42.6	139	44.6
Total landholders	235	100.0	312	100.0
Mean score		2.22		2.23

Note: *Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.*
There was no significant difference in means between survey periods.
Source: *EBC (2017).*

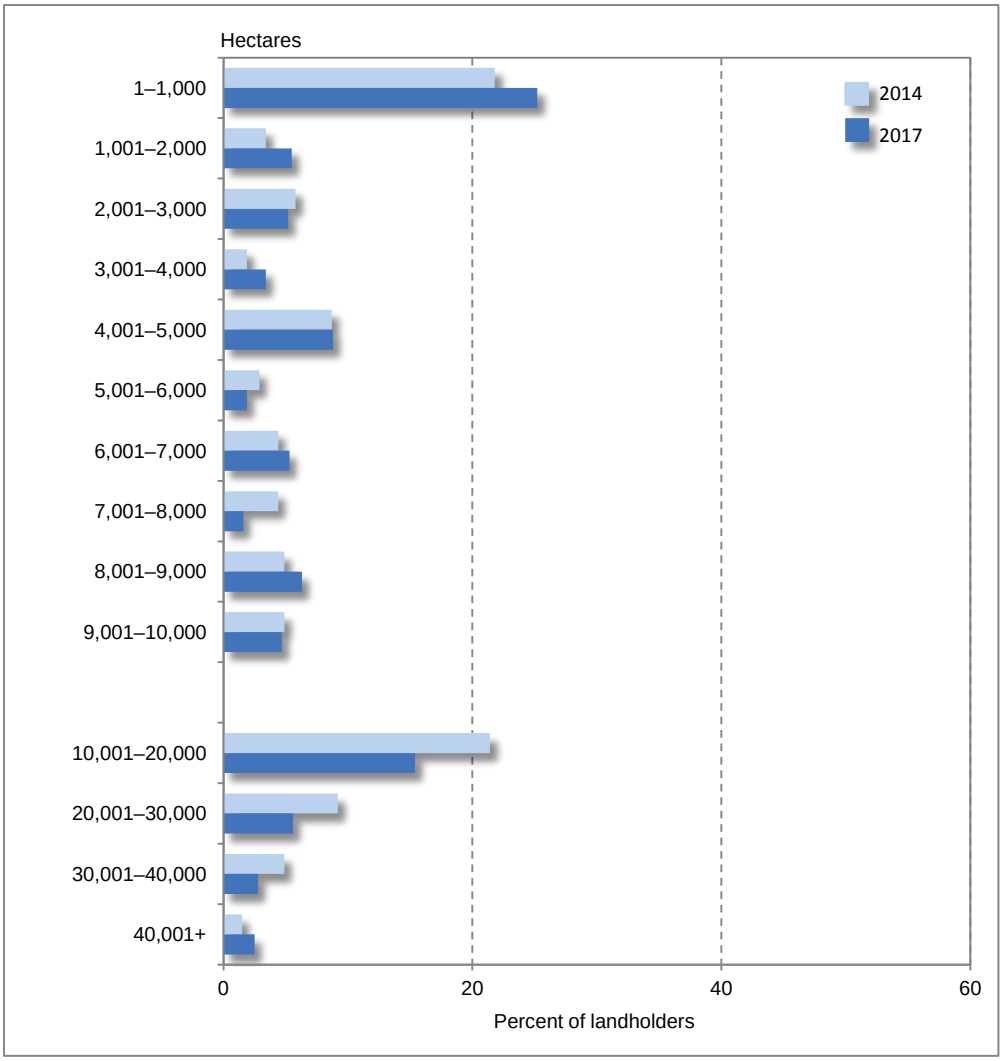
Table 116 and Figure 26 show that invasive native scrub was a problem over an average 9,161 hectares.

Table 116: "Over what area of your property is invasive native scrub a problem?"

	2014			2017		
Hectares	**Count**	**Percent**	**Cumulative Percent**	**Count**	**Percent**	**Cumulative Percent**
1 – 1,000	45	21.8	21.8	73	25.2	25.2
1,001 – 2,000	7	3.4	25.2	16	5.5	30.7
2,001 – 3,000	12	5.8	31.1	15	5.2	35.9
3,001 – 4,000	4	1.9	33.0	11	3.4	39.7
4,001 – 5,000	18	8.7	41.7	28	8.8	49.3
5,001 – 6,000	6	2.9	44.7	6	1.9	51.4
6,001 – 7,000	9	4.4	49.0	17	5.3	57.2
7,001 – 8,000	9	4.4	53.4	5	1.6	59.0
8,001 – 9,000	10	4.9	58.3	20	6.3	65.9
9,001 – 10,000	10	4.9	63.1	15	4.7	71.0
10,001 – 20,000	44	21.4	84.5	49	15.4	87.9
20,001 – 30,000	19	9.2	93.7	18	5.6	94.1
30,001 – 40,000	10	4.9	98.5	9	2.8	97.2
40,001 +	3	1.5	100.0	8	2.5	100.0
Total landholders	206	100.0		290	100.0	
Median hectares			7,183			9,161

Note: *Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.*
There was no significant difference in medians between survey years.
Source: *EBC (2017).*

Figure 26: area of property with invasive native scrub



Source: *EBC (2017).*

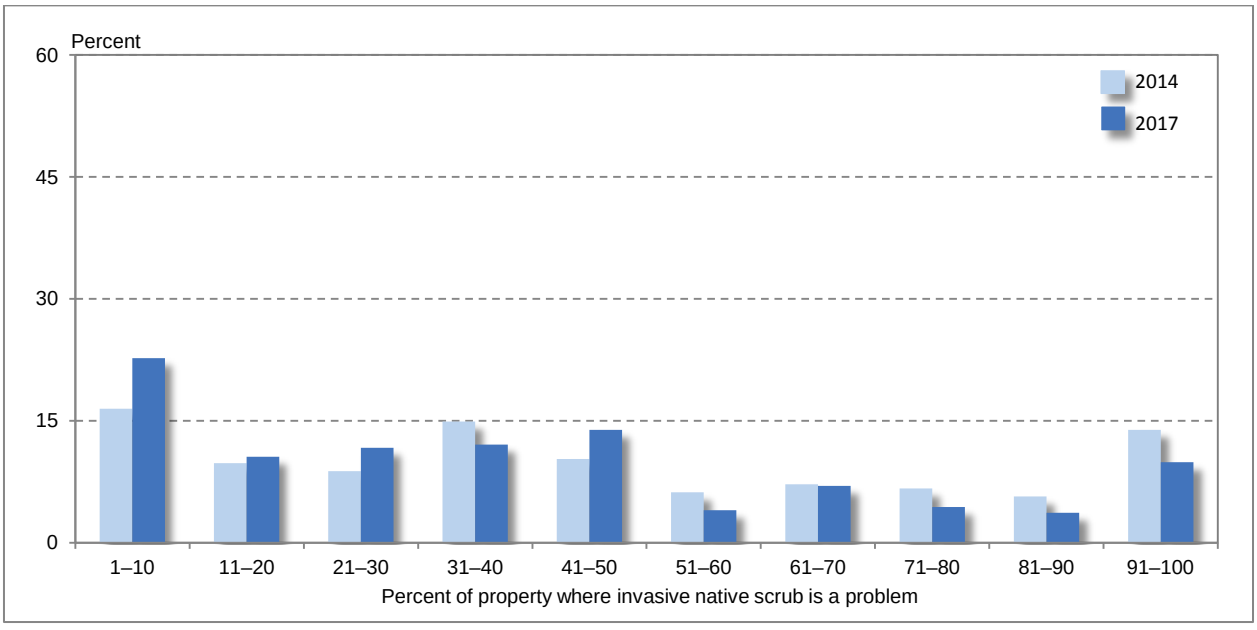
The area of the property over which invasive native scrub was a problem relative to total property size, indicates that invasive native scrub was a problem over an average of 40% of the property area (Table 117 and Figure 27).

Table 117: percent of total property where invasive native scrub is a problem

Percent	2014			2017		
	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
1 – 10	32	16.5	16.5	62	22.7	22.7
11 – 20	19	9.8	26.3	29	10.6	33.3
21 – 30	17	8.8	35.1	32	11.7	45.1
31 – 40	29	14.9	50.0	33	12.1	57.1
41 – 50	20	10.3	60.3	38	13.9	71.1
51 – 60	12	6.2	66.5	11	4.0	75.1
61 – 70	14	7.2	73.7	19	7.0	82.1
71 – 80	13	6.7	80.4	12	4.4	86.4
81 – 90	11	5.7	86.1	10	3.7	90.1
91 – 100	27	13.9	100.0	27	9.9	100.0
Total landholders	194	100.0	66.5	273	100.0	
Median percent			40.2			39.5

Note: *Percentages based on landholders who reported invasive native scrub was or had been a problem on their property. There was no significant difference in medians between survey years.*
Source: *EBC (2017).*

Figure 27: percent of property where invasive native scrub was a problem



Source: *EBC (2017).*

Management of invasive native scrub

Half of all landholders (52%) who reported that invasive native scrub was or had been a problem on their property also indicated they had actively managed the problem in the last three years (Table 118).

Table 118: "In the last 3 years have you actively managed invasive native scrub on your property?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	137	60.9	165	52.4
No	91	39.1	150	47.6
Total landholders	225	100.0	315	100.0

Note: *Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

The two most common methods used in controlling invasive native scrub (Table 119) were herbicide control (59%) and mechanical methods such as ploughing, grubbing, chaining (57%).

Table 119: "Which of the following methods have you used to control invasive native scrub?"

	2014		2017	
Methods	**Count**	**Percent**	**Count**	**Percent**
Chemicals	72	52.6	100	58.9
Ploughing, grubbing, chaining or other mechanical methods	60	43.8	96	56.5
Grazing goats	37	27.0	51	30.0
Fire	31	22.6	42	24.7
Cultivation such as cropping	30	21.9	40	23.5
Controlling stocking rates and total amount of grazing	26	19.0	43	25.3
Other methods	1	0.7	2	1.2
Total landholders	137	100.0	170	100.0

Note: *Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

A third of all landholders (33%) who had experienced invasive native scrub as a problem indicated they had been able to successfully manage the problem on their property (Table 120).

Table 120: "Have you been able to successfully manage the invasive native scrub?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	85	36.2	104	33.0
No	150	63.8	211	67.0
Total landholders	235	100.0	315	100.0

Note: *Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

The two most commonly reported methods of successfully managing invasive native scrub (Table 121) were herbicide control (38%) and mechanical control through ploughing, ripping, crocodiling or chaining (36%).

Table 121: "What was the main thing you did to successfully manage the invasive native scrub?

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Herbicide control	29	39.7	36	37.9
Mechanical control (e.g., ploughing, ripping, raking, or chaining)	27	30.0	34	35.8
Cultivation and cropping	9	12.3	17	17.9
Clearing (general)	6	8.2	13	13.7
Grazing management	9	12.3	10	10.5
Fire management	7	9.6	10	10.5
Use of goats	4	5.5	6	6.3
Pulling	4	5.5	5	5.3
Fencing	3	4.1	1	1.1
Management of new growth	2	2.7	1	1.1
Increase ground cover	3	4.1	0	0.0
Other practices*(frequency of one)*	5	6.8	5	5.3
Total landholders	73	100.0	95	100.0

Note: *Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

The majority of landholders (87%) indicated they controlled invasive native scrub through multiple follow up treatments (Table 122). This was a significant increase relative to 2014, where 71% of landholders reported using multiple follow up treatments.

Table 122: "Do you control invasive native scrub with one treatment or multiple follow up treatments?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
One treatment	51	29.1	22	13.3
Multiple follow up treatments	124	70.9	144	86.7
Total landholders	175	100.0	166	100.0

Note: *Percentages based on landholders who had actively managed invasive native scrub on their property in the last three years.*
There was a significant difference in percentages between survey years.
Source: *EBC (2017).*

Capacity to manage invasive native scrub

Table 123 shows that practical skills (68%), equipment, machinery and materials to address the issue (61%) and the knowledge of how to address the issue (61%) were resources most landholders had available to manage invasive native scrub. On the other hand, fewer landholders had support from neighbours (7%) and support from businesses and contactors (10%).

Table 123 also shows that since 2014 there was a significant increase in the number of landholders reporting capacity in relation to landholder's practical skills; equipment, machinery and materials; knowledge; support from friends and family; and markets and income from their products.

Table 123: "In managing invasive native scrub on your property do you currently have…?

	2014		2017	
Resources	**Count**	**Percent**	**Count**	**Percent**
Practical skills to address the issue	*63*	*51.6*	*104*	*68.0*
Equipment, machinery and materials to address the issue	*63*	*51.6*	*93*	*60.8*
The knowledge of how to address the issue	*63*	*51.6*	*93*	*60.8*
A belief that you could address the issue	42	34.4	66	43.1
Optimism about addressing the issue	40	32.8	59	38.6
A property able to support change	33	27.0	56	36.6
Good health so as to undertake the work	39	32.0	50	32.7
Support from friends and family	*19*	*15.6*	*48*	*31.4*
Good markets and income for your products	*18*	*14.8*	*43*	*28.1*
People to help do the work	25	20.5	40	26.1
Time available to do the work	27	22.1	38	24.8
Access to credit and funds to undertake the work	26	21.3	35	22.9
Favourable land and water conditions on your property	13	10.7	27	17.6
Favourable climate and seasonal conditions	13	10.7	20	13.1
Support from businesses and contactors	8	4.4	15	9.8
Support from neighbours or formal group	9	7.4	10	6.5
Total landholders	181	100.0	153	100.0

Note: *Percentages based on landholders who had actively managed invasive native scrub on their property in the last three years.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Categorising the items presented in Table 123 into the six forms of capital (Table 124 and Figure 28) shows that in the control of invasive native scrub, landholders are most likely to have the physical and human capital available, but least likely to have the financial, natural and social capital available to manage invasive native scrub.

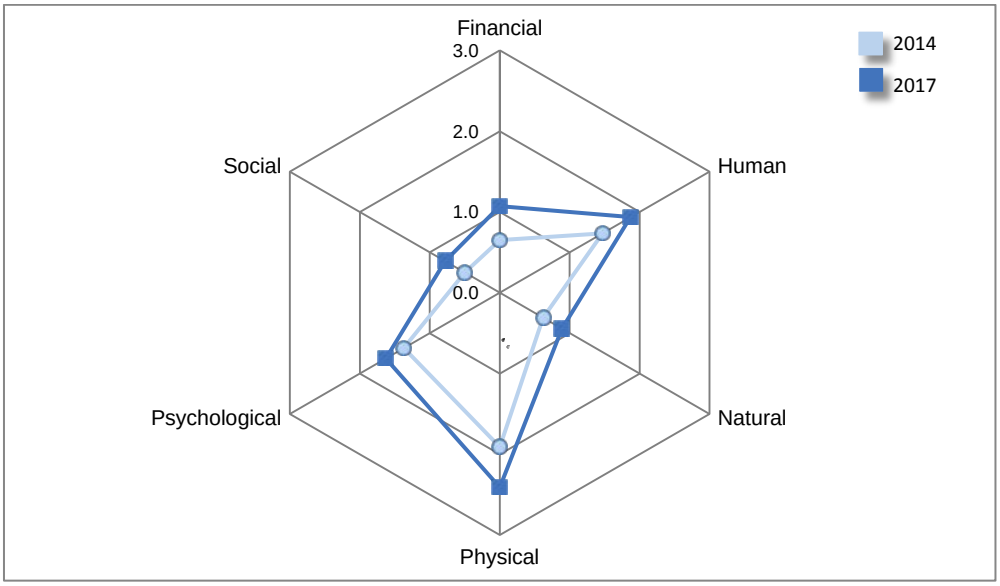
Table 124 and Figure 28 also shows that in managing invasive native scrub and with the exception of psychological capital, all other capital resources available to landholders increased significantly between 2014 and 2017.

Table 124: resources available to manage invasive native scrub

Capital	2014		2017		Significant difference between means
	Mean score	Sample size	Mean score	Sample size	
Physical	1.91	182	2.41	163	Yes
Human	1.47	182	1.87	157	Yes
Psychological	1.37	182	1.63	164	No
Financial	0.65	182	1.07	154	Yes
Natural	0.62	182	0.89	156	Yes
Social	0.50	181	0.78	148	Yes

Note: *Means based on those landholders who have actively managed weeds on their property in the last three years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each f the capitals have been scored.*
Source: *EBC (2017).*

Figure 28: resources available to manage invasive native scrub



Note: *Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available*
Source: *EBC (2017).*

Landholder's ability to address invasive native scrub was relatively mixed (Table 125), with 37% indicating they had low or very low ability and 26% indicating they had high or very high ability to manage invasive native scrub.

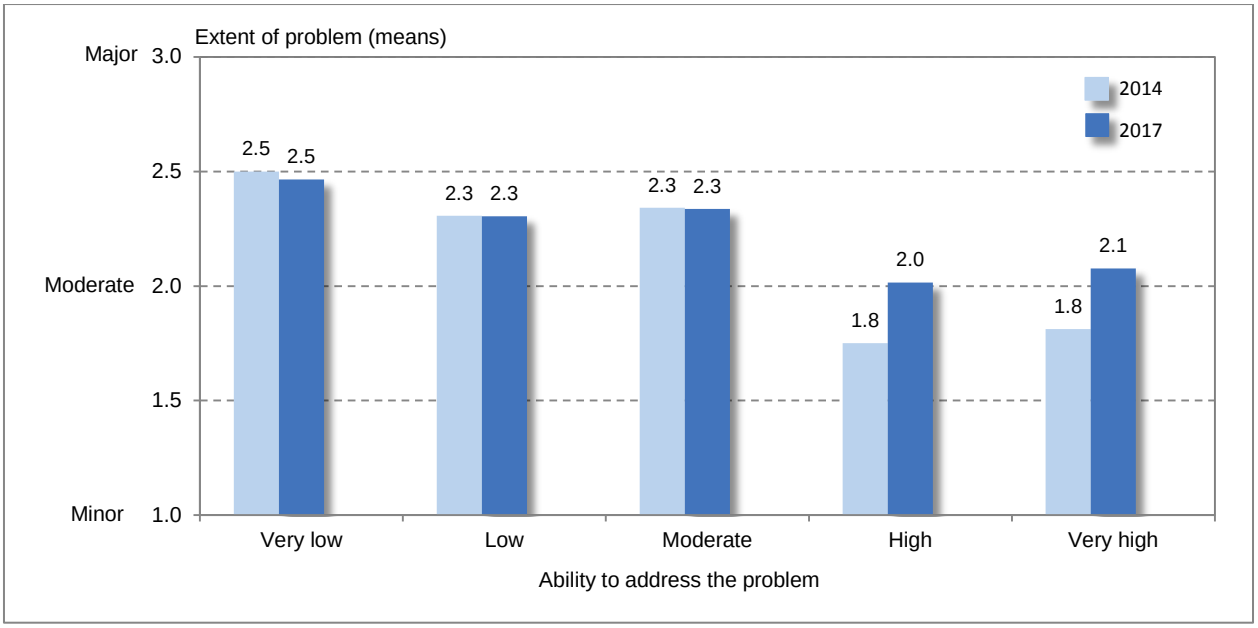
Table 125: "Would you say your ability to address invasive native scrub is…"

Ability to address issue	2014		2017	
	Count	Percent	Count	Percent
Very low (1)	38	16.3	44	14.2
Low	63	27.0	69	22.3
Moderate	80	34.3	116	37.5
High	36	15.5	67	21.7
Very high (5)	16	6.9	13	4.2
Total landholders	233	100.0	309	100.0
Mean score		2.70		2.79

Note: *Percentages based on landholders who reported invasive native scrub was or had been a problem on their property. There was no significant difference in means between survey years.*
Source: *EBC (2017).*

Figure 29 shows that landholders who report lower ability to manage invasive native scrub are also more likely to report invasive native scrub as more of a problem on their property. Conversely, landholders who have higher ability to manage invasive native scrub were also more likely to report it as only a minor problem on their property.

Figure 29: extent of problem and ability to address invasive native scrub



Source: *EBC (2017).*

The main reasons landholders reported low to moderate ability in managing invasive native scrub (Table 126) was the 'lack of money' (52%), lack of time (36%); and regulations or legislation (35%).

Table 126 also shows that relative to 2014, significantly fewer landholders reported 'lack of money' as a reason for their low ability to manage invasive native scrub in 2017.

Table 126: "Why do you say your ability to address this issue is low to moderate?"

	2014		2017	
Reasons	**Count**	**Percent**	**Count**	**Percent**
Lack of money	*115*	*65.3*	*118*	*52.2*
Lack of time	69	39.2	82	36.3
Regulations or legislation	78	44.3	79	35.0
Lack of labour and help	55	31.3	70	31.0
Lack of machinery, equipment or materials	55	31.3	61	27.0
Seasons and climate	53	30.1	60	26.5
Don't live on the property	20	11.4	34	15.0
Lack of knowledge	31	17.6	24	10.6
Too old	13	7.4	21	9.3
Cannot be fixed	12	6.8	17	7.5
Topography of my land	11	6.3	16	7.1
Poor land condition	10	5.7	13	5.8
No help or support from neighbours	7	4.0	11	4.9
No need to address issue	6	3.4	7	3.1
My poor health	11	6.3	6	2.7
Other reasons*(frequency of one)*	6	3.4	2	0.9
Total landholders	176	100.0	226	100.0

Note: *Based on those landholders who reported their ability to address invasive native scrub was very low, low or moderate.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Introduced weeds

Forty-four percent of all landholders indicated that during the time they had been on their property introduced weeds had been a problem (Table 127).

Table 127: “During the time you have been on your property have introduced weeds ever been a problem?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	179	41.1	236	43.5
No	256	58.9	307	56.5
Total landholders	435	100.0	543	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Only 14% of landholders with introduced weeds indicated they were a major problem, with 42% indicating they were a moderate problem and 44% indicating they were a minor problem (Table 128).

Table 128: “In your opinion, would you say weeds on your property are a….”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Minor problem (1)	100	55.9	104	44.3
Moderate problem	62	34.6	99	42.1
Major problem (3)	17	9.5	32	13.6
Total landholders	179	100.0	235	100.0
Mean score		1.54		1.69

Note: *Percentages based on landholders who reported weeds were or had been a problem on their property.*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

Management of introduced weeds

Three quarters (73%) of landholders who reported introduced weeds as a problem also indicated they had actively managed the problem in the last two years (Table 129).

Table 129: “In the last 3 years have you actively managed weeds on your property?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	119	66.9	170	73.3
No	59	33.1	62	26.7
Total landholders	178	100.0	232	100.0

Note: *Percentages based on landholders who reported weeds were or had been a problem on their property.*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

In addition, 58% of landholders who reported introduced weeds as a problem also indicated they had successfully managed the problem (Table 130).

Table 130: “Have you been able to successfully manage introduced weeds on your property?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	110	62.9	132	56.7
No	65	37.1	101	43.3
Total landholders	175	100.0	233	100.0

Note: *Percentages based on landholders who reported weeds were or had been a problem on their property. There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Table 131 indicates for the majority of landholders in both 2014 (69%) and 2017 (77%) the most successful method in controlling introduced weeds was herbicide control.

Table 131: “What was the main thing you did to successfully manage introduced weeds?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Herbicide control	70	68.6	92	76.7
Manual removal	12	11.8	29	24.2
Mechanical control	14	13.7	11	9.2
Cultivation	8	7.8	11	9.2
Fire and burning	5	4.9	9	7.5
Changed grazing management	5	4.9	5	4.2
Monitored growth of weeds	3	2.9	4	3.3
Goat management	2	2.0	3	2.5
Removed weeds (general)	6	5.9	2	1.7
Other practices *(frequency of one)*	6	5.9	6	5.0
Total landholders	73	100.0	120	100.0

Note: *Percentages based on landholders who reported they had successfully managed weeds on their property. This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

Capacity to manage introduced weeds

Table 132 shows that practical skills (67%); equipment, machinery and materials (61%); and the knowledge of how to address the issue (56%) were resources most landholders had available to manage introduced weeds. On the other hand, few landholders had the support from neighbours or formal groups (8%) and support from businesses and contactors (6%).

Table 132: “In managing introduced weeds on your property do you currently have…?"

Resources	2014		2017	
	Count	Percent	Count	Percent
Practical skills to address the issue	67	59.8	103	67.3
Equipment, machinery and materials to address the issue	69	61.6	93	60.8
The knowledge of how to address the issue	73	65.2	86	56.2
A belief that you could address the issue	56	50.0	72	47.1
Optimism about addressing the issue	35	31.3	54	35.3
Good health so as to undertake the work	37	33.0	52	34.0
Access to credit and funds to undertake the work	20	17.9	40	26.1
Support from friends and family	18	16.1	35	22.9
People to help do the work	24	21.4	33	21.6
Time available to do the work	28	25.0	32	20.9
Good markets and income for your products	15	13.4	31	20.3
A property able to support change	20	17.9	31	20.3
Favourable climate and seasonal conditions	13	11.6	20	13.1
Favourable land and water conditions on your property	10	8.9	17	11.1
Support from neighbours or formal group	6	5.4	12	7.8
Support from businesses and contactors	5	4.5	9	5.9
Total landholders	112	100.0	153	100.0

Note: *Percentages based on those landholders who have actively managed weeds on their property in the last two years.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

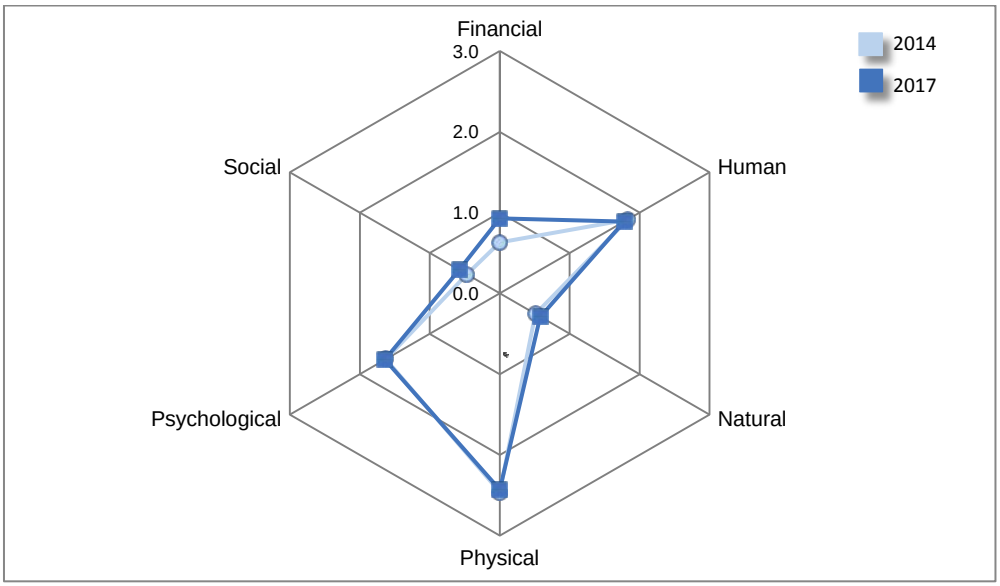
Categorising the items presented in Table 132 into the six forms of capital (Table 133 and Figure 30) shows that in the control of introduced weeds, landholders are most likely to have the physical capital available (equipment, machinery and materials), but least likely to have the financial, natural and social capital available to manage introduced weeds.

Table 133: resources available to manage introduced weeds

Capital	2014		2017		Significant difference between means
	Mean score	Sample size	Mean score	Sample size	
Physical	2.46	112	2.43	153	No
Human	1.83	112	1.78	153	No
Psychological	1.63	112	1.64	152	No
Financial	0.63	112	0.93	151	No
Natural	0.51	112	0.58	153	No
Social	0.47	112	0.58	153	No

Note: *Means based on those landholders who have actively managed weeds on their property in the last three years.*
Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources).
The methodology section of this report provides a discussion of how each f the capitals have been scored.
Source: *EBC (2017).*

Figure 30: resources available to manage introduced weeds



Note: *Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available*
Source: *EBC (2017).*

Twenty-two percent of landholders indicated they had low ability to address introduced weeds, while 46% of landholders indicated they had high ability (Table 134).

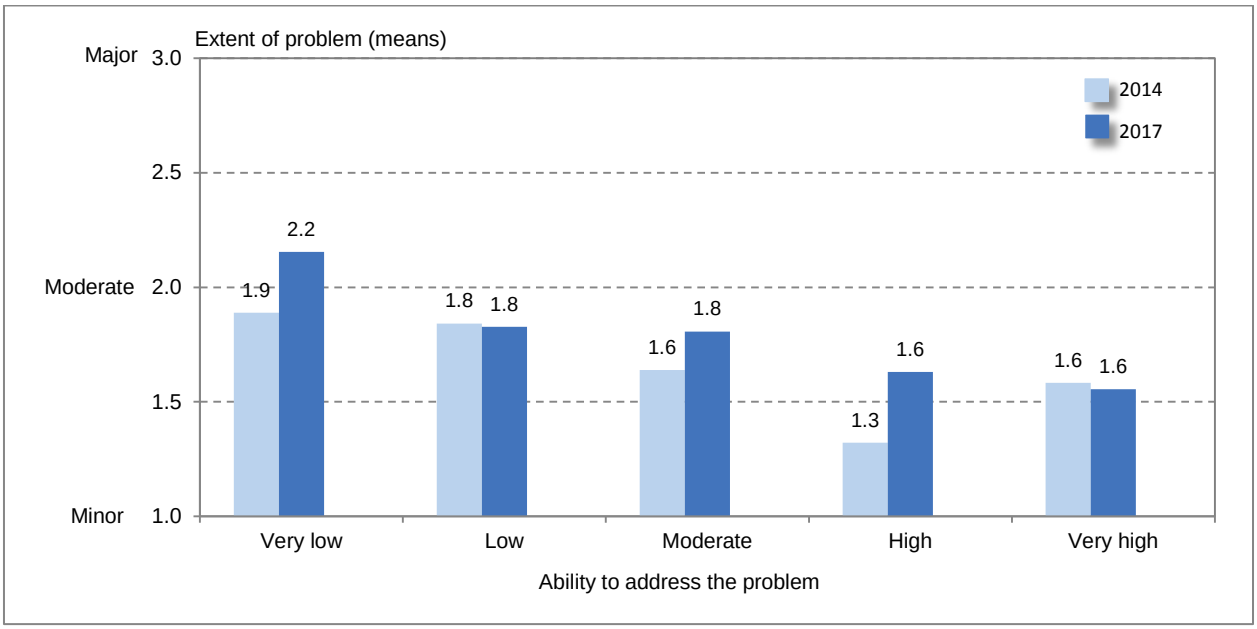
Table 134: "Would you say your ability to address introduced weeds…"

	2014		2017	
Ability to address issue	**Count**	**Percent**	**Count**	**Percent**
Very low (1)	11	6.3	15	6.5
Low	26	14.9	36	15.5
Moderate	55	31.4	75	32.3
High	63	36.0	79	34.1
Very high (5)	20	11.4	27	11.6
Total landholders	175	100.0	232	100.0
Mean score		3.31		3.29

Note: *Percentages based on landholders who reported weeds were or had been a problem on their property. There was no significant difference in means between survey years.*
Source: *EBC (2017).*

Figure 31 clearly shows that landholders who report lower ability to manage introduced weeds are also more likely to report introduced weeds as more of a problem on their property. Conversely, landholders who had a higher ability to manage introduced weeds are also more likely to report it as only a minor problem on their property.

Figure 31: extent of problem and ability to address introduced weeds



Source: *EBC (2017).*

The main reasons landholders reported low to moderate ability in managing introduced weeds (Table 135) was the lack of time (43%); the 'lack of money' (41%), and the lack of labour and help (35%).

Table 135: "Why do you say your ability to address this issue is low to moderate?"

	2014		2017	
Reasons	**Count**	**Percent**	**Count**	**Percent**
Lack of time	43	47.8	53	43.4
Lack of money	47	52.2	50	41.0
Lack of labour and help	33	36.7	43	35.2
Seasons and climate	30	33.3	30	24.6
Lack of machinery, equipment or materials	20	22.2	27	22.1
Don't live on the property	9	10.0	18	14.8
No help or support from neighbours	10	11.1	16	13.1
Topography of my land	4	4.4	16	13.1
Regulations or legislation	13	14.4	14	11.5
Lack of knowledge	12	13.3	13	10.7
Too old	4	4.4	11	9.0
No need to address issue	5	5.6	7	5.7
Cannot be fixed	1	1.1	7	5.7
My poor health	5	5.6	4	3.3
Poor land condition	4	4.4	1	0.8
Other reasons *(frequency of one)*	11	12.2	2	1.6
Total landholders	90	100.0	122	100.0

Note: *Based on those landholders who reported their ability to address weeds was very low, low or moderate.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Groundcover

Groundcover was defined as “any live or dead vegetation, rock or other protective cover that has the capacity to break or stop raindrops making contact with the soil” (Appendix A).

During the time landholders had been on their property, 50% of landholders had experienced a problem with low groundcover (Table 136).

Table 136: “During the time you have been on your property has low groundcover, that is less than 50% vegetation on the ground ever been a problem?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	232	53.2	271	49.8
No	204	46.8	273	50.2
Total landholders	436	100.0	544	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Although half of all landholders had experienced a problem with low ground cover, 35% considered it to be a minor problem and 15% considered it to be a major problem (Table 137).

Table 137: “In your opinion, would you say low groundcover on your property is a….”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Minor problem (1)	96	43.0	94	35.3
Moderate problem	79	35.4	132	49.6
Major problem (3)	48	21.5	40	15.0
Total landholders	223	100.0	266	100.0
Mean score		1.78		1.80

Note: *Percentages based on landholders who reported weeds were or had been a problem on their property.*
There was no significant difference in means between survey periods.
Source: *EBC (2017).*

Management of low groundcover

Two thirds of landholders (68%) indicated they had actively managed low groundcover on their property in the last three years (Table 138).

Table 138: “In the last 3 years have you actively managed low groundcover on your property?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	146	64.6	178	67.9
No	80	35.4	84	32.1
Total landholders	226	100.0	262	100.0

Note: *Percentages based on landholders who reported weeds were or had been a problem on their property.*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

Table 139 shows that 71% of landholders had been able to successfully manage low groundcover on their property.

Table 139: “Have you been able to successfully manage the low groundcover on your property?”

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	156	69.9	190	71.2
No	68	30.4	77	28.8
Total landholders	224	100.0	267	100.0

Note: *Percentages based on landholders who reported weeds were or had been a problem on their property. There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

The most common approach to managing low groundcover, which was identified by nearly two-thirds of landholders (62%), was to 'destock or reduce the number of livestock' (Table 140). This was also the most frequently reported management response reported in relation to low groundcover in the 2014 survey.

Table 140: “What was the main thing you did to successfully manage low groundcover?"

Response	2014		2017	
	Count	Percent	Count	Percent
Destock or reduce the number of livestock	89	61.0	113	62.4
Control total grazing pressure	14	9.6	17	9.4
Wait for rain or improvement to seasons or climate	13	8.9	16	8.8
Move stock	5	3.4	14	7.7
Rotational graze stock	10	6.8	13	7.2
Supplementary feed stock	2	1.4	9	5.0
Cultivate or improve soil condition	5	3.4	8	4.4
Control feral animals	9	6.2	6	3.3
Improve stock access to water	7	4.8	6	3.3
Change grazing practices (general)	4	2.7	5	2.8
Adopt stubble retention or minimum/zero till farming practices	2	1.4	5	2.8
Rest paddocks	8	5.5	3	1.7
Spread stock over larger areas	2	1.4	0	0.0
Other *(frequency of one)*	10	6.8	13	7.2
Total landholders	146	100.0	181	100.0

Note: *Percentages based on landholders who reported they had successfully managed low groundcover on their property. This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

Capacity to manage low groundcover

Table 141 shows that knowledge of how to address the issue (66%) and practical skills (65%) were resources most landholders had available to manage low groundcover. On the other hand, few landholders had support from businesses and contactors (6%) and support from neighbours or formal groups (7%).

As shown in Table 141, the number of landholders reporting they had knowledge of how to address low groundcover increased significantly between 2014 and 2017.

Table 141: "In managing low groundcover on your property do you currently have…?"

	2014		2017	
Resources	**Count**	**Percent**	**Count**	**Percent**
The knowledge of how to address the issue	*69*	*50.0*	*109*	*66.1*
Practical skills to address the issue	80	58.0	107	64.8
A belief that you could address the issue	77	55.8	79	47.9
Equipment, machinery and materials to address the issue	52	37.7	66	40.0
Optimism about addressing the issue	67	48.6	61	37.0
Good markets and income for your products	36	26.1	57	34.5
Favourable climate and seasonal conditions	38	27.5	57	34.5
A property able to support change	43	31.2	52	32.1
Favourable land and water conditions on your property	34	24.6	50	30.3
Good health so as to undertake the work	51	37.0	47	28.5
Support from friends and family	26	18.8	33	20.0
People to help do the work	20	14.5	32	19.4
Time available to do the work	32	23.2	30	18.2
Access to credit and funds to undertake the work	18	13.0	29	17.6
Support from neighbours or formal group	13	9.4	12	7.3
Support from businesses and contactors	3	2.2	9	5.5
Total landholders	138	100.0	165	100.0

Note: *Percentages based on those landholders who have actively managed low groundcover on their property in the last three years.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

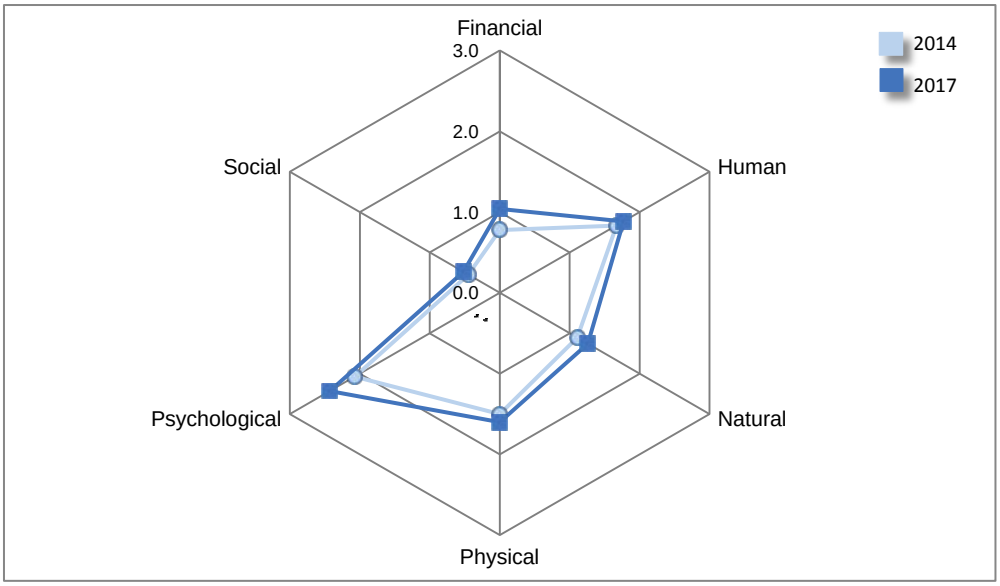
A summary of the capital resources available to manage low groundcover (Table 142 and Figure 32) shows landholders had the psychological capacity (optimisms and a belief they could address the issue) to address the issue, but limited financial and social capital to address the issue.

Table 142: resources available to manage low groundcover

	2014		2017		Significant difference between means
Capital	**Mean score**	**Sample size**	**Mean score**	**Sample size**	
Psychological	2.07	139	2.43	165	No
Human	1.67	139	1.77	165	No
Physical	1.50	139	1.60	165	No
Natural	1.11	139	1.26	165	No
Financial	0.78	139	1.04	165	No
Social	0.45	137	0.52	165	No

Note: *Means based on those landholders who have actively managed low groundcover on their property in the last three years.*
Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources).
The methodology section of this report provides a discussion of how each f the capitals have been scored.
Source: *EBC (2017).*

Figure 32: resources available to manage low groundcover



Note: *Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available*
Source: *EBC (2017).*

Eighty-one percent of landholders indicated they had 'moderate' to 'very high' ability to address problems with low groundcover (Table 143).

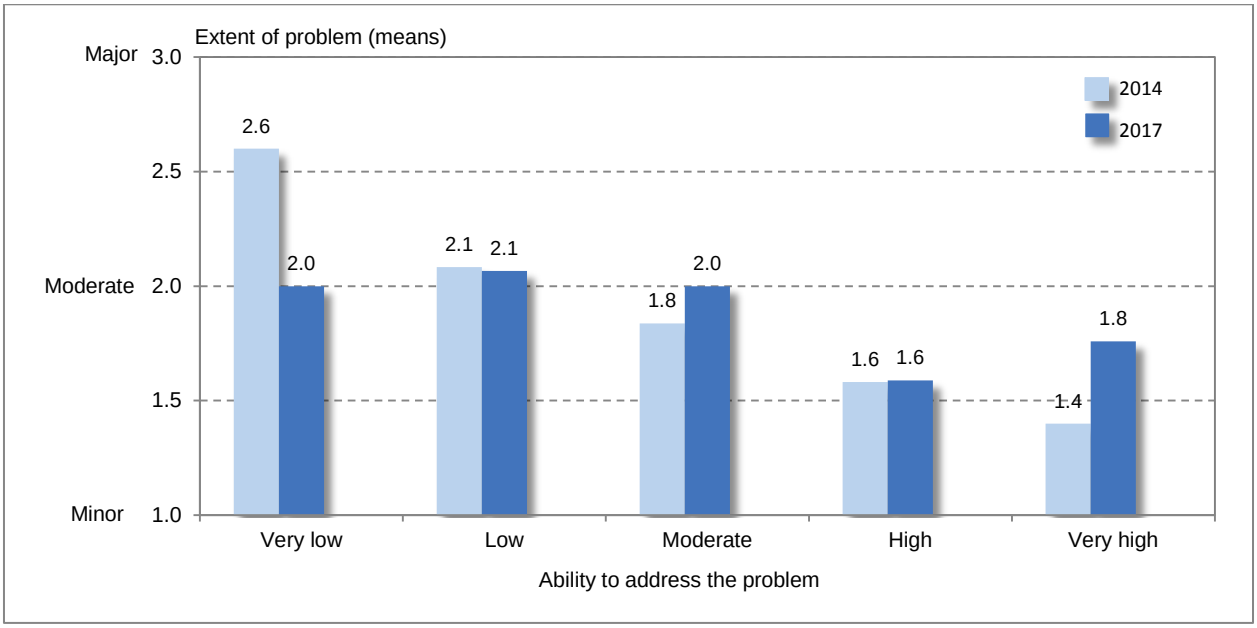
Table 143: "Would you say your ability to address low groundcover is…"

	2014		2017	
Ability to address issue	**Count**	**Percent**	**Count**	**Percent**
Very low (1)	22	10.6	13	5.0
Low	31	14.9	37	14.2
Moderate	60	28.8	77	29.6
High	63	30.3	97	37.3
Very high (5)	32	15.4	36	13.8
Total landholders	208	100.0	260	100.0
Mean score		3.25		3.41

Note: *Percentages based on landholders who reported low groundcover had been a problem on their property. There was no significant difference in means between survey years.*
Source: *EBC (2017).*

Figure 33 shows a very clear relationship between low groundcover and landholder ability to address the issue. In this instance, the majority of landholders with limited ability to address low groundcover also tend report low groundcover as a major problem; while the majority of landholders with the ability to address low groundcover report low groundcover as only a minor problem.

Figure 33: extent of problem and ability to address low groundcover



Source: *EBC (2017).*

The two most common reasons for landholders reporting their ability to address low groundcover as low to moderate was the effects of 'seasons and climate' (68%) and the 'lack of money' (39%) to address the issue (Table 144).

Table 144: "Why do you say your ability to address this issue is low to moderate?"

	2014		2017	
Reasons	**Count**	**Percent**	**Count**	**Percent**
Seasons and climate	85	63.9	81	67.5
Lack of money	52	39.1	47	39.2
Lack of labour and help	28	21.1	23	19.2
Lack of machinery, equipment or materials	23	17.3	23	19.2
Lack of time	22	16.5	23	19.2
Don't live on the property	19	14.3	21	17.5
Regulations or legislation	22	16.5	19	15.8
Poor land condition	10	7.5	18	15.0
Topography of my land	10	7.5	12	10.0
No help or support from neighbours	4	3.0	11	9.2
Too old	9	6.8	9	7.5
Cannot be fixed	1	0.8	7	5.8
My poor health	6	4.5	6	5.0
No need to address issue	11	8.3	4	3.3
Lack of knowledge	10	7.5	4	3.3
Other reasons *(frequency of one)*	9	6.8	9	7.5
Total landholders	133	100.0	120	100.0

Note: *Based on those landholders who reported their ability to address low groundcover was very low, low or moderate.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Soil erosion

Soil erosion was defined as "sheet, rill, river bank or gully erosion e.g., along fence lines and tracks".

The definition of soil erosion used in the questionnaire changed since the 2014 survey where it did not include river bank or gully erosion. In the 2014 questionnaire there were separate and specific questions which addressed erosion to rivers and gullies.

Although only 59 landholders reported issues with river bank or gully erosion in the 2014 survey the change in the definition of soil erosion between the 2014 and 2017 needs to be considered when interpreting the survey findings. In particular percentages may be higher in the 2017 survey given that issues with river and gully bank erosion are now included in the definition.

Twenty-five percent of landholders reported that during the time they had been on their property soil erosion had been a problem (Table 145).

Table 145: “During the time you have been on your property has soil erosion ever been a problem?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	125	28.6	138	25.3
No	312	71.4	407	74.7
Total landholders	437	100.0	545	100.0

Note: *The 2014 survey excluded river bank or gully erosion.*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

Of those landholders who reported a problem with soil erosion on their property, 58% reported it to be a minor problem and only 4% reported it as a major problem (Table 146).

Table 146: “In your opinion, would you say soil erosion on your property is a….”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Minor problem (1)	71	57.3	78	57.8
Moderate problem	47	37.9	52	38.5
Major problem (3)	6	4.8	5	3.7
Total landholders	124	100.0	135	100.0
Mean score		1.48		1.46

Note: *Percentages based on landholders who reported soil erosion was or had been a problem on their property.*
There was no significant difference in means between survey periods.
Source: *EBC (2017).*

Management of soil erosion

Fifty-eight percent of landholders who reported a problem with soil erosion indicated they had actively managed this problem in the last three years (Table 147).

This was a significant increase relative to 2014, where 35% of landholders who reported soil erosion as a problem also reported they had actively managed the soil erosion.

Table 147: "In the last 3 years have you actively managed soil erosion on your property?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	43	35.0	78	58.2
No	80	65.0	56	41.8
Total landholders	123	100.0	134	100.0

Note: *Percentages based on landholders who reported soil erosion was or had been a problem on their property. There was a significant difference in percentages between survey years.*
Source: *EBC (2017).*

Of those landholders reporting a problem with soil erosion, 60% indicated they had been successful in managing this problem (Table 148).

Table 148: "Were you able to successfully manage the soil erosion?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	64	52.5	82	59.9
No	58	47.5	55	40.1
Total landholders	122	100.0	137	100.0

Note: *Percentages based on landholders who reported soil erosion was or had been a problem on their property. There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

The three most common methods of successfully managing soil erosion (Table 149) were to 'use machinery to create diversions, drains and fills' (23%), 'destock' (18%) and 'increase ground cover' (15%).

Table 149: "What was the main thing you did to successfully manage the soil erosion?

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Used machinery to create diversions, drains and fills	13	21.7	18	23.1
Destocking	10	16.7	14	17.9
Increased ground cover	10	16.7	12	15.4
Contour banks	8	13.3	12	15.4
Water ponding or spreading	6	10.0	12	15.4
Reduced grazing pressure	6	10.0	10	12.8
Stubble retention, no till and disc pitting	6	10.0	7	9.0
Fence area	3	5.0	4	5.1
Change cropping practices	3	5.0	3	3.8
Changed grazing practice	2	3.3	1	1.3
Other practices *(frequency of one)*	7	11.7	12	15.4
Total landholders	60	100.0	78	100.0

Note: *Percentages based on landholders who reported they had successfully managed soil erosion on their property. This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

Capacity to manage soil erosion

Table 150 shows that equipment, machinery and materials to address the issue (70%), knowledge of how to address the issue (69%) and a belief that they could address the issue (69%), were resources most landholders had available to manage soil erosion. On the other hand, fewer landholders had support from neighbours or formal groups (4%); support from businesses and contactors (14%); and good markets and income for their products (14%).

Table 150: "In managing soil erosion on your property do you currently have…?

Resources	2014		2017	
	Count	Percent	Count	Percent
Equipment, machinery and materials to address the issue	24	57.1	52	70.3
The knowledge of how to address the issue	26	61.9	51	68.9
A belief that you could address the issue	27	64.3	51	68.9
Practical skills to address the issue	27	64.3	46	62.2
Optimism about addressing the issue	19	45.2	33	44.6
Time available to do the work	14	33.3	25	33.8
Good health so as to undertake the work	18	42.9	20	27.0
Access to credit and funds to undertake the work	8	19.0	20	27.0
A property able to support change	12	28.6	18	24.3
Favourable climate and seasonal conditions	7	16.7	14	18.9
People to help do the work	7	16.7	13	17.6
Favourable land and water conditions on your property	9	21.4	12	16.2
Support from friends and family	9	21.4	11	14.9
Good markets and income for your products	3	7.1	10	13.5
Support from businesses and contactors	1	2.4	10	13.5
Support from neighbours or formal group	4	9.5	3	4.1
Total landholders	42	100.0	74	100.0

Note: *Percentages based on those landholders who have actively managed soil erosion on their property in the last three years.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

A summary of the capital resources available to manage soil erosion (Table 151 and Figure 34) shows landholders had the physical (equipment, machinery and materials) and psychological capital to address the issue, but limited natural and social capital.

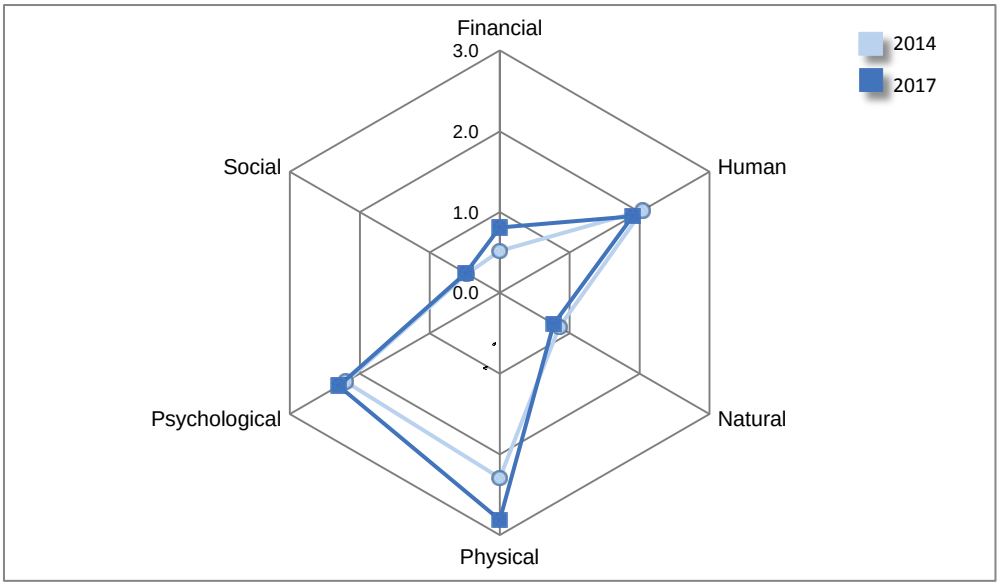
As also shown in Table 151, the physical resources and financial resources available to landholders to address soil erosion increased significantly between 2014 and 2017.

Table 151: resources available to manage soil erosion

Capital	2014		2017		Significant difference between means
	Mean score	Sample size	Mean score	Sample size	
Physical	2.29	42	2.81	74	Yes
Psychological	2.19	42	2.30	73	No
Human	2.02	42	1.92	74	No
Financial	0.52	42	0.81	74	Yes
Natural	0.89	42	0.77	74	No
Social	0.50	42	0.49	73	No

Note: *Means based on landholders who have actively managed soil erosion on their property in the last three years.*
Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources).
The methodology section of this report provides a discussion of how each f the capitals have been scored.
Source: *EBC (2017).*

Figure 34: resources available to manage soil erosion



Note: *Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available*
Source: *EBC (2017).*

Eighty-four percent of landholders indicated they had 'moderate' to 'very high' ability to address problems with soil erosion (Table 152).

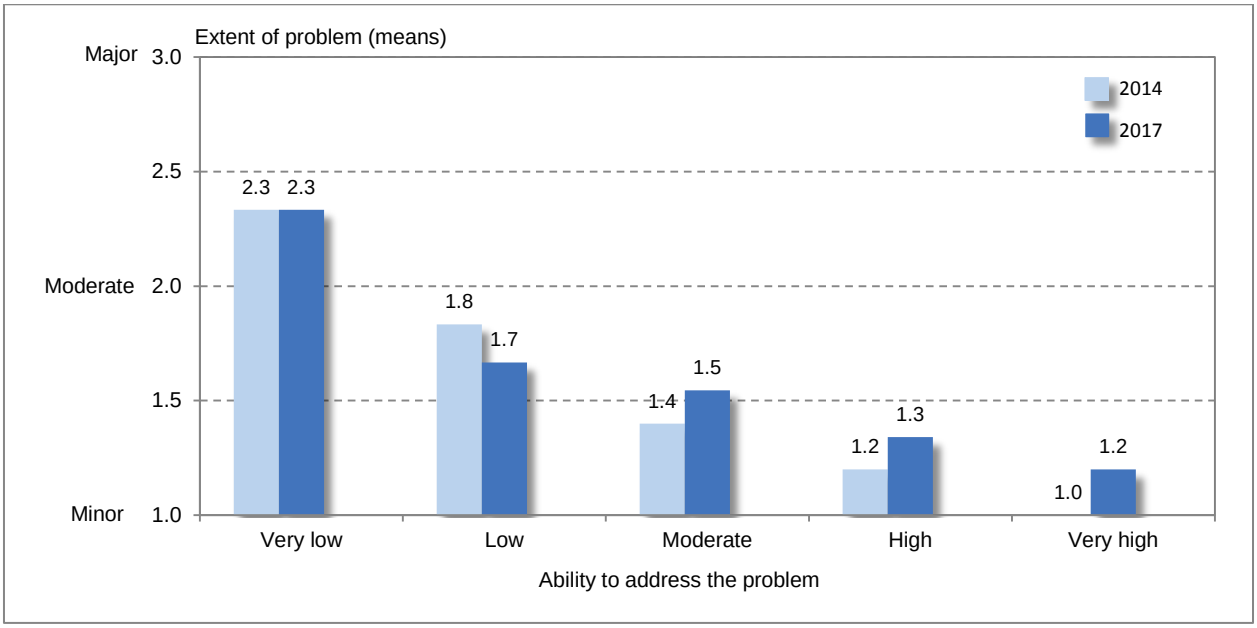
Table 152: "Would you say your ability to address soil erosion is…"

	2014		2017	
Ability to address issue	**Count**	**Percent**	**Count**	**Percent**
Very low (1)	9	7.3	6	4.5
Low	18	14.6	16	11.9
Moderate	40	32.5	41	30.6
High	39	31.7	56	41.8
Very high (5)	17	13.8	15	11.2
Total landholders	123	100.0	134	100.0
Mean score		3.30		3.43

Note: *Percentages based on landholders who reported soil erosion had been a problem on their property. There was no significant difference in means between survey years.*
Source: *EBC (2017).*

Figure 35 shows a very clear relationship between problems with soil erosion and landholder ability to address the issue. In this instance, the majority of landholders with limited ability to address soil erosion also tend to report soil erosion as a major problem; while the majority of landholders with the ability to address soil erosion also reported this issue as only a minor problem.

Figure 35: extent of problem and ability to address soil erosion



Source: *EBC (2017).*

Two of the most commonly reported reasons for landholders reporting a low to moderate ability to address soil erosion (Table 153) were the 'lack of money' (44%) and 'seasonal and climatic' conditions (44%).

Table 153: "Why do you say your ability to address this issue is low to moderate?"

	2014		2017	
Reasons	**Count**	**Percent**	**Count**	**Percent**
Lack of money	33	51.6	27	43.5
Seasons and climate	30	46.9	27	43.5
Topography of my land	20	31.3	18	29.0
Lack of time	14	21.9	18	29.0
No help or support from neighbours	*3*	*4.7*	*18*	*29.0*
Lack of machinery, equipment or materials	20	31.3	17	27.4
Lack of labour and help	17	26.6	15	24.2
Regulations or legislation	15	23.4	14	22.6
Don't live on the property	8	12.5	10	16.1
Poor land condition	11	17.2	6	9.7
Lack of knowledge	9	14.1	5	8.1
Too old	5	7.8	5	8.1
No need to address issue	3	4.7	4	6.5
My poor health	2	3.1	3	4.8
Cannot be fixed	1	1.6	2	3.2
Other reasons *(frequency of one)*	4	6.3	2	3.2
Total landholders	64	100.0	62	100.0

Note: *Based on those landholders who reported their ability to address soil erosion was very low, low or moderate.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Wild dogs

Approximately one third of all landholders (32%) reported that during the time they had been on the property wild dogs had been a problem (Table 154).

Table 154: “During the time you have been on your property have wild dogs ever been a problem?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	131	30.0	171	31.6
No	306	70.0	370	68.4
Total landholders	437	100.0	541	100.0

Note: There was no significant difference in percentages between survey years.
Source: EBC (2017).

Of those landholders who reported a problem with wild dogs, 47% reported wild dogs to be a minor problem and 21% reported them as a major problem (Table 155).

Table 155: “In your opinion, would you say wild dogs on your property are a….”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Minor problem (1)	70	53.8	77	46.7
Moderate problem	37	28.5	54	32.7
Major problem (3)	23	17.7	34	20.6
Total landholders	130	100.0	165	100.0
Mean score		1.64		1.74

Note: Percentages based on landholders who reported wild dogs were or had been a problem on their property.
There was no significant difference in means between survey periods.
Source: EBC (2017).

Management of wild dogs

Eighty-one percent of landholders who reported a problem with wild dogs indicated they had actively managed this problem in the last three years (Table 156).

Table 156: “In the last 3 years have you actively managed wild dogs on your property?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	108	83.1	137	81.1
No	22	16.9	32	18.9
Total landholders	130	100.0	169	100.0

Note: Percentages based on landholders who reported wild dogs were or had been a problem on their property.
There was no significant difference in percentages between survey years.
Source: EBC (2017).

Of those landholders reporting a problem with wild dogs, 67% indicated they had been successful in managing the problem with wild dogs (Table 157).

Table 157: “Were you able to successfully manage wild dogs?”

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	98	76.0	114	67.1
No	31	24.0	56	32.9
Total landholders	129	100.0	170	100.0

Note: *Percentages based on landholders who reported wild dogs were or had been a problem on their property. There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

The three most commonly reported methods of managing wild dogs (Table 158) were baiting (75%), shooting (48%) and trapping (34%).

Table 158: “What was the main thing you did to successfully manage wild dogs?

Response	2014		2017	
	Count	Percent	Count	Percent
Baiting	64	65.3	78	75.0
Shooting	57	58.2	50	48.1
Trapping	20	20.4	35	33.7
Destroy dogs (general)	3	3.1	3	2.9
Keep aware of problem	2	2.0	4	3.8
Monitor where dogs are located	2	2.0	1	1.0
Education and training	2	2.0	0	0.0
Other practices *(frequency of one)*	3	3.1	7	6.7
Total landholders	98	100.0	104	100.0

Note: *Percentages based on landholders who reported they had successfully managed wild dogs on their property. This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

Capacity to manage wild dogs

Table 159 shows that practical skills (65%); the knowledge of how to address the issue (64%); and support from neighbours or a formal group (55%) were resources most landholders had available to manage wild dogs. On the other hand, fewer landholders reported that in controlling wild dogs they had favourable land and water conditions on their property (13%); support from businesses and contractors (11%); and favourable climate and seasonal conditions (10%).

Table 159: "In managing wild dogs on your property do you currently have…?

	2014		2017	
Resources	**Count**	**Percent**	**Count**	**Percent**
Practical skills to address the issue	67	69.1	81	64.8
The knowledge of how to address the issue	59	60.8	80	64.0
Support from neighbours or formal group	47	48.5	69	55.2
A belief that you could address the issue	47	48.5	64	51.2
Equipment, machinery and materials to address the issue	31	32.0	52	41.6
Optimism about addressing the issue	37	38.1	50	40.0
Good health so as to undertake the work	33	34.0	41	32.8
Time available to do the work	29	29.9	39	31.2
Support from friends and family	33	34.0	38	30.4
Access to credit and funds to undertake the work	25	25.8	31	24.8
People to help do the work	20	20.6	25	20.0
Good markets and income for your products	8	8.2	21	16.8
A property able to support change	19	19.6	20	16.0
Favourable land and water conditions on your property	11	11.3	16	12.8
Support from businesses and contactors	6	6.2	14	11.2
Favourable climate and seasonal conditions	9	9.3	12	9.6
Total landholders	97	100.0	125	100.0

Note: *Percentages based on those landholders who have actively managed wild dogs on their property in the last three years.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included
Source: *EBC (2017).*

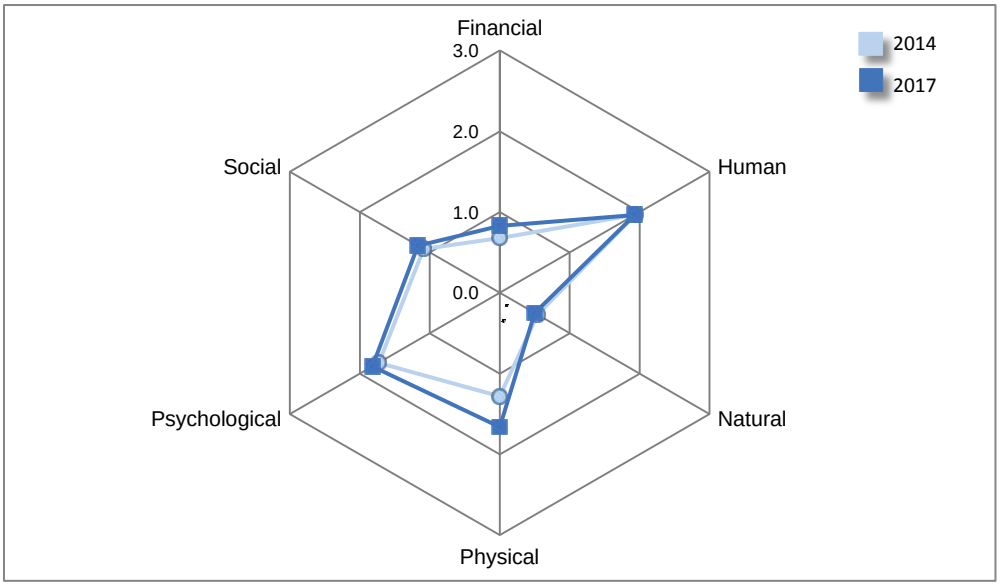
A summary of the capital resources available to manage wild dogs (Table 160 and Figure 36) shows landholders had the human capacity (health and skills) to address the issue, but limited financial and natural capital.

Table 160: resources available to manage wild dogs

	2014		2017		Significant difference between means
Capital	**Mean score**	**Sample size**	**Mean score**	**Sample size**	
Human	1.94	97	1.93	125	No
Psychological	1.73	97	1.82	125	No
Physical	1.28	97	1.66	125	No
Social	1.09	97	1.17	125	No
Financial	0.68	97	0.83	125	No
Natural	0.54	96	0.50	125	No

Note: *Means based on landholders who have actively managed wild dogs on their property in the last three years.*
Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources).
The methodology section of this report provides a discussion of how each f the capitals have been scored.
Source: *EBC (2017).*

Figure 36: resources available to manage wild dogs



Note: *Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available*
Source: *EBC (2017).*

Eighty-one percent of landholders indicated they had 'moderate' to 'very high' ability to address problems with wild dogs (Table 161).

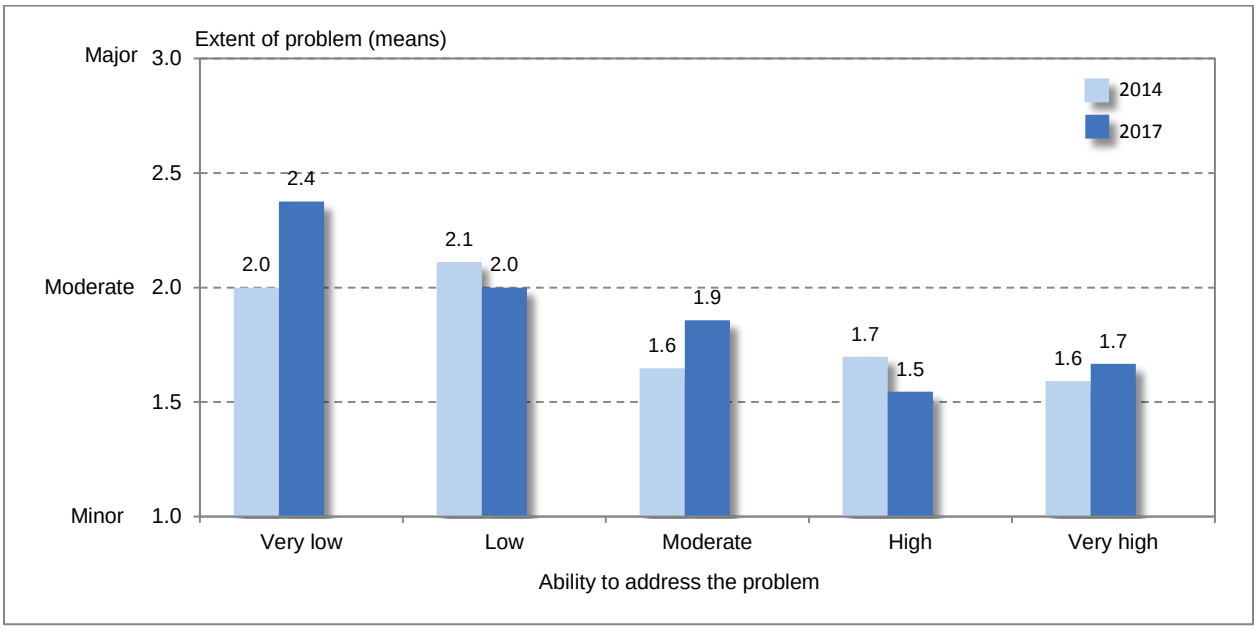
Table 161: "Would you say your ability to address this issue is…"

	2014		2017	
Ability to address issue	**Count**	**Percent**	**Count**	**Percent**
Very low (1)	2	1.5	12	7.3
Low	12	9.2	19	11.5
Moderate	39	30.0	42	25.5
High	42	32.3	61	37.0
Very high (5)	35	26.9	31	18.8
Total landholders	130	100.0	165	100.0
Mean score		3.74		3.49

Note: *Percentages based on landholders who reported wild dogs were or had been a problem on their property. There was no significant difference in means between survey years.*
Source: *EBC (2017).*

The relationship between the extent of the problem with wilds dogs and landholder ability to address the issue shows that the majority of landholders with limited ability to address wild dogs also tend to report wild dogs as a moderate problem; while the majority of landholders with the ability to address wild dogs reported this issue as more of a minor problem (Figure 37).

Figure 37: extent of problem and ability to address problems with wild dogs



Source: *EBC (2017).*

'Lack of time' (32%), the 'lack of money' (26%) and the 'lack of labour and help' (26%) were the primary reasons landholders gave for reporting a low to moderate ability to address problems with wild dogs (Table 162).

Table 162: "Why do you say your ability to address this issue is low to moderate?"

	2014		2017	
Reasons	**Count**	**Percent**	**Count**	**Percent**
Lack of time	12	25.5	21	31.8
Lack of money	17	36.2	17	25.8
Lack of labour and help	14	29.8	17	25.8
No help or support from neighbours	8	17.0	15	22.7
Regulations or legislation	8	17.0	15	22.7
Don't live on the property	5	10.6	13	19.7
Topography of my land	10	21.3	12	18.2
Lack of knowledge	2	4.3	7	10.6
Seasons and climate	6	12.8	6	9.1
Too old	3	6.4	3	4.5
Lack of machinery, equipment or materials	0	0.0	3	4.5
No need to address issue	3	6.4	2	3.0
Cannot be fixed	3	6.4	2	3.0
My poor health	1	2.1	2	3.0
Poor land condition	1	2.1	1	1.5
Other reasons *(frequency of one)*	12	25.5	9	13.6
Total landholders	47	100.0	66	100.0

Note: *Based on those landholders who reported their ability to address wild dogs was very low, low or moderate.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
'Other reasons' included lack of access to baits, wandering town dogs, poaches who lose their dogs, large scale baiting not practical, lack of participation of neighbours and other, lack of enforcement, lack of help from LLS, Government lands, Shire not controlling dogs, dog fence not working, too much depopulated land nearby, wild dogs are moving south.
Source: *EBC (2017).*

Other animals

'Other animals' excluded unmanaged goats and wild dogs (Appendix A). Eighty-three percent of landholders reported that during the time they had been on their property 'other animals' had been a problem (Table 163).

Table 163: "During the time you have been on your property have 'other animals' ever been a problem?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	375	85.2	451	83.3
No	65	14.8	87	16.2
Total landholders	440	100.0	538	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

The most common 'other animals' that landholders experienced as a problem (Table 164) were kangaroos (86%), foxes (72%) and pigs (71%).

Table 164 also shows there was a significant decline in the numbers of landholders who viewed rabbits as a problem between 2014 (57%) and 2017 (43%).

Table 164: "During the time you have been on your property have any of the following animals been a problem?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Kangaroos	295	79.7	387	86.0
Foxes	290	78.4	324	72.0
Pigs	240	64.9	319	70.9
Emus	186	50.3	231	51.3
Rabbits	*211*	*57.0*	*192*	*42.7*
Cats	150	40.5	154	34.2
Locusts	137	37.0	138	30.7
Carp	82	22.2	85	18.9
Wild horses	5	1.4	9	2.0
Camels	5	1.4	3	0.7
Donkeys	4	1.1	3	0.7
Cane toads	-	-	0	0.0
Other animals *(frequency of one)*	10	2.7	11	2.4
Total landholders	370	100.0	450	100.0

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
'Cane toads' were not included in the 2014 survey.
Other animals included crows, eagles, domestic dogs, cormorants, galahs, wild ducks, goats, mice/rats snakes and echidnas.
Source: *EBC (2017).*

Of those landholders who reported 'other animals' as a problem, 20% reported them as a minor problem and 41% reported them as a major problem (Table 165).

Table 165: “In your opinion, would you say these animals are a….”

Response	2014		2017	
	Count	Percent	Count	Percent
Minor problem (1)	108	29.8	86	19.6
Moderate problem	152	42.0	172	39.3
Major problem (3)	102	28.2	180	41.1
Total landholders	362	100.0	438	100.0
Mean score		1.98		2.21

Note: *Percentages based on landholders who reported other animals were or had been a problem on their property. There was no significant difference in means between survey periods.*
Source: *EBC (2017).*

Management of other animals

Sixty-six percent of landholders who reported a problem with 'other animals' indicated they had actively managed this problem in the last three years (Table 166).

Table 166: “In the last 3 years have you actively managed other animals on your property?”

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	231	64.5	290	66.5
No	127	35.5	146	33.5
Total landholders	358	100.0	436	100.0

Note: *Percentages based on landholders who reported other animals were or had been a problem on their property. There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Of those landholders reporting a problem with 'other animals', 47% indicated they had been successful in managing the problem (Table 167).

As shown in Table 167, 56% of landholders reported successfully managing other animals in 2014. However, in 2017 this had declined significantly to only 47% of landholders.

Table 167: “Were you able to successfully manage other animals?”

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	203	55.9	210	47.2
No	160	44.1	235	52.8
Total landholders	363	100.0	445	100.0

Note: *Percentages based on landholders who reported other animals were or had been a problem on their property. There was a significant difference in percentages between survey years.*
Source: *EBC (2017).*

The two most commonly reported methods of managing 'other animals' (Table 168) were shooting (69%), and baiting (67%).

Table 168: “What was the main thing you did to successfully manage other animals?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Shooting	105	53.8	129	69.4
Baiting	117	60.0	125	67.2
Trapping	41	21.0	32	17.2
Fencing	11	5.6	20	10.8
Rabbit warren ripping	22	11.3	12	6.5
Spraying	19	9.7	10	5.4
Extermination (general)	18	9.2	10	5.4
Virus introduction for rabbits	5	2.6	3	1.6
Control watering points	5	2.6	2	1.1
Allow access by hunters and shooters	7	3.6	1	0.5
Commercial shooter	9	4.6	0	0.0
Dry climatic conditions	4	2.1	0	0.0
Scare devices	2	1.0	0	0.0
Other practices *(frequency of one)*	15	7.7	8	4.3
Total landholders	195	100.0	186	100.0

Note: *Percentages based on landholders who reported they had successfully managed other animals on their property.*
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Capacity to manage other animals

Table 169 shows that practical skills (66%) and knowledge of how to address the issue (63%) were resources most landholders had available to manage 'other animals'. On the other hand, fewer landholders had support from businesses and contactors (9%) and a property able to support change (15%).

Table 169: “In managing other animals on your property do you currently have…?

	2014		2017	
Resources	**Count**	**Percent**	**Count**	**Percent**
Practical skills to address the issue	147	68.1	170	66.1
The knowledge of how to address the issue	125	57.9	161	62.6
A belief that you could address the issue	96	44.4	129	50.2
Equipment, machinery and materials to address the issue	98	45.4	105	40.9
Optimism about addressing the issue	84	38.9	86	33.5
Good health so as to undertake the work	75	34.7	81	31.5
Support from friends and family	62	28.7	79	30.7
People to help do the work	50	23.1	76	29.6
Support from neighbours or formal group	45	20.8	73	28.4
Time available to do the work	62	28.7	71	27.6
Access to credit and funds to undertake the work	41	19.0	62	24.1
Good markets and income for your products	*19*	*8.8*	*52*	*20.2*
Favourable climate and seasonal conditions	33	15.3	45	17.5
Favourable land and water conditions on your property	31	14.4	44	17.1
A property able to support change	28	13.0	39	15.2
Support from businesses and contactors	14	6.5	22	8.6
Total landholders	216	100.0	257	100.0

Note: *Percentages based on those landholders who have actively managed other animals on their property in the last three years.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
This is a multiple response table in which a respondent may be included
Source: *EBC (2017).*

A summary of the capital resources available to manage 'other animals' (Table 170 and Figure 38) shows landholders had the human (health and skills) and physical (equipment, machinery and materials) capital to address the issue, but limited natural and financial capital.

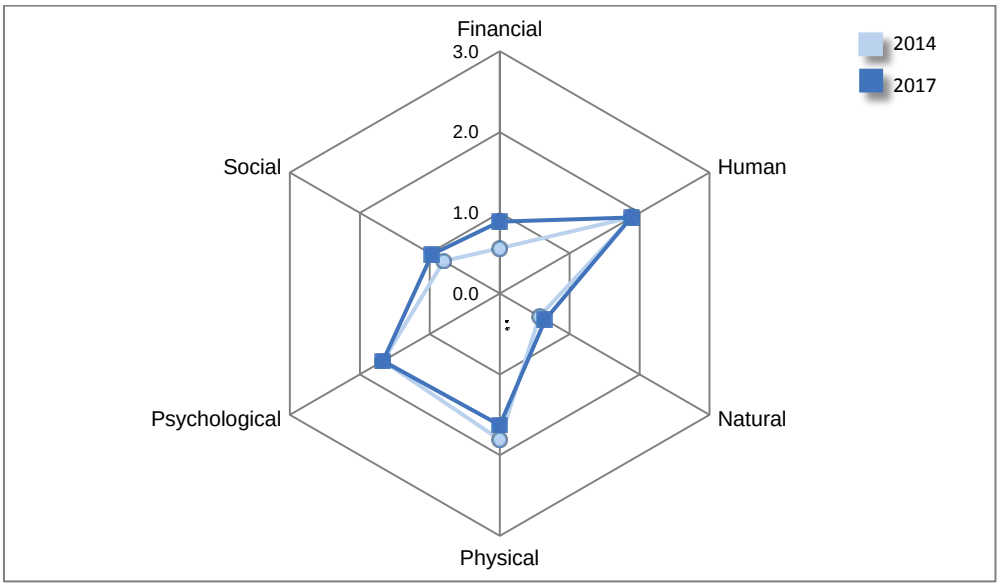
As is evident in Table 171, landholder financial capital resources for the management of other animals increased significantly between 2014 and 2017.

Table 170: resources available to manage other animals

Capital	2014		2017		Significant difference between means
	Mean score	Sample size	Mean score	Sample size	
Human	1.89	216	1.88	257	No
Psychological	1.67	216	1.67	257	No
Physical	1.81	214	1.63	257	No
Social	0.80	216	0.97	257	No
Financial	0.56	216	0.89	257	Yes
Natural	0.57	216	0.65	257	No

Note: Means based on landholders who have actively managed other animals on their property in the last three years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each f the capitals have been scored.
Source: EBC (2017).

Figure 38: resources available to manage 'other animals'



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available
Source: EBC (2017).

Seventy-six percent of landholders indicated they had 'moderate' to 'very high' ability to address problems with 'other animals' (Table 171).

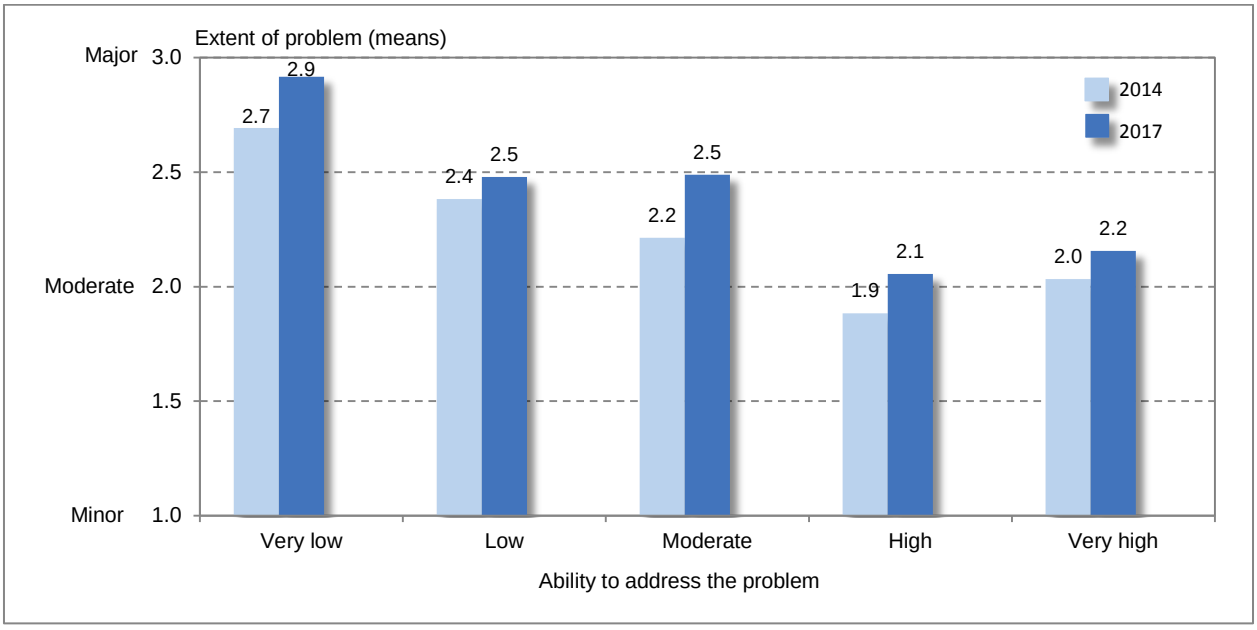
Table 171: “Would you say your ability to address this issue is…”

Ability to address issue	2014		2017	
	Count	Percent	Count	Percent
Very low (1)	26	7.2	34	7.8
Low	55	15.2	72	16.5
Moderate	120	33.2	133	30.5
High	99	27.4	143	32.8
Very high (5)	61	16.9	54	12.4
Total landholders	361	100.0	436	100.0
Mean score		3.32		3.25

Note: *Percentages based on landholders who reported other animals were or had been a problem on their property. There was no significant difference in means between survey years.*
Source: *EBC (2017).*

Figure 39 shows a very clear relationship between problems with 'other animals' and landholder ability to address the issue. In this instance, the majority of landholders with limited ability to address 'other animals' also tend to report 'other animals' as a major problem; while the majority of landholders with the ability to address 'other animals' reported this issue as minor or moderate problem.

Figure 39: extent of problem and ability to address problems with ‘other animals’



Source: *EBC (2017).*

'Regulations or legislation' (49%), 'lack of money' (30%) and 'lack of time' (29%) were the primary reasons landholders gave for reporting a low to moderate ability to address problems with 'other animals' (Table 172).

Table 172: “Why do you say your ability to address this issue is low to moderate?”

Reasons	2014		2017	
	Count	Percent	Count	Percent
Regulations or legislation	73	39.9	107	48.6
Lack of money	63	34.4	65	29.5
Lack of time	68	37.2	64	29.1
Lack of labour and help	53	29.0	55	25.0
Seasons and climate	50	27.3	40	18.2
Don’t live on the property	31	16.9	33	15.0
Cannot be fixed	15	8.2	30	13.6
No help or support from neighbours	24	13.1	28	12.7
Lack of machinery, equipment or materials	20	10.9	27	12.3
Topography of my land	15	8.2	24	10.9
Too old	12	6.6	14	6.4
Lack of knowledge	10	5.5	9	4.1
My poor health	2	1.1	9	4.1
Poor land condition	7	3.8	6	2.7
No need to address issue	10	5.5	5	2.3
Other reasons *(frequency of one)*	10	5.5	14	6.4
Total landholders	183	100.0	220	100.0

Note: *Based on those landholders who reported their ability to address other animals was very low, low or moderate.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

A decline in the diversity of native plants and animals

Only 7% of landholders reported they had experienced a decline in the diversity of native plants and animals on their property (Table 173). This was significantly lower than the 13% of landholders reporting a decline in the diversity of native plants and animals in 2014.

Table 173: "During the time you have been on your property has a decline in the diversity of native plants and animals ever been a problem?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	57	13.1	38	7.1
No	379	86.9	497	92.9
Total landholders	436	100.0	535	

Note: *There was a significant difference in percentages between survey years.*
Source: *EBC (2017).*

Of those landholders who reported a decline in the diversity of native plants and animals, 13% reported this as a minor problem and 21% reported it as a major problem (Table 174).

Table 174: "In your opinion, would you say the decline in the diversity of native plants and animals on your property is a…."

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Minor problem (1)	18	31.6	5	13.2
Moderate problem	22	38.6	25	65.8
Major problem (3)	17	29.8	8	21.1
Total landholders	57	100.0	38	100.0
Mean score		1.98		2.08

Note: *Percentages based on landholders who reported the decline in the diversity of native plants and animals was or had been a problem on their property.*
There was no significant difference in percentages between survey periods.
Source: *EBC (2017).*

Management of the decline in the diversity of native plants and animals

Fifty-seven percent of landholders who reported a problem with a decline in the diversity of native plants and animals also indicated they had actively managed this problem in the last three years (Table 175).

Table 175: "In the last 3 years have you actively managed the decline in diversity on your property?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	26	51.0	21	56.8
No	25	49.0	16	43.2
Total landholders	51	100.0	37	100.0

Note: *Percentages based on landholders who reported the decline in the diversity of native plants and animals was or had been a problem on their property.*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

Of those landholders reporting a problem with a decline in the diversity of native plants and animals, 41% indicated they had been successful in managing the problem (Table 176).

Table 176: "Were you able to successfully manage the decline in diversity?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	20	38.5	15	40.5
No	32	61.5	22	59.5
Total landholders	52	100.0	37	100.0

Note: *Percentages based on landholders who reported the decline in the diversity of native plants and animals was or had been a problem on their property.*
There was no significant difference in percentages between survey years.
Source: *EBC (2017).*

The most commonly reported method of managing the decline in the diversity of native plants and animals (Table 177) was to change grazing management practices (60%).

Table 177: "What was the main thing you did to successfully manage the decline in diversity?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Grazing management (general)	5	23.8	9	60.0
Destock	6	28.6	6	40.0
Reduced pest animals	3	14.3	4	26.7
Rest or rotationally graze paddocks	4	19.0	1	6.7
Waited for rain	3	14.3	0	0.0
Created a conservation reserve	2	9.5	0	0.0
Other practices *(frequency of one)*	2	9.5	0	0.0
Total landholders	21	100.0	15	100.0

Note: *Percentages based on landholders who reported they had successfully managed the decline in diversity*
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Capacity to manage the decline in the diversity of native plants and animals

Table 178 shows that 'optimism about addressing the issue' (52%), practical skills (52%), a belief that they could address the issue (48%) and knowledge of how to address the issue (48%) were resources most landholders had available to manage the decline in the diversity of native plants and animals. On the other hand, fewer landholders had support from businesses and contactors (0%); support from neighbours or formal groups (4%), and people to do the work (9%).

Table 178: “In managing the decline in the diversity on your property do you currently have…?"

	2014		2017	
Resources	**Count**	**Percent**	**Count**	**Percent**
Optimism about addressing the issue	18	69.2	12	52.2
Practical skills to address the issue	17	65.4	12	52.2
A belief that you could address the issue	20	76.9	11	47.8
The knowledge of how to address the issue	18	69.2	11	47.8
Equipment, machinery and materials to address the issue	8	30.8	9	39.1
Good markets and income for your products	8	30.8	7	30.4
Good health so as to undertake the work	12	46.2	7	30.4
Access to credit and funds to undertake the work	7	26.9	7	30.4
A property able to support change	8	30.8	6	26.1
Favourable land and water conditions on your property	6	23.1	5	21.7
Time available to do the work	11	42.3	4	17.4
Support from friends and family	7	26.9	4	17.4
Favourable climate and seasonal conditions	8	30.8	3	13.0
People to help do the work	3	11.5	2	8.7
Support from neighbours or formal group	6	23.1	1	4.3
Support from businesses and contactors	3	11.5	0	0.0
Total landholders	26	100.0	23	100.0

Note: *Percentages based on landholders who had actively managed the decline in the diversity of native plants and animals on their property.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

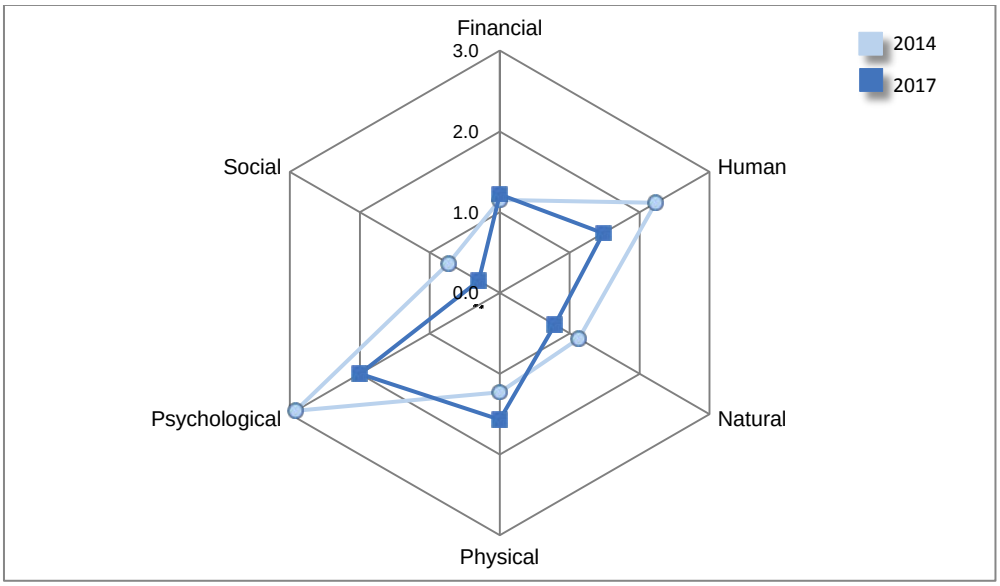
A summary of the capital resources available to manage the decline in the diversity of native plants and animals (Table 179 and Figure 40) shows landholders more likely to have the psychological and physical capital to address the issue but less likely to have the natural and social capital.

Table 179: resources available to manage the decline in the diversity of native plants and animals

Capital	2014		2017		Significant difference between means
	Mean score	Sample size	Mean score	Sample size	
Psychological	2.92	26	2.00	23	No
Physical	1.23	26	1.57	23	No
Human	2.23	26	1.48	23	No
Financial	1.15	26	1.22	23	No
Natural	1.13	26	0.79	23	No
Social	0.73	26	0.30	23	No

Note: *Means based on landholders who have actively managed the decline in diversity on their property in the last three years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each of the capitals has been scored.*
Source: *EBC (2017).*

Figure 40: resources available to manage the decline in the diversity of native plants and animals



Note: *Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available*
Source: *EBC (2017).*

Seventy-six percent of landholders indicated they had 'moderate' to 'very high' ability to address the decline in the diversity of native plants and animals on their property (Table 180).

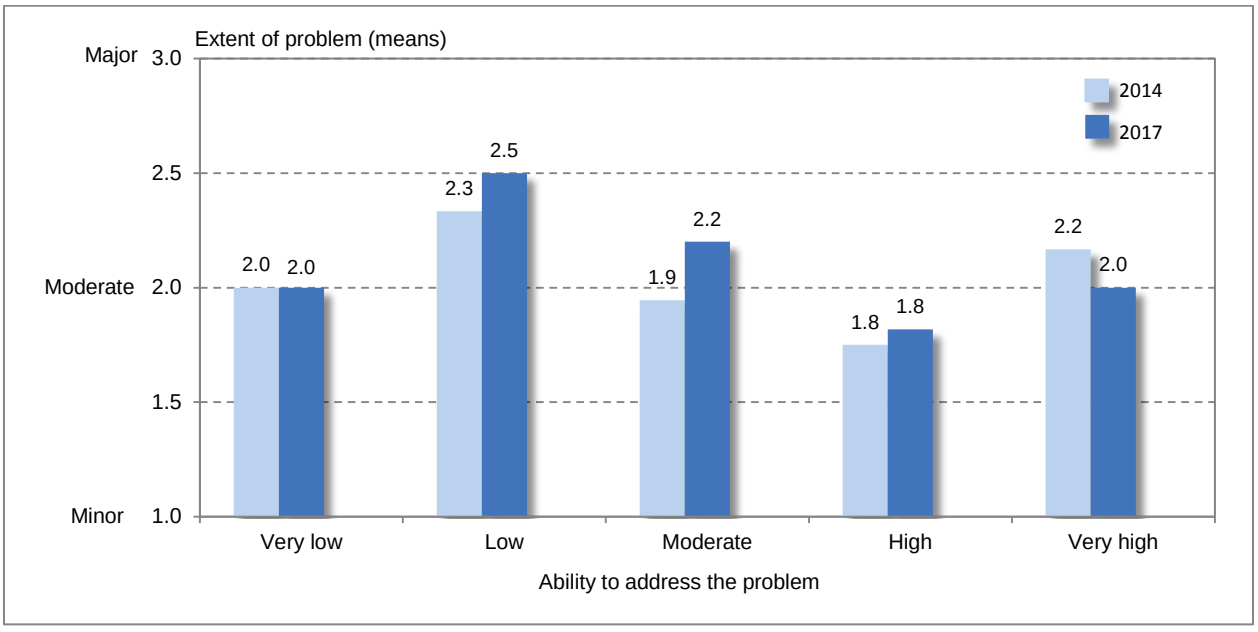
Table 180: “Would you say your ability to address this issue is…”

Ability to address issue	2014		2017	
	Count	Percent	Count	Percent
Very low (1)	8	14.0	3	7.9
Low	9	15.8	6	15.8
Moderate	22	38.6	13	34.2
High	11	19.3	14	36.8
Very high (5)	7	12.3	2	5.3
Total landholders	57	100.0	38	100.0
Mean score		3.0		3.16

Note: *Percentages based on landholders who reported a decline in diversity had been a problem on their property. There was no significant difference in means between survey years.*
Source: *EBC (2017).*

Unlike other natural resource management issues, Figure 41 does not show a strong relationship between the decline in the diversity of native plants and animals and landholder ability to address the issue. The majority of landholders with limited ability to address this issue also tend to report this issue as a moderate to major problem as do landholders with a high ability to address this issue.

Figure 41: extent of problem and ability to address the decline in the diversity of native plants and animals



Source: *EBC (2017).*

Three of the most common reasons for landholders reporting a low to moderate ability to address the decline in the diversity of native plants and animals (Table 181) were the 'seasonal and climatic' conditions (50%); the 'lack of money' (33%) and ‘regulations and legislation’ (33%)

Table 181: “Why do you say your ability to address this issue is low to moderate?”

	2014		2017	
Reasons	**Count**	**Percent**	**Count**	**Percent**
Seasons and climate	20	54.1	12	50.0
Lack of money	22	59.5	8	33.3
Regulations or legislation	16	43.2	8	33.3
Lack of labour and help	11	29.7	4	16.7
Lack of time	10	27.0	4	16.7
Don’t live on the property	5	13.5	4	16.7
Lack of machinery, equipment or materials	4	10.8	4	16.7
Lack of knowledge	4	10.8	2	8.4
Cannot be fixed	0	0.0	2	8.4
Topography of my land	6	16.2	1	4.2
Too old	5	13.5	1	4.2
No help or support from neighbours	1	2.7	1	4.2
Poor land condition	4	10.8	0	0.0
No need to address issue	2	5.4	0	0.0
My poor health	1	2.7	0	0.0
Other reasons *(frequency of one)*	4	10.8	5	20.8
Total landholders	37	100.0	24	100.0

Note: *Based on those landholders who reported their ability to address the decline in diversity was very low, low or moderate.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Access to water for agricultural purposes

Thirty-nine percent of landholders reported that during the time they had been on the property access to water for agricultural purposes had been a problem (Table 182). This was significantly lower than the 51% of landholders who reported access to water was a problem in 2014.

Table 182: "During the time you have been on your property has the access to water for agricultural purposes ever been a problem?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	223	51.4	212	39.3
No	211	48.7	328	60.7
Total landholders	433	100.0	540	100.0

Note: *There was a significant difference in percentages between survey years.*
Source: *EBC (2017).*

Of those landholders who reported a problem with access to water, 32% reported it as a minor problem and 33% reported it as a major problem (Table 183).

Table 183: "In your opinion, would you say your access to water for agricultural purposes is a…."

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Minor problem (1)	66	31.0	64	31.5
Moderate problem	80	37.6	72	35.5
Major problem (3)	67	31.5	67	33.0
Total landholders	213	100.0	203	100.0
Mean score		2.00		2.01

Note: *Percentages based on landholders who reported access to water for agricultural purposes had been a problem on their property. There was no significant difference in means between survey periods.*
Source: *EBC (2017).*

Management of access to water for agricultural purposes

Seventy-one percent of landholders who reported a problem with access to water indicated they had actively tried to manage this problem in the last three years (Table 184).

Table 184: "In the last 3 years have you done anything to address access to water on your property?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	149	69.3	148	71.2
No	66	30.7	60	28.8
Total landholders	215	100.0	208	100.0

Note: *Percentages based on landholders who reported access to water for agricultural purposes had been a problem on their property. There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Of those landholders reporting a problem with access to water, 66% indicated they had been successful in managing the problem (Table 185).

Table 185: “Were you able to successfully address the access to water on your property?”

Response	2014		2017	
	Count	Percent	Count	Percent
Yes	142	67.0	139	66.2
No	70	33.0	71	33.8
Total landholders	212	100.0	210	100.0

Note: *Percentages based on landholders who reported access to water for agricultural purposes had been a problem on their property. There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

The most common action undertake by landholders to address problems with access to water (Table 186) was to install water infrastructure, including pipes, dams, bores, pumps and tanks (72%).

Table 186: “What was the main thing you did to successfully address access to water?"

Response	2014		2017	
	Count	Percent	Count	Percent
Installed water infrastructure (pipes, dams, bores, pumps, tanks)	113	85.6	96	71.6
Cleaned or maintained water infrastructure	19	14.4	28	20.9
Purchased water	13	9.8	5	3.7
Carted water	6	4.5	3	2.2
Destocked areas	4	3.0	5	3.7
It rained	2	1.5	4	3.0
Other *(frequency of one)*	12	9.1	14	10.4
Total landholders	98	100.0	134	100.0

Note: *Percentages based on landholders who reported access to water for agricultural purposes had been a problem on their property. This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

Capacity to manage access to water

Table 187 shows that knowledge of how to address the issue (65%), equipment, machinery and materials (58%), and practical skills (54%), were resources most landholders had available to manage access to water. On the other hand, fewer landholders had support from neighbours or formal groups (10%); support from businesses and contractors (18%) and support from friends and family (20%).

Table 187: "In managing access to water on your property do you currently have…?"

Resources	2014		2017	
	Count	Percent	Count	Percent
The knowledge of how to address the issue	92	65.7	89	65.0
Equipment, machinery and materials to address the issue	74	52.9	80	58.4
Practical skills to address the issue	86	61.4	74	54.0
A belief that you could address the issue	79	56.4	62	45.3
Access to credit and funds to undertake the work	63	45.0	56	40.9
Optimism about addressing the issue	62	44.3	50	36.5
A property able to support change	45	32.1	41	29.9
Good health so as to undertake the work	41	29.3	39	28.5
Time available to do the work	35	25.0	31	22.6
People to help do the work	32	22.9	31	22.6
Good markets and income for your products	23	16.4	30	21.9
Favourable climate and seasonal conditions	24	17.1	30	21.9
Favourable land and water conditions on your property	25	17.9	28	20.4
Support from friends and family	31	22.1	27	19.7
Support from businesses and contactors	26	18.6	24	17.5
Support from neighbours or formal group	14	10.0	13	9.5
Total landholders	140	100.0	137	100.0

Note: *Percentages based on landholders who actively managed access to water for agricultural purposes on their property.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included
Source: *EBC (2017).*

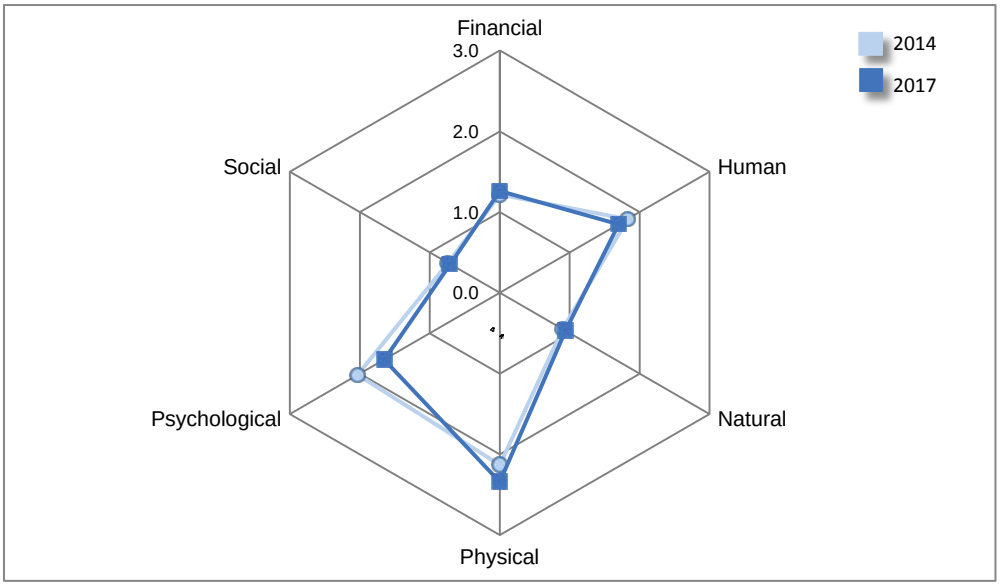
A summary of the capital resources available to manage access to water (Table 188 and Figure 42) shows landholders were more likely to have the physical and human capital to address the issue, but less likely to have the natural and social capital.

Table 188: resources available to manage access to water

Capital	2014		2017		Significant difference between means
	Mean score	Sample size	Mean score	Sample size	
Physical	2.13	139	2.34	137	No
Human	1.83	139	1.70	137	No
Psychological	2.03	139	1.65	137	No
Financial	1.22	139	1.26	137	No
Natural	0.90	139	0.94	137	No
Social	0.74	139	0.71	137	No

Note: *Means based on landholders who actively managed access to water for agricultural purposes on their property.*
Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources).
The methodology section of this report provides a discussion of how each f the capitals have been scored.
Source: *EBC (2017).*

Figure 42: resources available to manage access to water for agricultural purposes



Note: *Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available*
Source: *EBC (2017).*

Seventy-nine percent of landholders indicated they had 'moderate' to 'very high' ability to address access to water for agricultural purposes on their property (Table 189).

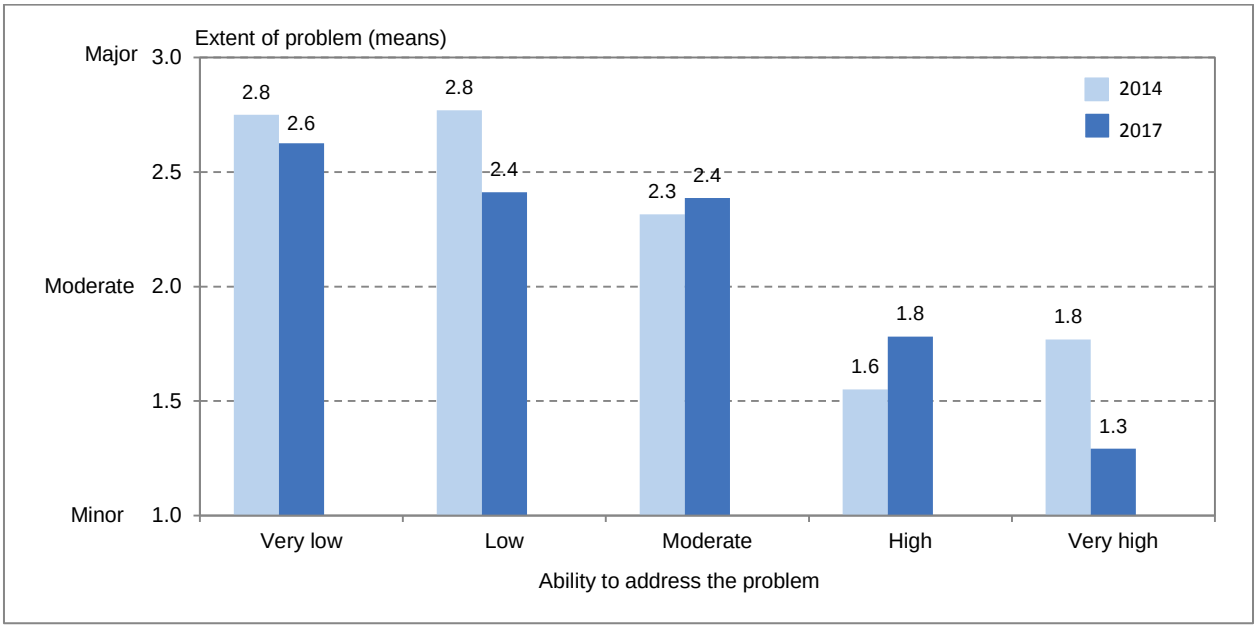
Table 189: "Would you say your ability to address this issue is…"

	2014		2017	
Ability to address issue	**Count**	**Percent**	**Count**	**Percent**
Very low (1)	19	9.0	19	9.2
Low	20	9.5	24	11.7
Moderate	53	25.1	47	22.8
High	81	38.4	80	38.8
Very high (5)	38	18.0	36	17.5
Total landholders	211	100.0	206	100.0
Mean score		3.47		3.44

Note: *Percentages based on landholders who reported access to water for agricultural purposes was a problem on their property. There was no significant difference in means between survey years.*
Source: *EBC (2017).*

Figure 43 shows a clear relationship between the problem of accessing water and landholder ability to address the issue. In this instance, the majority of landholders with limited ability to address access to water also tend to report access to water as a major problem; while the majority of landholders with the ability to address access to water reported this issue as minor or moderate problem.

Figure 43: extent of problem and ability to address access to water for agricultural purposes



Source: *EBC (2017).*

Three of the most common reasons for landholders reporting a low to moderate ability to access water on their property (Table 190) were the 'lack of money' (45%), 'seasonal and climatic' conditions (45%) and ‘regulations or legislation’ (45%).

Table 190: “Why do you say your ability to address this issue is low to moderate?”

	2014		2017	
Reasons	**Count**	**Percent**	**Count**	**Percent**
Lack of money	46	52.3	39	45.3
Seasons and climate	42	47.7	39	45.3
Regulations or legislation	38	43.2	39	45.3
Lack of machinery, equipment or materials	20	22.7	16	18.6
Lack of labour and help	12	13.6	15	17.4
Lack of time	12	13.6	11	12.8
Don’t live on the property	7	8.0	10	11.6
Topography of my land	8	9.1	8	9.3
Too old	3	3.4	6	7.0
My poor health	1	1.1	4	4.7
No help or support from neighbours	2	2.3	3	3.5
Poor land condition	7	8.0	2	2.3
No need to address issue	3	3.4	2	2.3
Lack of knowledge	3	3.4	2	2.3
Cannot be fixed	3	3.4	1	1.2
Other reasons *(frequency of one)*	4	4.5	3	3.5
Total landholders	88	100.0	86	100.0

Note: *Based on landholders who reported their ability to address access to water for agricultural; purposes was very low, low or moderate*
There was no significant difference in means between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Total grazing pressure

Total grazing pressure was identified as including the "grazing of domestic, feral and native animals, i.e., goats, rabbits and kangaroos" (Appendix A).

Forty-seven percent of landholders reported that during the time they had been on their property, total grazing pressure had been a problem (Table 191).

Table 191: “During the time you have been on your property has total grazing pressure ever been a problem?”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	219	50.6	253	46.9
No	214	49.4	287	53.1
Total landholders	433	100.0	540	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Of those landholders who reported a problem with total grazing pressure, 25% reported it as a minor problem and 32% reported it as a major problem (Table 192).

Table 192: “In your opinion, would you say total grazing pressure on your property is a….”

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Minor problem (1)	64	30.2	61	24.6
Moderate problem	103	48.6	107	43.1
Major problem (3)	45	21.2	80	32.3
Total landholders	212	100.0	248	100.0
Mean score		1.91		2.08

Note: *Percentages based on landholders who reported total grazing pressure was or had been a problem on their property.*
There was no significant difference in means and percentages between survey periods.
Source: *EBC (2017).*

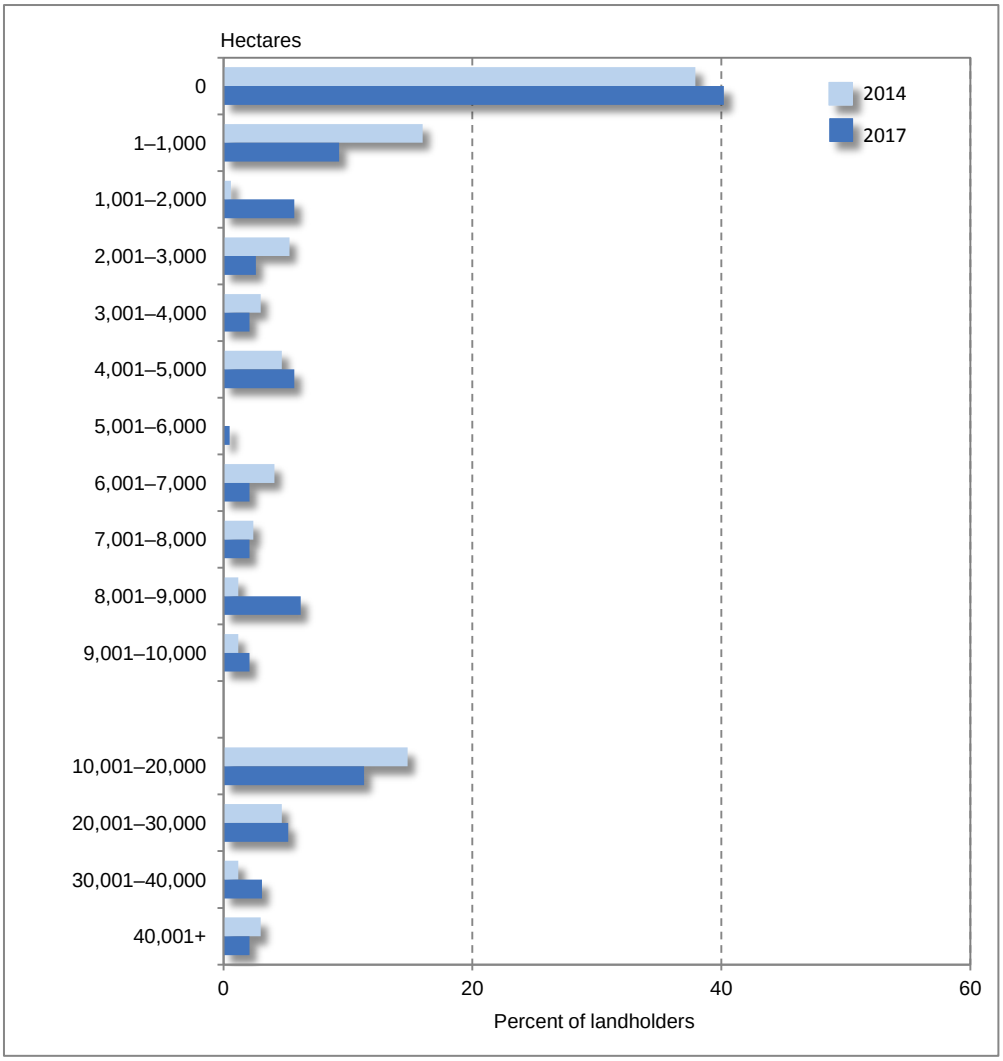
Table 193 and Figure 44 indicates that an average of 1,042 hectares of properties in which total grazing pressure was a problem were fenced for the purpose of managing the impact of feral or native grazing animals.

Table 193: "What area of your property is fenced for the purpose of managing the impact of feral or native grazing animals?"

	2014			2017		
Hectares	**Count**	**Percent**	**Cumulative Percent**	**Count**	**Percent**	**Cumulative Percent**
0	64	37.9	37.9	78	40.2	40.2
1 – 1,000	27	16.0	53.8	18	9.3	49.5
1,001 – 2,000	1	0.6	54.4	11	5.7	55.2
2,001 – 3,000	9	5.3	59.8	5	2.6	57.7
3,001 – 4,000	5	3.0	62.7	4	2.1	59.8
4,001 – 5,000	8	4.7	67.5	11	5.7	65.5
5,001 – 6,000	0	0.0	67.5	1	0.5	66.0
6,001 – 7,000	7	4.1	71.6	4	2.1	68.0
7,001 – 8,000	4	2.4	74.0	4	2.1	70.1
8,001 – 9,000	2	1.2	75.1	12	6.2	76.3
9,001 – 10,000	2	1.2	76.3	4	2.1	78.4
10,001 – 20,000	25	14.8	91.1	22	11.3	89.7
20,001 – 30,000	8	4.7	95.9	10	5.2	94.8
30,001 – 40,000	2	1.2	97.0	6	3.1	97.9
40,001 +	5	3.0	100.0	4	2.1	100.0
Total landholders	169	100.0		194	100.0	100.0
Median hectares			607			1,042

Note: *Percentages based on landholders who reported total grazing pressure was or had been a problem on their property. There was no significant difference in medians between survey years.*
Source: *EBC (2017).*

Figure 44: area of property fenced for the purpose of managing the impact of feral or native grazing animals



Source: *EBC (2017).*

While Table 193 indicates that an average of 1,042 hectares were fenced for the purpose of managing total grazing pressure, this represented an average of 7% of the area of properties (Table 194).

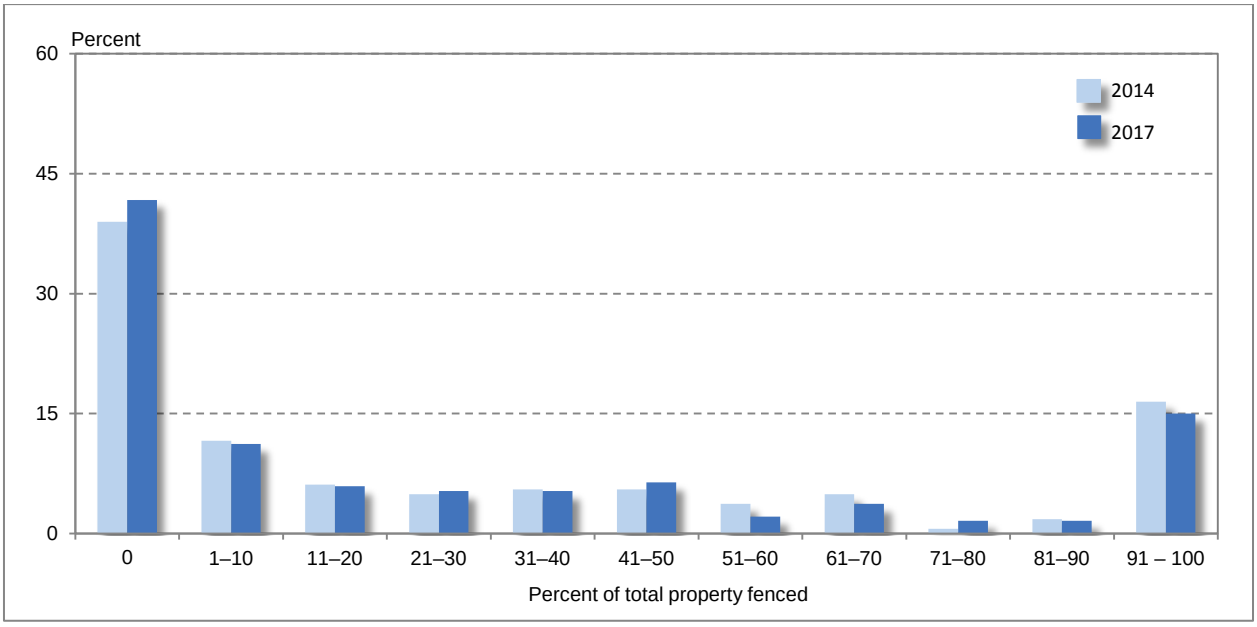
However, Figure 45 indicates that the percentage of the area of properties fenced for the purpose of managing total grazing pressure was bimodal - that is either none (42%) or between 91-100 percent (15%) of properties was fenced.

Table 194: percent of total property fenced for the purpose of managing the impact of feral or native grazing animals

	2014			2017		
Hectares	Count	Percent	Cumulative Percent	Count	Percent	Cumulative Percent
0	64	39.0	39.0	78	41.7	41.7
1 – 10	19	11.6	50.6	21	11.2	52.9
11 – 20	10	6.1	56.7	11	5.9	58.8
21 – 30	8	4.9	61.6	10	5.3	64.2
31 – 40	9	5.5	67.1	10	5.3	69.5
41 – 50	9	5.5	72.6	12	6.4	75.9
51 – 60	6	3.7	76.2	4	2.1	78.1
61 – 70	8	4.9	81.1	7	3.7	81.8
71 – 80	1	0.6	81.7	3	1.6	83.4
81 – 90	3	1.8	83.5	3	1.6	85.0
91 – 100	27	16.5	100.0	28	15.0	100.0
Total landholders	164	100.0		194	100.0	
Median percent			10.0			7.2

Note: *Percentages based on landholders who reported total grazing pressure was or had been a problem on their property. There was no significant difference in medians between survey years.*
Source: *EBC (2017).*

Figure 45: percent of total property fenced for the purpose of managing the impact of feral or native grazing animals



Source: *EBC (2017).*

Management of total grazing pressure

Seventy-seven percent of landholders who reported a problem with total grazing pressure indicated they had actively tried to manage this problem in the last three years (Table 195).

Table 195: "In the last 3 years have you actively managed total grazing pressure on your property?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	180	82.9	191	77.0
No	37	17.1	57	23.0
Total landholders	217	100.0	248	100.0

Note: Percentages based on landholders who reported total grazing pressure was or had been a problem on their property. There was no significant difference in percentages between survey years.
Source: EBC (2017).

Table 196 indicates that 85% of landholders in managing their total grazing pressure tried to restrict the grazing of feral and native animals.

Table 196: "In managing your total grazing pressure do you try to restrict the grazing of feral and native animals?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	181	83.4	207	84.5
No	36	16.6	38	15.5
Total landholders	217	100.0	245	100.0

Note: Percentages based on landholders who reported total grazing pressure was or had been a problem on their property. There was no significant difference in percentages between survey years.
Source: EBC (2017).

Of those landholders reporting a problem with total grazing pressure, 64% indicated they had been successful in managing the problem (Table 197).

However, the percentage of landholders who reported they were successful in managing total grazing pressure (64%) was significantly lower that the percentage reporting success in 2014 (Table 197).

Table 197: "Were you able to successfully address total grazing pressure on your property?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	182	83.1	161	64.1
No	37	16.9	90	35.9
Total landholders	219	100.0	251	100.0

Note: Percentages based on landholders who reported total grazing pressure was or had been a problem on their property. There was a significant difference in percentages between survey years.
Source: EBC (2017).

The most common methods used to address total grazing pressure (Table 198) were destocking (46%) and the control of feral animals (38%).

Table 198: "What was the main thing you did to successfully manage total grazing pressure?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Destocking livestock	54	38.8	71	46.1
Control feral animals	73	52.5	58	37.7
Fencing and TGP fencing	33	23.7	40	26.0
Controlled kangaroos	5	3.6	14	9.1
Supplementary feeding	7	5.0	11	7.1
Control watering points	20	14.4	10	6.5
Grazing management (general)	7	5.0	5	3.2
Rotational grazing	7	5.0	3	1.9
Climate improved or rained	5	3.6	3	1.9
Spread stock over large area	3	2.2	0	0.0
Move stock regularly	2	1.4	0	0.0
Spell paddocks	2	1.4	0	0.0
Other *(frequency of one)*	3	2.2	4	2.6
Total landholders	139	100.0	154	100.0

Note: *Percentages based on landholders who reported total grazing pressure was or had been a problem on their property.*
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Capacity to manage total grazing pressure

Table 199 shows that practical skills (73%), knowledge of how to address the issue (68%) and a belief that they could address the issue (61%), were resources most landholders had available to manage total grazing pressure. On the other hand, fewer landholders had support from businesses and contractors (12%) and support from neighbours or formal groups (12%).

Table 199: "In managing total grazing pressure on your property do you currently have…?

	2014		2017	
Resources	**Count**	**Percent**	**Count**	**Percent**
Practical skills to address the issue	102	71.3	120	72.7
The knowledge of how to address the issue	96	67.1	112	67.9
A belief that you could address the issue	97	67.8	101	61.2
Equipment, machinery and materials to address the issue	59	41.3	84	50.9
Optimism about addressing the issue	64	44.8	77	46.7
Good markets and income for your products	44	30.8	71	43.0
Good health so as to undertake the work	42	29.4	61	37.0
Access to credit and funds to undertake the work	*31*	*21.7*	*60*	*36.4*
A property able to support change	41	28.7	58	35.2
Favourable climate and seasonal conditions	24	16.8	45	27.3
People to help do the work	26	18.2	45	27.3
Time available to do the work	36	25.2	44	26.7
Support from friends and family	35	24.5	35	24.2
Favourable land and water conditions on your property	32	22.4	38	23.0
Support from neighbours or formal group	21	14.7	20	12.1
Support from businesses and contactors	12	8.4	20	12.1
Total landholders	143	100.0	165	100.0

Note: *Percentages based on landholders who have actively managed total grazing pressure on their property in the last three years.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

A summary of the capital resources available to manage total grazing pressure (Table 200 and Figure 46) shows landholders had the psychological capacity (optimisms and a belief they could address the issue) to address the issue, but limited natural and social capital.

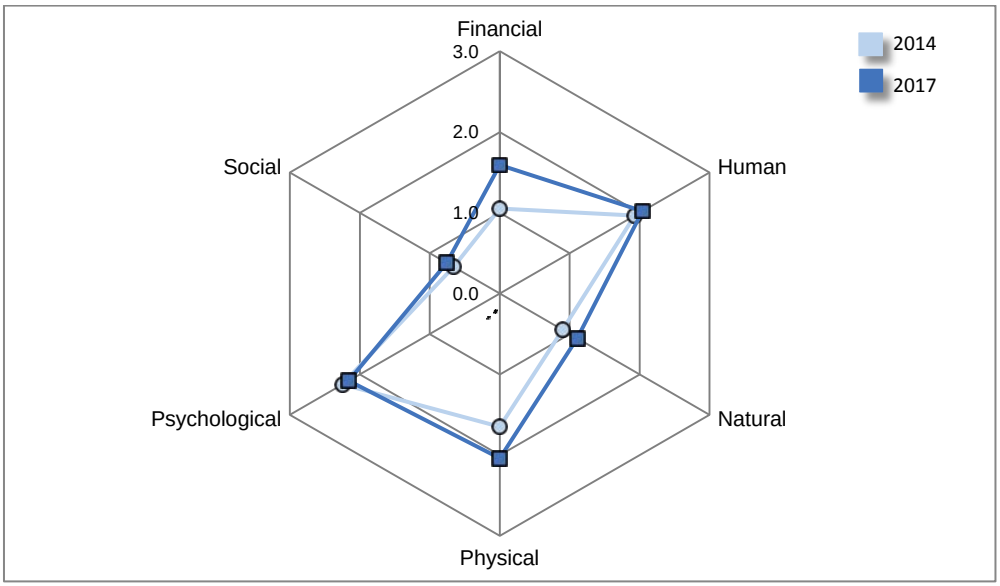
In addition, Table 200 shows a significant increase in the availability of financial capital to address total grazing pressure between 2014 and 2017.

Table 200: resources available to manage total grazing pressure

Capital	2014		2017		Significant difference between means
	Mean score	Sample size	Mean score	Sample size	
Psychological	2.25	143	2.16	165	No
Human	1.93	143	2.04	165	No
Physical	1.65	143	2.04	165	No
Financial	1.05	143	1.59	165	Yes
Natural	0.90	143	1.11	165	No
Social	0.66	143	0.76	165	No

Note: Means based on landholders who have actively managed total grazing pressure on their property in the last three years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each f the capitals have been scored.
Source: EBC (2017).

Figure 46: resources available to manage total grazing pressure



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available
Source: EBC (2017).

Seventy-two percent of landholders indicated they had 'moderate' to 'very high' ability to address total grazing pressure (Table 201).

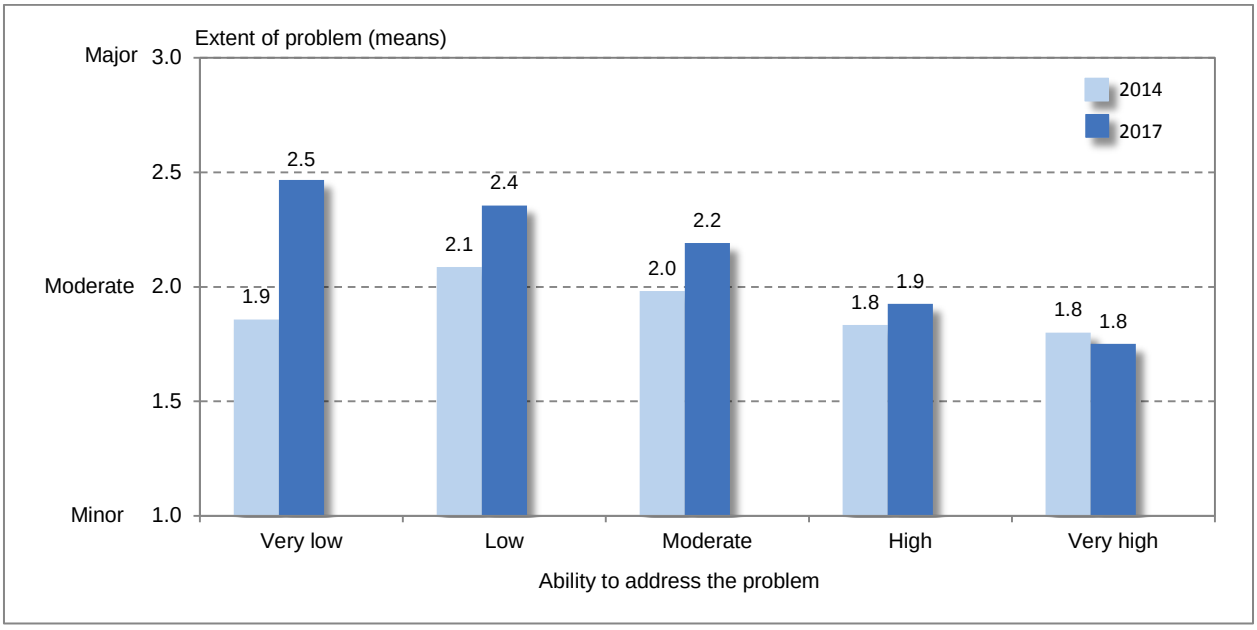
Table 201: "Would you say your ability to address this issue is…"

Ability to address issue	2014		2017	
	Count	Percent	Count	Percent
Very low (1)	20	9.2	23	9.4
Low	49	22.6	45	18.4
Moderate	66	30.4	78	32.0
High	57	26.3	77	31.6
Very high (5)	25	11.5	21	8.6
Very low (1)	217	100.0	244	100.0
Mean score		3.08		3.11

Note: *Percentages based on landholders who reported total grazing pressure was or had been a problem on their property. There was no significant difference in means between survey years.*
Source: *EBC (2017).*

Figure 47 shows a strong relationship between total grazing pressure and landholder ability to address the issue. The majority of landholders with limited ability to address this issue also tend to report this issue as a moderate to major issue, while landholders with a high ability to address this issue are more likely to report the issue as a minor to moderate issue.

Figure 47: extent of problem and ability to address total grazing pressure



Source: *EBC (2017).*

Three of the most common reasons for landholders reporting a low to moderate ability manage total grazing pressure (Table 202) were the 'lack of money' (49%), ‘regulations or legislation’ (45%) and 'seasonal and climatic' conditions (29%).

Table 202: “Why do you say your ability to address this issue is low to moderate?”

	2014		2017	
Reasons	**Count**	**Percent**	**Count**	**Percent**
Lack of money	81	61.4	63	48.5
Regulations or legislation	45	34.1	58	44.6
Seasons and climate	51	38.6	37	28.5
Lack of labour and help	36	27.3	28	21.5
Lack of time	43	32.6	27	20.8
Lack of machinery, equipment or materials	20	15.2	20	15.4
No help or support from neighbours	9	6.8	17	13.1
Topography of my land	16	12.1	13	10.0
Don’t live on the property	12	9.1	13	10.0
Cannot be fixed	5	3.8	13	10.0
Too old	9	6.8	8	6.2
Lack of knowledge	3	2.3	6	4.6
No need to address issue	6	4.5	5	3.8
Poor land condition	5	3.8	4	3.1
My poor health	3	2.3	2	1.5
Other reasons *(frequency of one)*	8	6.1	9	6.9
Total landholders	132	100.0	130	100.0

Note: *Based on those landholders who reported their ability to address total grazing pressure was very low, low or moderate.*
There was no significant difference in percentages between survey years.
This is a multiple response table in which a respondent may be included in multiple rows.
Source: *EBC (2017).*

Natural resource management issues

This chapter provides a summary and comparison of findings in relation to all natural resource management issues.

During the time landholders had been on their properties, Table 203 and Figure 48 show that 'other animals' (84%), invasive native scrub (59%) and low groundcover (50%) were problems experienced by the majority of landholders.

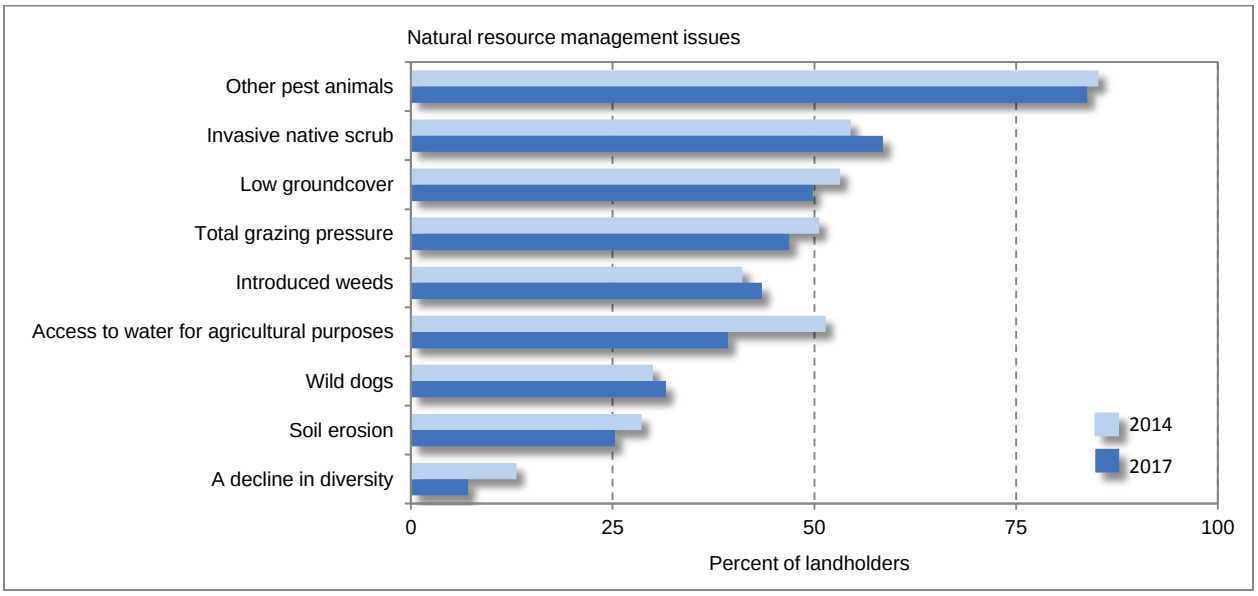
Relative to 2014 significantly fewer landholders reported access to water for agricultural purposes and the decline in the diversity of native plants and animals as problems on their property.

Table 203: “During the time you have been on your property has the *[NRM issue]* ever been a problem?”

	2014		2017	
NRM Issue	**Count**	**Percent**	**Count**	**Percent**
Other animals	375	85.2	451	83.8
Invasive native scrub	237	54.5	319	58.5
Low groundcover	232	53.2	271	49.8
Total grazing pressure	219	50.6	253	46.9
Introduced weeds	179	41.1	236	43.5
Access to water for agricultural purposes	*223*	*51.4*	*212*	*39.3*
Wild dogs	131	30.0	171	31.6
Soil erosion*	125	28.6	138	25.3
A decline in the diversity of native plants and animals	*57*	*13.1*	*38*	*7.1*

Note: *This is a multiple response table in which a respondent may be included in multiple rows.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
**In the 2017 survey soil erosion included soil erosion to river banks which was included as a separate NRM issue in the 2014 survey*
Source: *EBC (2017).*

Figure 48: natural resource management issues on properties



Source: *EBC (2017).*

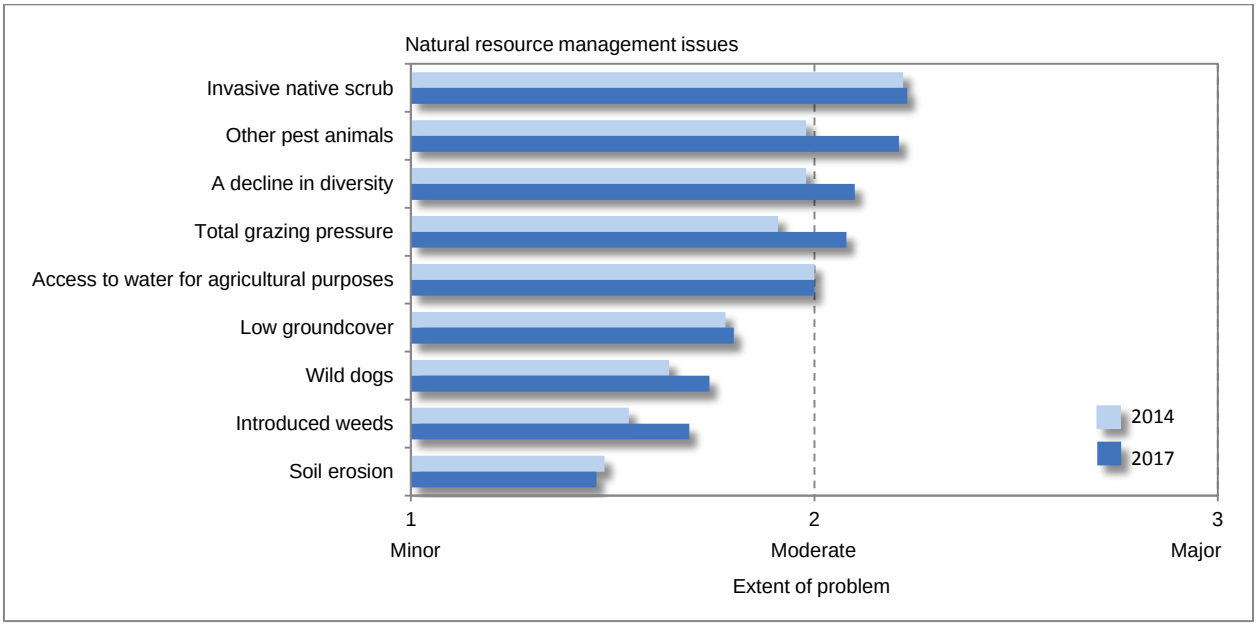
In terms of assessing the extent to which each issue was a problem; that is whether the natural resource management issue is a minor, moderate or major problem; Table 204 and Figure 49 show that invasive native scrub, 'other animals', a decline in the diversity of native plants and animals and total grazing pressure were natural resource management issues that were most problematic to landholders.

Table 204: "In your opinion, would you say the *[NRM issue]* on your property is a…."

NRM Issue	2014		2017		Significant difference between means
	Mean score	Sample count	Mean score	Sample count	
Invasive native scrub	2.22	235	2.23	316	No
Other animals	1.98	362	2.21	438	No
A decline in the diversity of native plants and animals	1.98	57	2.10	41	No
Total grazing pressure	1.91	212	2.08	248	No
Access to water for agricultural purposes	2.00	213	2.00	205	No
Low groundcover	1.78	223	1.80	266	No
Wild dogs	1.64	130	1.74	165	No
Introduced weeds	1.54	179	1.69	239	No
Soil erosion*	1.48	124	1.46	136	No

Note: *Means are based on scores for minor problem (1); moderate problem (2); major problem (3).*
**In the 2017 survey soil erosion included soil erosion to river banks which was included as a separate NRM issue in the 2014 survey*
Source: *EBC (2017).*

Figure 49: extent of natural resource management issues



Source: *EBC (2017).*

Management of natural resource management issues

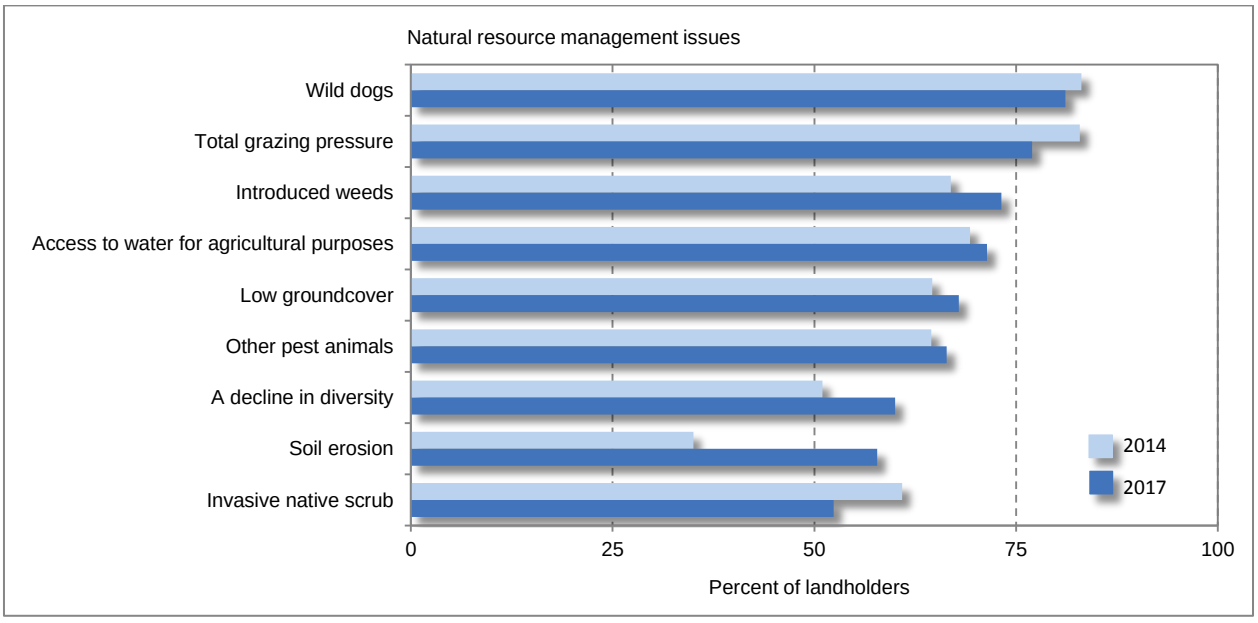
Table 205 shows that wild dogs and total grazing pressure were actively managed by over 75% of all landholders (Figure 50), with invasive native scrub having relatively fewer landholders actively managing the problem (52%).

Table 205: "In the last 3 years have you actively managed the *[NRM issue]* on your property?"

NRM Issue	2014		2017		Significant difference between means
	Count	Percent	Count	Percent	
Wild dogs	108	83.1	137	81.1	No
Total grazing pressure	180	82.9	191	77.0	No
Introduced weeds	119	66.9	172	73.2	No
Access to water for agricultural purposes	149	69.3	150	71.4	No
Low groundcover	146	64.6	178	67.9	No
Other animals	231	64.5	290	66.4	No
A decline in the diversity of native plants and animals	26	51.0	24	60.0	No
Soil erosion*	43	35.0	78	57.8	Yes
Invasive native scrub	137	60.9	167	52.4	No

Note: *Percentages indicate the number of landholders actively managing the NRM issue.*
**In the 2017 survey soil erosion included soil erosion to river banks which was included as a separate NRM issue in the 2014 survey*
Source: *EBC (2017).*

Figure 50: active management of issues in the last two years



Source: *EBC (2017).*

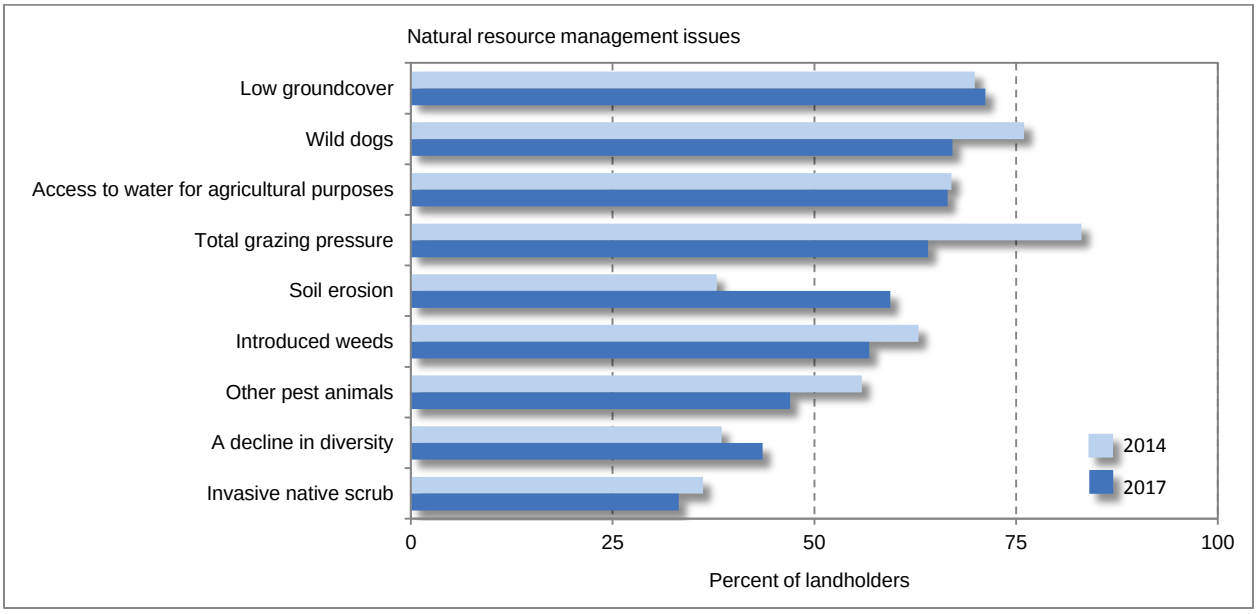
Table 206 and Figure 51 show that landholders were least successful in managing invasive native scrub (33%) and the decline in the diversity of native plants and animals (44%). Most success was achieved in the management of low groundcover (71%) and wild dogs (67%).

Table 206: "Were you able to successfully manage the *[NRM issue]*?"

NRM Issue	2014		2017		Significant difference between means
	Count	Percent	Count	Percent	
Low groundcover	156	69.9	190	71.2	No
Wild dogs	98	76.0	114	67.1	No
Access to water for agricultural purposes	142	67.0	141	66.5	No
Total grazing pressure	182	83.1	161	64.1	Yes
Soil erosion*	22	37.9	82	59.4	No
Introduced weeds	110	62.9	134	56.8	No
Other animals	203	55.9	210	47.0	Yes
A decline in the diversity of native plants and animals	20	38.5	17	43.6	No
Invasive native scrub	85	36.2	106	33.2	No

Note: *Percentages indicate the number of landholders who reported successfully managing the NRM issue.*
**In the 2017 survey soil erosion included soil erosion to river banks which was included as a separate NRM issue in the 2014 survey*
Source: *EBC (2017).*

Figure 51: success in addressing natural resource management issues



Source: *EBC (2017).*

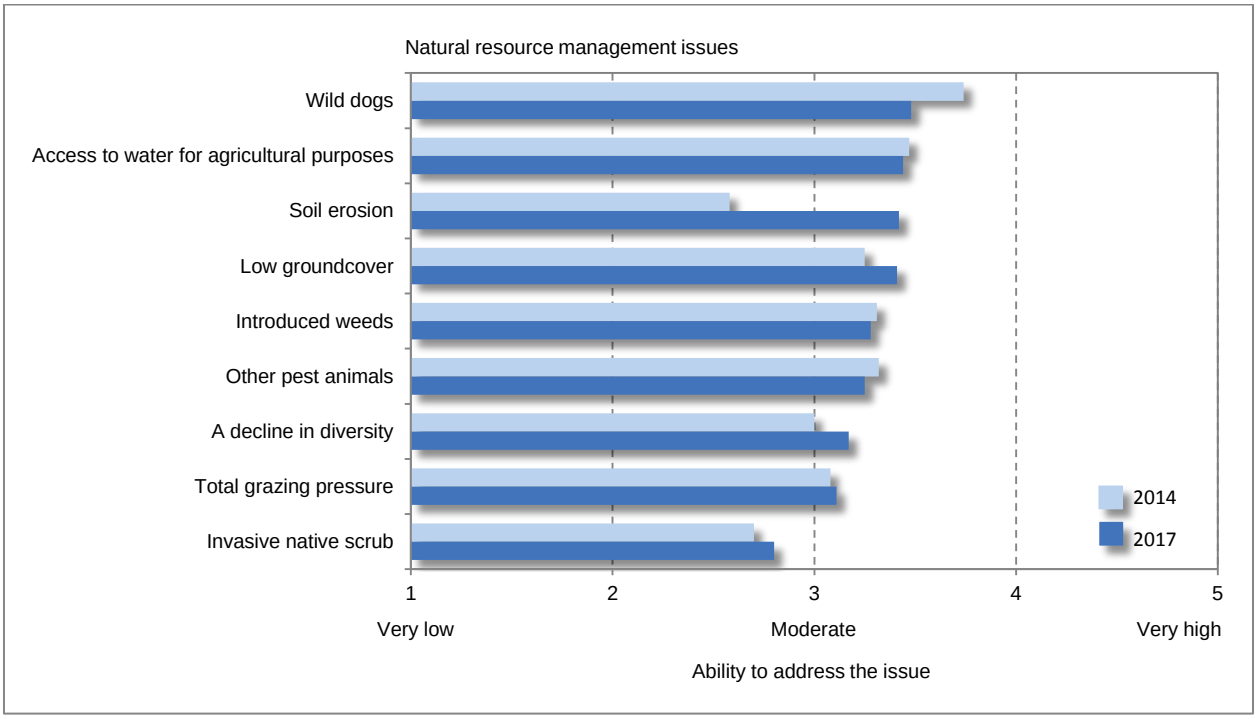
Table 207 and Figure 52 show landholders have the highest ability to address wild dogs and access to water for agricultural purposes. Conversely landholders have the least ability to address invasive native scrub and total grazing pressure.

Table 207: "Would you say your ability to address the *[NRM issue]* is…"

NRM Issue	2014		2017		Significant difference between means
	Mean score	Sample count	Mean score	Sample count	
Wild dogs	3.74	130	3.48	165	No
Access to water for agricultural purposes	3.47	211	3.44	206	No
Soil erosion*	2.58	57	3.42	135	No
Low groundcover	3.25	208	3.41	260	No
Introduced weeds	3.31	175	3.28	236	No
Other animals	3.32	361	3.25	436	No
A decline in the diversity of native plants and animals	3.00	57	3.17	41	No
Total grazing pressure	3.08	217	3.11	244	No
Invasive native scrub	2.70	233	2.80	313	No

Note: *Means are based on scores for very low (1); low (2); moderate (3); high (4) very high (5)*
**In the 2017 survey soil erosion included soil erosion to river banks which was included as a separate NRM issue in the 2014 survey*
Source: *EBC (2017).*

Figure 52: ability to address natural resource management issues



Source: *EBC (2017).*

Table 208 indicates that across all natural resource management issues the resources which most commonly constrain landholder ability to address issues are (i) the lack of money; (ii) seasonal and climatic conditions; (iii) the lack of labour and help. In contrast the belief that there was no need to address the issue and the health of the landholder were the factors least likely to constrain landholder ability to address each issue.

Table 208: "Why would you say your ability to address this issue is low to moderate?"

NRM issue (2014 Survey period)	Invasive native scrub	Introduced weeds	Ground cover	Soil erosion*	Wild dogs	'Other animals'	Decline in diversity	Access to water	Total grazing pressure
Lack of money									
Seasons and climate									
Lack of labour and help									
Lack of machinery, equipment or materials									
Regulations or legislation									
Lack of time									
Topography of my land									
Don't live on the property									
Too old									
Lack of knowledge									
Cannot be fixed									
Poor land condition									
No need to address issue									
No help or support from neighbours									
My poor health									
NRM issue (2017 Survey period)									
Lack of money									
Lack of labour and help									
Seasons and climate									
Regulations or legislation									
Lack of time									
Lack of machinery, equipment or materials									
Topography of my land									
Don't live on the property									
Too old									
No help or support from neighbours									
Lack of knowledge									
Cannot be fixed									
Poor land condition									
My poor health									
No need to address issue									

Note: *For each NRM issue, dark blue indicates the four most available resources available and red indicates the four least available resource.*
Source: *EBC (2017).*

Figure 53 summarises three core measures associated with landholder management of natural resource management issues.

The horizontal axis of Figure 53 describes the extent of the problem, with the axis describing each issue on a scale from a minor to a major problem. The vertical axis describes the ability of the landholder to address each issue and varies from low ability to high ability.

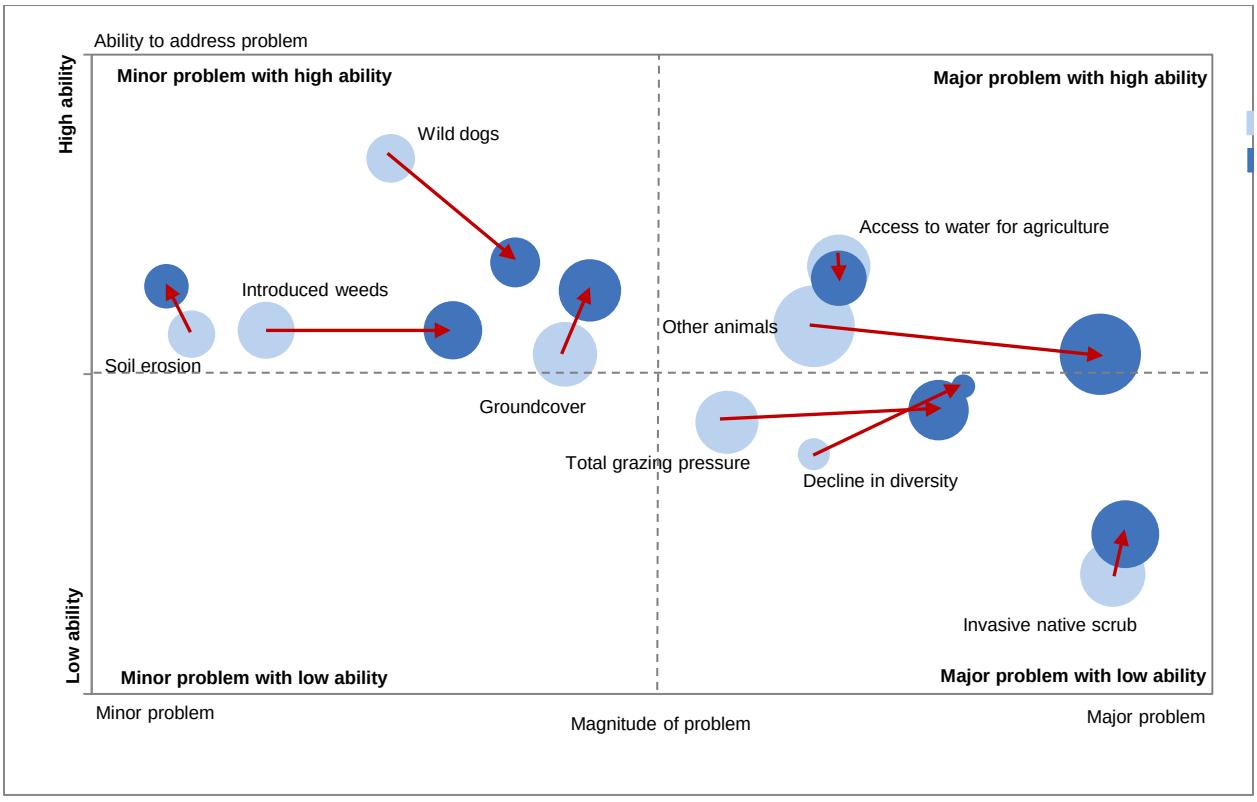
The circles representing each natural resource management issue are either light blue, representing the position in 2014, or dark blue, representing the position in 2017; with the arrows showing the direction of the change.

In addition, the size of the circle represents the prevalence of the issue amongst landholders. For instance, while the decline in the diversity of native plants and animals was seen as a relatively major problem and one in which landholders had relatively low ability to address the issue, it was not regarded as one of the most prevalent natural resource management issues amongst landholders.

On the other hand, total grazing pressure and invasive native scrub were not only relatively major problems, with landholders also having relatively low ability to address each issue; but each issue was a relatively prevalent problem amongst landholders.

The direction of change between 2014 and 2017 also shows that 'other animals', total grazing pressure, the decline in diversity, introduced weeds and wild dogs have become a relatively greater problem.

Figure 53: landholder ability, extent and prevalence of natural resource management issues



Source: *EBC (2017).*

Landholder capacity to address natural resource management issues

Overall Table 209 shows the resources most commonly available to landholders were (i) practical skills; (ii) knowledge of how to address the issue; (iii) a belief that they could address the issue; and (iv)equipment, machinery and materials to address the issue.

Resource least available to address natural resource management issues were (i) support from business and contractors; (ii) support from neighbours and formal groups and (iii) favourable climatic and seasonal conditions.

Table 209: "In managing *[NRM issue]* on your property do you currently have...."

NRM issue (2014 Survey period)	Invasive native scrub	Introduced weeds	Ground cover	Soil erosion	Wild dogs	'Other animals'	Decline in diversity	Access to water	Total grazing pressure
Practical skills to address the issue									
The knowledge of how to address the issue									
A belief that you could address the issue									
Equipment, machinery and materials									
Optimism about addressing issue									
Good health so as to undertake the work									
Time available to do the work									
Support from friends and family									
A property able to support change									
Access to credit and funds to do the work									
People to help do the work									
Favourable land and water conditions									
Good markets and income									
Support from neighbours or formal group									
Favourable climate and seasonal conditions									
Support from businesses and contactors									
NRM issue (2017 Survey period)									
Practical skills to address the issue									
The knowledge of how to address the issue									
A belief that you could address the issue									
Equipment, machinery and materials									
Optimism about addressing issue									
Good health so as to undertake the work									
A property able to support change									
Time available to do the work									
Access to credit and funds to do the work									
People to help do the work									
Support from friends and family									
Good markets and income									
Favourable land and water conditions									
Favourable climate and seasonal conditions									
Support from neighbours or formal group									
Support from businesses and contactors									

Note: *For each NRM issue, dark blue indicates the four most available resources available and red indicates the four least available resource.*
Source: *EBC (2017).*

Table 210 summarises each of the items shown in Table 209 into the six capitals, with Figure 54 showing the composite score across all six capitals for each natural resource management issue.

What is evident in relation to Table 210 is that in the 2014 and 2017 surveys it is the physical (equipment, machinery and materials); human (knowledge, skills and health) ; and psychological (optimism and a belief in ability to address the issue) resources which are most commonly available to landholders in addressing each of the natural resource management issues.

The resources least commonly available in addressing natural resource management issues are those resources associated with financial (income); natural (climate, seasons and property condition); and social (support from friends, neighbours, businesses) capital.

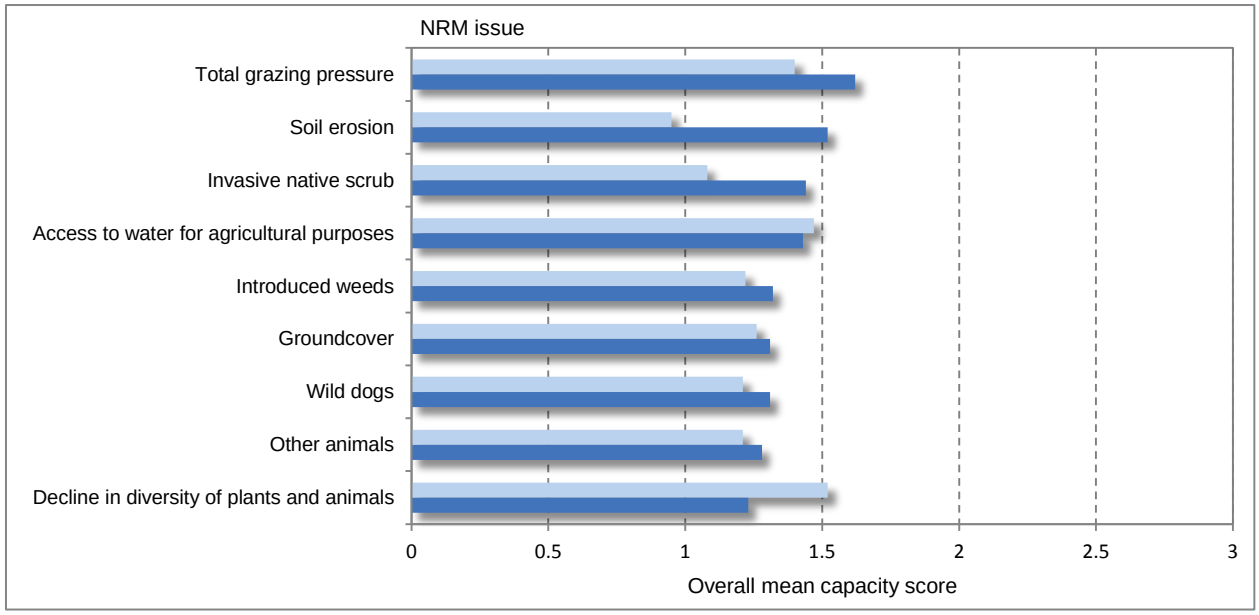
Table 210 also indicates that across all six capitals, capital resources available for soil erosion increased significantly between 2014 and 2017; and across all natural resource management issues there was a significant increase in the availability of financial capital between 2014 and 2017.

Table 210: resources to manage natural resource management issues

	2014 Survey period						
NRM issues	**Physical**	**Human**	**Psych**	**Financial**	**Natural**	**Social**	**Overall Mean**
Decline in diversity of plants and animals	1.23	2.23	2.92	1.15	1.13	0.73	**1.52**
Access to water for agricultural purposes	2.13	1.83	2.03	1.22	0.90	0.74	**1.47**
Total grazing pressure	1.65	1.93	2.25	1.05	0.90	0.66	**1.40**
Groundcover	2.07	1.67	1.50	0.78	1.11	0.45	**1.26**
Introduced weeds	2.46	1.83	1.63	0.63	0.51	0.47	**1.22**
Other animals	1.81	1.89	1.67	0.56	0.57	0.80	**1.21**
Wild dogs	1.28	1.94	1.73	0.68	0.54	1.09	**1.21**
Invasive native scrub	1.91	1.47	1.37	0.65	0.62	0.50	**1.08**
Soil erosion	2.29	2.02	2.19	0.52	0.89	0.50	***0.95***
Overall mean score	**1.83**	**1.72**	**1.63**	***0.73***	**0.66**	**0.63**	**1.20**
	2017 Survey period						
NRM issues	**Physical**	**Human**	**Psych**	**Financial**	**Natural**	**Social**	**Total**
Total grazing pressure	2.04	2.04	2.16	1.59	1.11	0.76	**1.62**
Soil erosion	2.81	1.92	2.30	0.81	0.77	0.49	***1.52***
Invasive native scrub	2.44	1.85	1.62	1.04	0.88	0.77	**1.44**
Access to water for agricultural purposes	2.34	1.70	1.65	1.26	0.94	0.71	**1.43**
Introduced weeds	2.44	1.78	1.63	0.92	0.57	0.58	**1.32**
Groundcover	1.59	1.77	1.70	1.04	1.25	0.52	**1.31**
Wild dogs	1.65	1.91	1.81	0.84	0.50	1.16	**1.31**
Other animals	1.63	1.88	1.67	0.89	0.65	0.97	**1.28**
Decline in diversity of plants and animals	1.57	1.48	2.00	1.22	0.79	0.30	**1.23**
Overall mean score	**1.86**	**1.74**	**1.61**	***0.96***	**0.78**	**0.73**	**1.28**

Note: *Means based on landholders who had actively managed an NRM issue on their property in the last three years.*
Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources)
Overall score is the sum across each of the six capital scores
The methodology section of this report provides a discussion of how each f the capitals have been scored.
Source: *EBC (2017).*

Figure 54: capacity to manage natural resource management issues



Source: *EBC (2017).*

Cultural heritage and property management

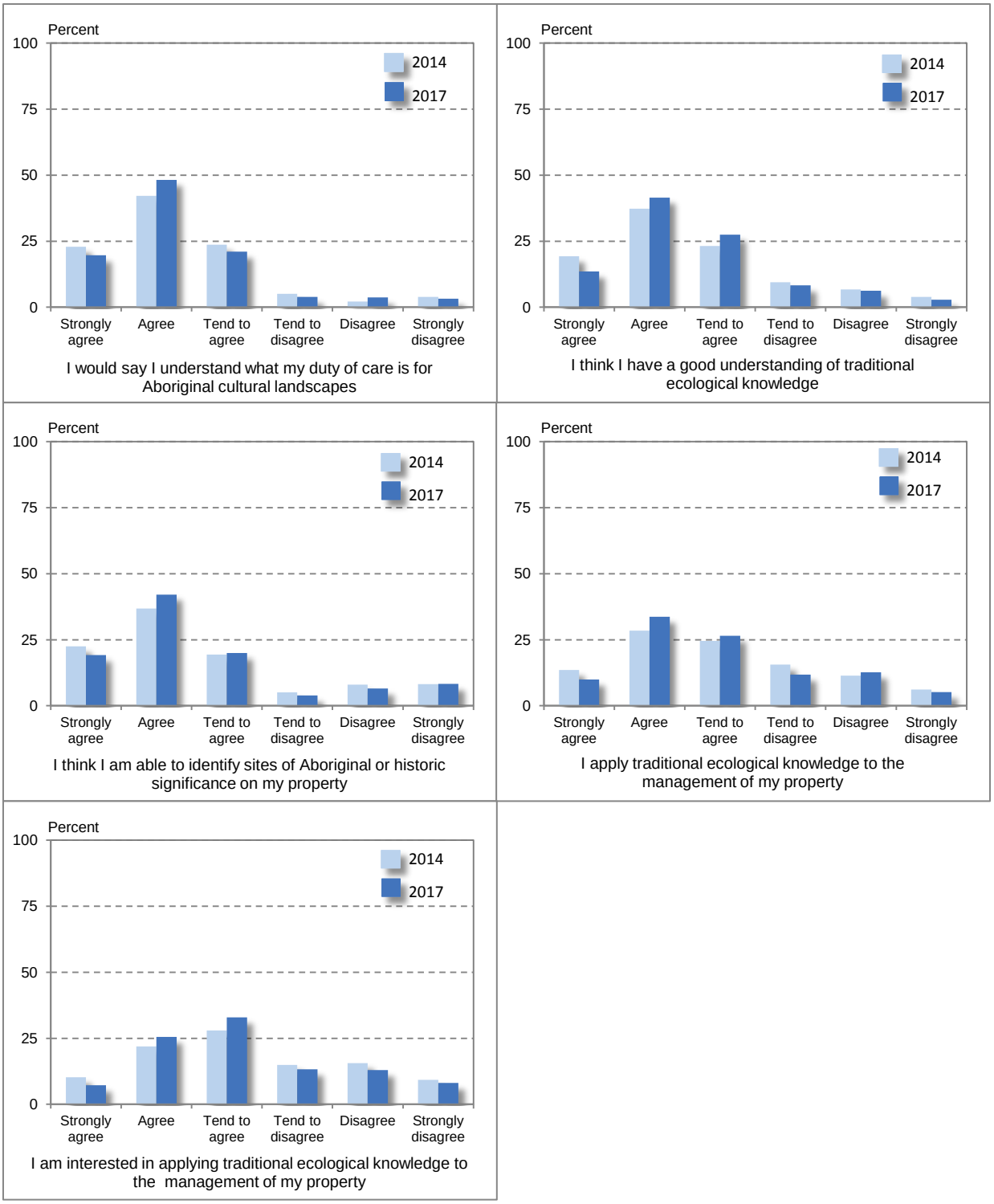
The majority of landholders indicated they understood their duty of care towards Aboriginal cultural landscapes; believed they had a good understanding of traditional ecological knowledge; and could identify sites of Aboriginal or historic significance on their property (Table 211 and Figure 55). The majority of landholders also indicated they applied or were interested in applying traditional ecological knowledge to the management of their property.

Table 211: "Would you say your ability to address this issue is…" *(statements ordered from highest to lowest agreement)*

	2014		2017	
Belief statement	**Count**	**Percent**	**Count**	**Percent**
I would say I understand what my duty of care is for Aboriginal cultural landscapes				
Strongly agree (1)	94	22.9	101	19.7
Agree	173	42.2	247	48.2
Tend to agree	97	23.7	108	21.1
Tend to disagree	21	5.1	20	3.9
Disagree	9	2.2	19	3.7
Strongly disagree (6)	16	3.9	17	3.3
Total landholders	410	100.0	512	100.0
Mean score		**2.33**		**2.33**
I think I have a good understanding of traditional ecological knowledge				
Strongly agree (1)	79	19.3	69	13.6
Agree	153	37.3	211	41.5
Tend to agree	95	23.2	140	27.5
Tend to disagree	39	9.5	42	8.3
Disagree	28	6.8	32	6.3
Strongly disagree (6)	16	3.9	15	2.9
Total landholders	410	100.0	509	100.0
Mean score		**2.59**		**2.61**
I think I am able to identify sites of Aboriginal or historic significance on my property				
Strongly agree (1)	93	22.5	99	19.2
Agree	152	36.8	217	42.1
Tend to agree	80	19.4	103	20.0
Tend to disagree	21	5.1	20	3.9
Disagree	33	8.0	34	6.6
Strongly disagree (6)	34	8.2	43	8.3
Total landholders	413	100.0	516	100.0
Mean score		**2.64**		**2.62**
I apply traditional ecological knowledge to the management of my property				
Strongly agree (1)	55	13.6	50	10.0
Agree	115	28.5	168	33.7
Tend to agree	99	24.6	132	26.5
Tend to disagree	63	15.6	59	11.8
Disagree	46	11.4	63	12.7
Strongly disagree (6)	25	6.2	26	5.2
Total landholders	403	100.0	498	100.0
Mean score		**3.01**		**2.99**
I am interested in applying traditional ecological knowledge to the management of my property				
Strongly agree (1)	41	10.3	35	7.2
Agree	87	21.9	123	25.5
Tend to agree	111	28.0	159	32.9
Tend to disagree	59	14.9	64	13.3
Disagree	62	15.6	63	13.0
Strongly disagree (6)	37	9.3	39	8.1
Total landholders	397	100.0	483	100.0
Mean score		**3.31**		**3.24**

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

Figure 55: cultural heritage and property management



Source: *EBC (2017).*

Awareness of Western Local Land Services

Ninety-two percent of all landholders indicated they had heard of Western Local Land Services prior to receiving the questionnaire (Table 212).This was significantly higher than the 84% who indicated they were aware of Western Local Land Services in 2014.

Table 212: "Had you heard of Western Local Land Services prior to receiving this survey?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	369	83.5	502	91.9
No	73	16.5	44	8.1
Total landholders	442	100.0	546	100.0

Note: *There was a significant difference in percentages between survey years.*
Source: *EBC (2017).*

Amongst those landholders who had heard of Western Local Land Services, 57% believed the main activity of Western Local Land Services was to fund programs for pest management (Table 213); to undertake native vegetation management (52%) and provide National Livestock Identification System tags (52%).

In addition, Table 213 shows that relative to 2014 significantly fewer landholders in 2017 believed the main activity of Western Local Land Services was to provide agricultural production advice.

Table 213: "Prior to receiving this survey, what did you think were the main activities undertaken by the Western Local Land Services?"

	2014		2017	
Main activities	**Count**	**Percent**	**Count**	**Percent**
Funding programs for pest management	-	-	266	57.1
Native vegetation management	-	-	242	51.9
National Livestock Identification System tags	184	53.5	241	51.7
Rabbit baits (inc. fox baits)	162	47.1	219	47.0
Funding projects for natural resource management projects	165	48.0	216	46.4
Brucellosis testing	136	39.5	200	42.9
Total grazing pressure advice	124	36.0	173	37.1
Grazing management	134	39.0	160	34.3
Providing incentives	-	-	125	26.8
Design of land rehabilitation works	92	26.7	119	25.5
Grazing systems training	83	24.1	111	23.8
Providing agricultural production advice	*114*	*33.1*	*105*	*22.5*
Preserving Aboriginal cultural heritage	84	24.4	103	22.1
Property planning training	90	26.2	92	19.7
Don't know	*82*	*23.8*	*59*	*12.7*
Total landholders	344	100.0	466	100.0

Note: *Based on those landholders who had heard of Western Local Land Services prior to receiving the survey.*
Italics indicate a significant difference in percentages between the 2014 and 2017 surveys.
This is a multiple response table in which a respondent may be included in multiple rows.
The activities 'funding programs for pest management', providing incentives' and 'native vegetation management' were not included in the 2014 survey.
Source: *EBC (2017).*

Table 214 shows that across all landholders, 55% had contact with Western Local Land Services in the six months prior to the survey.

Table 214: "Did you have any contact or communication with Western Local Land Services in the past six months?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Yes	193	55.3	265	54.9
No	156	44.7	218	45.1
Total landholders	349	100.0	483	100.0

Note: *There was no significant difference in percentages between survey years.*
Source: *EBC (2017).*

The primary contact between landholders and Western Local Land Services (Table 215) was in relation to the baiting of pest animals (46%); general phone, face-to-face, mail or email contact (27%) and in relation to landholder involvement in projects with Local Land Services (15%).

Table 215: "What type of contact did you have?"

	2014		2017	
Type of contact	**Count**	**Percent**	**Count**	**Percent**
Baiting of pest animals	51	36.7	114	45.8
Phone, face-to-face, mail or email contact	30	21.6	67	26.9
Involved in projects with Local Land Services	19	13.7	36	14.5
Requested advice (i.e., pest animals and plants, soil)	19	13.7	28	11.2
Brucellosis testing	20	14.4	23	9.2
Field days , information days or workshops	6	4.3	11	4.4
Property vegetation plans	6	4.3	8	3.2
NILIS tags	10	7.2	6	2.4
Training and courses	8	5.8	6	2.4
Rates paid	4	2.9	5	2.0
Landcare meeting	2	1.4	3	1.2
Veterinary services	2	1.4	3	1.2
Biosecurity	0	0.0	3	1.2
Land and stock returns	2	1.4	2	0.8
Local Community Advisory Group member	0	0.0	2	0.8
Bullet purchases	2	1.4	1	0.4
Mesquite control program	3	2.2	0	0.0
Shooting inspection	2	1.4	0	0.0
Election notice or voted	2	1.4	0	0.0
Other types of contact *(frequency of one)*	9	6.5	18	7.2
Total landholders	139	100.0	249	100.0

Note: *Based on those landholders who had contact with Western Local Land Services in the six months prior to the survey. This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

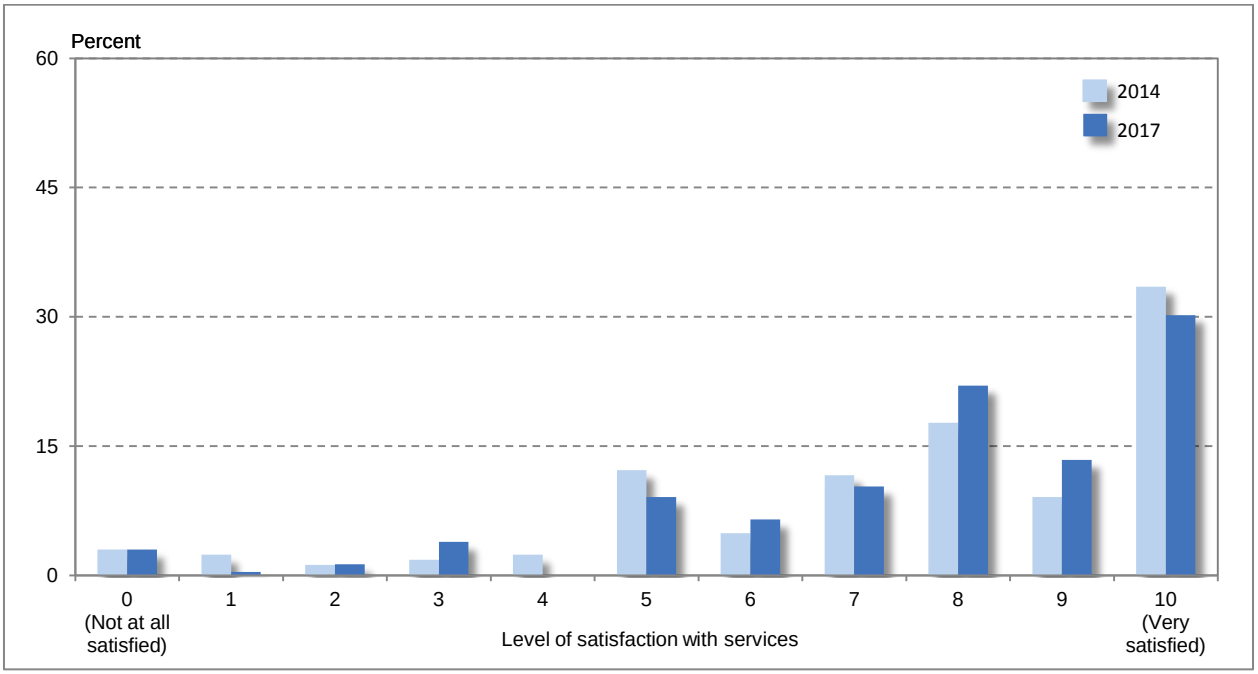
Landholders who had contact with Western Local Land Services rated their level of satisfaction with the service provided by Western Local Land Services on a 10 point scale with endpoints which were 'not at all satisfied' (0) and 'very satisfied' (10). The majority of landholders (82%) indicated they were satisfied with the service provided (a score of 6-10 on the 10 point scale), with 30% providing a maximum satisfaction score of ten (Table 216 and Figure 56).

Table 216: "How satisfied were you with the service provided by Western Local Land Services?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
0 (Not at all satisfied)	5	3.0	7	3.0
1	4	2.4	1	0.4
2	2	1.2	3	1.3
3	3	1.8	9	3.9
4	4	2.4	0	0.0
5	20	12.2	21	9.1
6	8	4.9	15	6.5
7	19	11.6	24	10.3
8	29	17.7	51	22.0
9	15	9.1	31	13.4
10 (Very satisfied)	55	33.5	70	30.2
Total landholders	164	100.0	232	100.0
Mean score		7.60		7.74

Note: *Based on those landholders who had contact with Western Local Land Services in the six months prior to the survey. There was no significant difference in means between survey years.*
Source: *EBC (2017).*

Figure 56: level of satisfaction with services provided by Western Local Land Services



Source: *EBC (2017).*

In addition, landholders who had contact with Western Local Land Services were also asked to indicate how likely they would be to recommend the services to a friend using a ten point scale with endpoints 'not at all likely' (0) and 'very likely' (10). This measure of satisfaction is also referred to as a 'net promoter score' as detractors (a score of 6 or less) are subtracted from promoters (scores of 9 or 10), to provide an estimate of how many more promoters than detractors the organisation has.

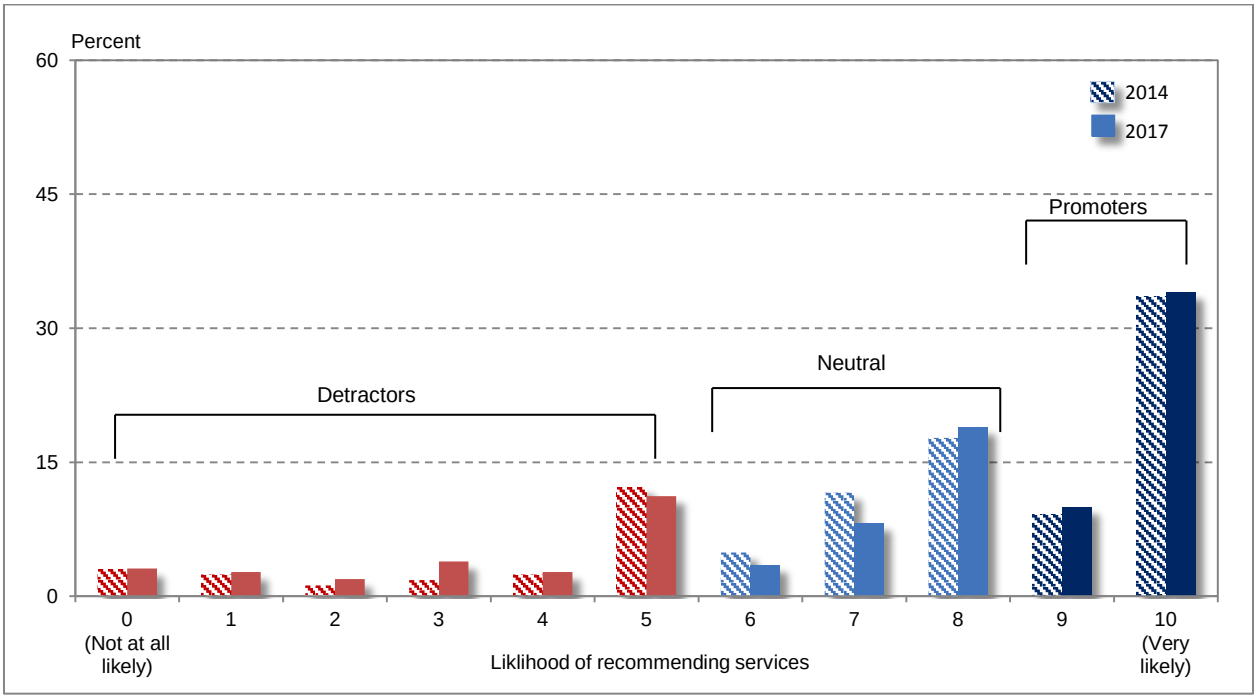
Table 217 and Figure 57 show that in relation to Western Local Land Services the percentage of promoters (44%) outweighs the percentage of detractors (26%).

Table 217: "Considering your most recent contact with Western Local Land Services, how likely would you be to recommend their services to a friend?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
0 (Not at all satisfied)	5	3.2	8	3.1
1	3	1.9	7	2.7
2	4	2.6	5	1.9
3	2	1.3	10	3.9
4	2	1.3	7	2.7
5	17	11.0	29	11.2
6	8	5.2	9	3.5
7	20	13.0	21	8.1
8	21	13.6	49	18.9
9	18	11.7	26	10.0
10 (Very satisfied)	54	35.1	88	34.0
Total landholders	154	100.0	259	100.0
Mean score		7.58		7.44

Note: Based on those landholders who had contact with Western Local Land Services in the six months prior to the survey. There was no significant difference in means between survey years.
Source: EBC (2017).

Figure 57: likelihood of recommending Western Local Land Services



Note: There was no significant difference between the percentage of promoters and detractors between 2014 and 2017.
Source: EBC (2017).

Landholders who had contact with Western Local Land Services were asked to indicate what they believed Western Local Land Services did 'really well'. Table 218 shows that 24% of landholders believed staff of Western Local Land Services were knowledgeable and provided good advice and explanations, while a further 22% believed staff were helpful and 'good'. Positive attitudes towards staff were also commonly reported in the 2014 survey (Table 218).

Table 218: "In relation to your experience with Western Local Land Services, what did we do really well?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Staff knowledgeable, provide good advice, good explanations	11	11.8	35	23.6
Staff helpful and good (general)	14	15.1	32	21.6
Staff communicate well	13	14.0	25	16.9
Provided poison, baits and baiting program	19	20.4	20	13.5
Staff friendly, positive, pleasant and provide personal service	5	5.4	14	9.5
Staff punctual , prompt response, returned phone calls	7	7.5	11	7.4
Staff availability, accessibility and approachable	5	5.4	10	6.8
Training, workshops, seminars, information and field days	10	10.8	10	6.8
Brucellosis testing/testing animals	4	4.3	4	2.7
Provided project funding	2	2.2	3	2.0
Staff attended meetings and functions when requested	0	0.0	2	1.4
Assistance in funding applications	1	1.1	2	1.4
Biosecurity staff (level and type of service)	1	1.1	2	1.4
Veterinary services	0	0.0	2	1.4
Supplied specific resources	2	2.2	1	0.7
Nothing done well	3	3.2	0	0.0
Other *(frequency of one)*	10	10.8	16	10.8
Total landholders	93	100.0	148	100.0

Note: *Based on those landholders who had contact with Western Local Land Services in the six months prior to the survey. This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

Interestingly, when the same landholders were asked what Western Local Land Services could do better (Table 219), 26% believed they could improve communication, improve support for staff and rangers (18%), and provide more on-ground staff and activities (14%). These were also the three most common responses provided in the 2014 survey (Table 219).

Table 219: "What can we do to be even better?"

	2014		2017	
Response	**Count**	**Percent**	**Count**	**Percent**
Improve communication (advertise, availability, listen more)	16	23.5	23	25.6
Improve support for staff/rangers	11	16.2	16	17.8
Need for more local on ground staff and activities	13	19.1	13	14.4
Improve pest animal programs (coordination, trappers, follow-up)	7	10.3	8	8.9
More practical assistance (less theory/red tape/bureaucratic)	3	4.4	8	8.9
More and better funding models	6	8.8	6	6.7
More staff or retain staff	0	0.0	6	6.7
More information on available services	2	2.9	4	4.4
Hasten funding application, PVP process	3	4.4	3	3.3
Revert to previous RLPB system	6	8.8	3	3.3
No changes, remain as is	2	2.9	2	2.2
Help or improve with funding application process	1	1.5	2	2.2
Improve LLS accounting, management, administration	0	0.0	2	2.2
Provide lower cost services	3	4.4	2	2.2
Staff should attend more functions/events	2	2.9	1	1.1
Other responses *(frequency of one)*	16	23.5	23	25.6
Total landholders	68	100.0	90	100.0

Note: *Based on those landholders who had contact with Western Local Land Services in the six months prior to the survey. This is a multiple response table in which a respondent may be included in multiple rows.*
Source: *EBC (2017).*

Appendix A
Landholder questionnaire

Survey of Landholders in the Local Land Services Western Region

This questionnaire may also be completed online at http://wlls.land.sgizmo.com/s3/

Please not that if you are using the NBN Skymuster satellite service the questionnaire may not be able to be viewed online.

If you do not own, lease, look after or have an interest in a rural property in the Local Land Services Western region (the region is shown in the map below), please tick the box below and return the questionnaire in the prepaid envelope).

☐ I do not have a rural property in the Local Land Services Western region

_____ Questionnaire Number

(This number is used to identify which landholders have completed the questionnaire and which landholders we need to send a reminder letter to)

Property and landholder characteristics

1. **How large is your property**? _____ Acres *or* _____ Hectares

2. **What would be the nearest town or location to your property?** _____

3. **What is your property primarily used for?** *(you may tick more than one box)*

- ☐ Dryland cropping
- ☐ Irrigation cropping
- ☐ Cattle
- ☐ Sheep for wool
- ☐ Sheep for meat
- ☐ Lifestyle or hobby farming
- ☐ Carbon farming
- ☐ Horticulture *(please describe)* _____
- ☐ Recreation (inc. shooting and/or fishing)
- ☐ Harvesting feral goats
- ☐ Managed goat production
- ☐ Tourism or farm stays
- ☐ Conservation land use
- ☐ Aboriginal land use

Other uses *(please describe)* _____

4. **In what year were you born?**

19____

5. **What is your gender?**

☐ Male ☐ Female

6. **Please state your role in the ownership or management of the property**

- ☐ Owner
- ☐ Manager → ***Go to Question 12***
- ☐ Other (please specify) _____ → ***Go to Question 12***

7. **Would you say your property is family owned or corporate owned?**

- ☐ Family
- ☐ Corporate → ***Go to Question 12***

8. **Do you have a succession plan in place?**

- ☐ Yes
- ☐ No

9. **Do you usually live on your property full-time as an owner operator?**

- ☐ Yes → ***Go to Question 11***
- ☐ No

10. **How many days do you usually stay on your property in a typical year?**

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11- 20 ☐ 21 - 50 ☐ More than 51

11. **Think about all the income your family received in the past 12 months. Approximately what percentage (%) of your total income was from *activities derived on property*?**

_____ percentage of total income from property

12. **Does a manger or other person who looks after the property live on the property?**

☐ Yes full-time ☐ Yes part-time (more than 52 days) ☐ Yes part-time (less than 51 days)

☐ No

13. **How many people contribute to the decisions made on your property** *(circle only one)***?**

1 2 3 4 5 6+

14. **How many years have you owned or managed land in western NSW?**

_____ years

15. **How many years have you lived on your current property?**

_____ years

16. **How many past generations of your family have been on the property?** *(circle only one)*

0 1 2 3 4 5 6+

17. **Do you have access to the internet on your property?**

☐ Yes ☐ No ⟶ ***Go to Question 19***

18. **Typically, when you access the internet on your property would you say the internet speed is?**

☐ Very fast ☐ Fast ☐ Average ☐ Slow ☐ Very slow

19. **What is your highest level of education? Was it at a…*(tick one box only)***

☐ Primary school ☐ A TAFE college

☐ Secondary school ☐ A university

☐ An agricultural college ☐ Other *(please describe)* _____

20. **Are you a member of an industry or producer group? For example, Landcare, producer discussion group, BestPrac, pest animal control or an Aboriginal Cultural Heritage group.**

☐ Yes

☐ No ⟶ ***Go to Question 22***

21. **What isthe name of the group in which you are a member?** *(record details for up to three groups)*

Group 1 _____

Group 2 _____

Group 3_____

22. **Where do you usually get your information that influences changes you make on your property?** *(you may tick more than one box)*

☐ Neighbours and other landholders ☐ Farmer and community groups (eg. Landcare)

☐ Government agencies and departments ☐ Local Government

☐ Stock and station agents ☐ Agronomist

Other *(please describe)* _____

23. **Do you usually obtain information by…**

- ☐ Researching products and systems
- ☐ Industry websites
- ☐ Industry newsletters
- ☐ Conducting trials and field monitoring
- ☐ Reading agricultural publications (eg. The Land, industry journals)
- ☐ Other *(please describe)* _____

Training and Property Management

24. **Have you undertaken any agriculture, grazing or land management related courses in the past three years?**

- ☐ Yes
- ☐ No → ***Go to Question 28***

25. **What courses have you undertaken?** *(you may tick more than one box)*

- ☐ Chemical handling
- ☐ Grazing for Profit/ Pasture to Pocket
- ☐ Holistic Management
- ☐ Low Stress Stock Handling
- ☐ Phoenix mapping
- ☐ Pro-Graze
- ☐ Property planning
- ☐ Succession planning
- ☐ Tactical Grazing Management
- ☐ KLR Marketing

Name of any other course _____

26. **Did you change any of your practices as a result of what you learnt from the course?**

- ☐ Yes → ***Go to Question 28***
- ☐ No

27. **Why didn't you change any of your practices as a result of attending the course?**

_____

28. **Are you able to identify any training you would like to receive to improve the management of your enterprise?**

- ☐ Yes *(please specify type)* _____
- ☐ No

29. **Do you have a biosecurity or access policy for your property?**

- ☐ Yes
- ☐ No

30. **Do you have a documented or written property management plan** *(excluding a property vegetation plan)***?**

- ☐ Yes
- ☐ No → ***Go to Question 35***

31. **How many years ago was the property management plan first developed?**

_____ years

32. **How often do you update your management plan?**

☐ Always ☐ Often ☐ Sometimes ☐ Occasionally ☐ Never

33. **How often do you refer to your property management plan when making decisions? Would it be…**

☐ Always ☐ Often ☐ Sometimes ☐ Occasionally ☐ Never

34. **Which of the following is included in your documented property management plan? Does it include a description or map of …** *(you may tick more than one box)*

☐ …an air photo or satellite imagery mapping
☐ …pest plants or areas of invasive native scrub
☐ …soil or land types
☐ …vegetation types
☐ …natural or man-made watering points
☐ …future plans or developments
☐ …risk control plan, i.e. weeds, disease
☐ …irrigation/soil capability maps
☐ …current plantings/block identification
☐ …conservation or sanctuary areas
☐ …stock or crop management
☐ …fencing requirements
☐ …property vegetation plan

Cultural heritage on my property

Read each of the following statements and score each one in terms of whether it is most like you.

	Strongly agree	Agree	Tend to agree	Tend to disagree	Disagree	Strongly disagree
35. **I think I am able to identify sites of Aboriginal or historic significance on my property**	☐	☐	☐	☐	☐	☐
36. **I would say I understand what my duty of care is for Aboriginal cultural landscapes (eg., scar trees, corroboree grounds)**	☐	☐	☐	☐	☐	☐
37. **I think I have a good understanding of traditional ecological knowledge (including cultural, spiritual, managing the landscape, plant and animal knowledge)**	☐	☐	☐	☐	☐	☐
38. **I apply traditional ecological knowledge to the management of my property**	☐	☐	☐	☐	☐	☐
39. **I am interested in applying traditional ecological knowledge to the management of my property**	☐	☐	☐	☐	☐	☐

Use of fire

40. **In the past three years how often have you purposefully used fire to improve the condition of your land?**

☐ None ☐ Once ☐ 2-3 times ☐ More than 4

Carbon farming

41. **Do you currently have a carbon farming agreement where you earn Australian Carbon Credit Units?**

☐ Yes

☐ No → **Go to Question 47**

42. **Do you earn carbon credits through…***(you may tick more than one box)*

☐ Reducing livestock emissions

☐ Sequestering carbon in soil

☐ Reducing emissions through increasing the efficiency of fertilizer use

☐ Sequestering carbon through revegetation or regeneration (eg Human Induced Regeneration)

☐ Sequestering carbon through avoided deforestation of native vegetation

43. **In addition to carbon storage and reduction in greenhouse gas emissions, have there been other benefits from carbon farming on your property?**

☐ Yes

☐ No → **Go to Question 45**

44. **What do you think are the additional benefits?**

☐ Improved soil condition

☐ Financial capital to invest in infrastructure on my property

☐ Reduce erosion

☐ Financial capital to invest in better management on my property

☐ Capital to invest in other land in the region

☐ Capital to invest outside the region

Other *(please describe)* _____

45. **Do you think there have been any disadvantages from taking on a carbon project?**

☐ Yes

☐ No → **Go to Question 47**

46. **What do you think are the disadvantages?**

☐ Reduced grazing production

☐ Cost of maintaining carbon project areas including fire breaks and fencing

☐ Increased risk of land degradation problems such as pests, weeds, erosion and woody weeds

☐ Monitoring and auditing requirements

☐ Changes to Crown Lease agreements and succession planning

☐ Changes to property values

Other *(please describe)* _____

Climate change

47. **The CSIRO indicates that future climate in the region is likely to be warmer and drier, with an increase in evaporation and an increase in the number of days of extreme heat, winds and rainfall events. Do you think long term climate change as described by the CSIRO is likely to occur?**

- ☐ Yes
- ☐ No
- ☐ Don't know

48. **If this were to occur over the next 20 years, would this change how you farm and manage your land?**

- ☐ Yes
- ☐ No → **Go to Question 50**
- ☐ Don't know → **Go to Question 50**

49. **In what ways would you change how you farm or manage your land to adapt to climate change?**

- ☐ Develop or improve irrigation
- ☐ More water storage or dams
- ☐ Develop bore water supplies
- ☐ Change pasture species
- ☐ Improve pasture management
- ☐ Adopt minimum or zero tillage practices
- ☐ Plant fewer crops
- ☐ Reduce cropping area
- ☐ Change crops
- ☐ Stop farming
- ☐ Destock
- ☐ Import more feed for livestock
- ☐ Change type of livestock breeds
- ☐ Plant more trees or vegetation

Other *(please describe)* _____

How I do business

50. **Read each of the following statements and score each one in terms of whether it is most like you.**

		A lot like me	Somewhat like me	A little like me	Not like me
a)	I like to be at the cutting edge of agricultural change	☐	☐	☐	☐
b)	I am constantly seeking new ideas about ways of doing things	☐	☐	☐	☐
c)	I often monitor the financial agricultural markets	☐	☐	☐	☐
d)	I enjoy running my property even though it can be tough at times	☐	☐	☐	☐
e)	I am good at what I do on my property	☐	☐	☐	☐
f)	Running my property is a good lifestyle for me and my family	☐	☐	☐	☐
g)	I don't want to take risks with my property just to make more money	☐	☐	☐	☐
h)	Farming is my life and I cannot see myself ever doing anything else	☐	☐	☐	☐
i)	I am wary of people who tell me that there is a better way of doing things	☐	☐	☐	☐
j)	The increasing cost of farming is making it difficult to keep up	☐	☐	☐	☐
k)	I sometimes feel that I am going backwards even though I work hard	☐	☐	☐	☐
l)	I often think about moving out of farming or grazing	☐	☐	☐	☐
m)	I keep a close watch on seasonal climate forecasts	☐	☐	☐	☐
n)	I like to keep my machinery in the best condition I can	☐	☐	☐	☐
o)	I know how to make my land produce	☐	☐	☐	☐
p)	I am continually seeking to expand the size of my farm	☐	☐	☐	☐
q)	I am considered a member of the established farmers in the area	☐	☐	☐	☐
r)	The only way to make money at farming is to take risks	☐	☐	☐	☐
s)	I like to run my property effectively, but I am careful that the changes I make are appropriate for my property	☐	☐	☐	☐
t)	I believe that there are more environmentally friendly ways of controlling weed and insect pests	☐	☐	☐	☐
u)	I believe that mental health is an issue I often face in this industry	☐	☐	☐	☐

Awareness of Western Local Land Services

51. **Had you heard of Western Local Land Services prior to receiving this survey?**

☐ Yes

☐ No → ***Go to Question 61***

52. **Prior to receiving this survey, what did you think were the main activities undertaken by the Western Local Land Services?** *(You may tick more than one box)*

☐ Don't know ***OR***…

☐ Brucelosis testing
☐ Total grazing pressure advice
☐ Grazing systems training
☐ National Livestock Identification System tags
☐ Preserving Aboriginal cultural heritage
☐ Native vegetation management
☐ Funding projects for natural resource management
☐ Rabbit baits
☐ Grazing management
☐ Property planning training
☐ Design of land rehabilitation works
☐ Providing agricultural production advice
☐ Funding programs for pest management
☐ Providing incentives

53. **Did you have any contact or communication with Western Local Land Services in the past six months?**

☐ Yes ☐ No → ***Go to Question 61***

54. **What type of contact did you have**

(Please specify) _____

55. **Considering your most recent contact with Western Local Land Services, how likely would you be to recommend their services to a friend?** (0 is not at all likely, 10 is extremely likely)

Not at all likely — Extremely likely

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

56. **Have you obtained any services from the Western Local Land Services?**

☐ Yes ☐ No → ***Go to Question 59***

57. **What type of service did you obtain from Western Local Land Services?** *(May tick more than one box)*

☐ Obtained advice about animal or plant diseases
☐ Obtained advice about livestock management
☐ Applied for a Property Vegetation Plan
☐ Attended a course or other function provided by the Western Local Land Services
☐ Obtained a stock or other permit from Western Local Land Services
☐ Obtained written materials from the Western Local Land Services
☐ A Western Local Land Services staff member attended a meeting of a group I'm involved with
☐ Applied for a Western Local Land Services funding program
☐ Obtained a PIC number or NLIS tags
☐ Obtained advice about land management

Other type of service *(please describe)* _____

58. **How satisfied were you with the service provided by Western Local Land Services?**
(0 is not at all satisfied, 10 is very satisfied)

Not at all satisfied — Very satisfied

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

59. **In relation to your experience with Western Local Land Services, what did we do really well?**

_____

60. **What can we do better?**

_____

61. **What information do you require to carry out your business in the next 5 years?**

- ☐ New or improved horticulture crops
- ☐ Animal health and nutrition
- ☐ Invasive native scrub management
- ☐ Nutrition management
- ☐ Information on building capacity
- ☐ Succession planning
- ☐ Climate change
- ☐ Water and irrigation
- ☐ Pastures and total grazing pressure
- ☐ Improving soil condition
- ☐ Pest animal management
- ☐ Introduced weed management
- ☐ Innovative technologies
- ☐ Rural community health and wellbeing
- ☐ Biosecurity
- ☐ Carbon farming
- ☐ Enterprise benchmarking

Other *(please describe)* _____

62. **What do you see as the major issues your business faces in the next 5 years?**

- ☐ Market access – available or newly developed markets
- ☐ Replanting or restructuring plantings
- ☐ Natural disaster events including drought, flood & fire
- ☐ Changing profit margins
- ☐ An increase in pest numbers
- ☐ Increasing invasive scrub
- ☐ Grazing animal management practices
- ☐ Profit margins increasing or decreasing
- ☐ New technology and adoption
- ☐ Changes in crop management
- ☐ An increase in introduced weeds

Other *(please describe)* _____

Dryland and irrigated cropping

63. **Did you undertake any cropping activities in the past three years on your property?**

☐ Yes

☐ No → ***Go to Question 76***

64. **What area of your property was under cropping?**

_____ Acres ***OR*** _____ Hectares

65. **Have you irrigated crops in the past three years**

☐ Yes

☐ No → ***Go to Question 67***

66. **What area of your property did you irrigate?**

_____ Acres ***OR*** _____ Hectares

67. **How much of your cropping country did you cultivate using…** ***(leave blank if not used)***

No tillage, using one pass, direct drill with discs or knife points? _____ Acres ***OR*** _____ Hectares

Minimum tillage using one cultivation plus sowing? _____ Acres ***OR*** _____ Hectares

Conventional tillage using 2 or more cultivations prior to sowing? _____ Acres ***OR*** _____ Hectares

68. **Did you use any other cultivation methods?**

☐ Yes

☐ No → ***Go to Question 70***

69. **What other cultivation methods did you use?** ***(describe the method)***

(1)_____ _____ Acres ***OR*** _____ Hectares

(2)_____ _____ Acres ***OR*** _____ Hectares

70. **Have you undertaken any of the following cropping practices in the past two years?**
(you may tick more than one box)

☐ Stubble retention ☐ Crop rotation

☐ Controlled traffic ☐ Soil testing

☐ Precision farming ☐ Selective grazing

71. **In the last five years have you increased production in your cropping enterprise(s) irrespective of seasonal conditions?**

☐ Yes

☐ No → ***Go to Question 74***

72. **In which of the following areas have you increased production?** *(you may tick more than one box)*

☐ Yield (either per hectare or per crop) ☐ Protein content

☐ Crop diversity (eg legumes) ☐ Management system efficiency

73. **What have been the main reasons that have led to these production increases?**
(you may tick more than one box)

- ☐ Enterprise change
- ☐ Improved disease/parasite management
- ☐ Managing seasonal variation
- ☐ Technology
- ☐ Education and training `
- ☐ Increase in production area
- ☐ Adjustments to fertilizer program
- ☐ Variety selection
- ☐ Adjusting sowing densities
- ☐ Growing different or additional crops
- ☐ Improvements to equipment or technology
- ☐ Other technology introductions
- ☐ Adjustments to pest or disease management programs
- ☐ External service provider engagement

Other (please describe) _____

74. **Do you think you will improve crop production over the next five years?**

- ☐ Yes
- ☐ No → ***Go to Question 76***

75. **What do you think will be the main reasons for any improvement in production in the next five years?** *(you may tick more than one box)*

- ☐ Enterprise change
- ☐ Improved disease/parasite management
- ☐ Managing seasonal variation
- ☐ Technology
- ☐ Education and training
- ☐ Increase in production area
- ☐ Adjustments to fertilizer program
- ☐ Variety selection
- ☐ Adjusting sowing densities
- ☐ Growing different or additional crops
- ☐ Improvements to equipment or technology
- ☐ Other technology introductions (such as improvements to harvesting techniques, precision agriculture)
- ☐ Adjustments to pest or disease management programs (using fungicides or insecticides - IPM)
- ☐ External service provider engagement (i.e. LLS, private consultant or point of inputs sale advice)

Other (please describe) _____

Horticulture

76. **Did you undertake any horticultural activities in the past three years on your property?**

☐ Yes

☐ No → ***Go to Question 93***

77. **What area of your property is used for horticultural production**

_____ Acres ***OR*** _____ Hectares

78. **Do you have a water allocation that you have used in the last three years?**

☐ Yes

☐ No → ***Go to Question 84***

79. **What is your current water allocation?** _____ Megalitres

80. **What percentage of your horticultural production is irrigated with…** *(total should be 100%)*

a) Drip ..... _____ %

b) Micro sprinklers ..... _____ %

c) Overheads ..... _____ %

d) Other *(please describe)* _____ _____ %

81. **Do you see a need to increase your water allocation?**

☐ Yes

☐ No → ***Go to Question 84***

82. **By how much would you increase your water allocation?**

_____Megalitres per hectare

83. **Why do you need to increase your water allocation?**

_____

84. **What do you use in your plantings?** *(you may tick more than one box)*

☐ A traditional cover crop ☐ Chemical control

☐ Chemical control and slashing ☐ Cultivation

☐ Other (please specify) _____

85. **Have you used soil amendments?**

☐ Yes

☐ No → ***Go to Question 88***

86. **What type of soil amendments have you used?** *(you may tick more than one box)*

☐ Animal manure ☐ Compost

☐ Gypsum ☐ Cut cover crop from mid row

87. **In a typical year, how often would you apply soil amendments?**

☐ Once

☐ Twice

☐ Three times

☐ As required

88. **In the last five years have you increased production in your horticultural enterprise(s) irrespective of seasonal conditions?**

☐ Yes

☐ No → ***Go to Question 91***

89. **In which of the following areas have you increased production?** *(you may tick more than one box)*

☐ Yield (either per hectare or per crop) ☐ Grow times

☐ Quality improvements (1st, 2nds etc..) ☐ 'Protein content'

Other *(please describe)* _____

90. **What have been the main reasons that have led to these production increases?** *(you may tick more than one box)*

☐ Increase in production area ☐ Adjustments to nutrition program (fertilisers)

☐ Variety selection (genetics) ☐ Increasing or adjusting planting densities

☐ Growing different or additional lines ☐ Improvements to infrastructure (i.e. irrigation systems)

☐ Other technology introductions (such as improvements to harvesting techniques, precision agriculture)

☐ Adjustments to pest or disease management programs (using fungicides or insecticides - IPM)

Other (please describe) _____

91. **Do you think you will improve horticultural production over the next five years?**

☐ Yes

☐ No → ***Go to Question 93***

92. **What do you think will be the main reasons for any improvement in production in the next five years?** *(you may tick more than one box)*

☐ Increase in production area ☐ Adjustments to nutrition program (fertilisers)

☐ Variety selection (genetics) ☐ Increasing or adjusting planting densities

☐ Growing different or additional lines ☐ Improvements to infrastructure (i.e. irrigation systems)

☐ Other technology introductions (such as improvements to harvesting techniques, precision agriculture)

☐ Adjustments to pest or disease management programs (using fungicides or insecticides - IPM)

Other (please describe) _____

Livestock enterprises

93. **Do you manage livestock (including harvesting goats) on your property?**

☐ Yes

☐ No → ***Go to Question 113***

94. **What area of your property is grazed by stock?**

_____ Acres *or* _____ Hectares

95. **Do you run sheep on your property?**

☐ Yes

☐ No → ***Go to Question 97***

96. **What type of sheep enterprise do you run?** *(you may tick more than one box)*

☐ Merino sheep for wool and meat

☐ Fleece-shedding sheep for meat

☐ Other sheep for wool and meat

Other sheep enterprises *(please specify)* _____

97. **Do you run cattle on your property?**

☐ Yes

☐ No → ***Go to Question 99***

98. **What type of cattle enterprise do you run?** ***(you may tick more than one box)***

☐ Cattle for breeding

☐ Cattle for fattening

Other cattle enterprises *(please specify)* _____

99. **Do you harvest or manage goats on your property?**

☐ Yes

☐ No → ***Go to Question 101***

100. **What type of goat enterprise do you run?** *(you may tick more than one box)*

☐ Harvesting

☐ Rangeland goats (Contained with fencing, low management eg. only mustering and drafting)

☐ Managed goat enterprise (Fencing, animal husbandry practices, doe & buck selection, managed joining)

Other goat enterprise *(please specify)* _____

101. **In the last five years have you increased livestock production in your enterprise(s) irrespective of seasonal conditions?**

☐ Yes

☐ No → ***Go to Question 104***

102. **In which of the following areas have you increased production?** *(you may tick more than one box)*

- ☐ Wool cut per head
- ☐ Growth rates
- ☐ Wool (kg) produced per hectare
- ☐ Reproduction rates
- ☐ Meat mass (kg) produced per ha

Other *(please describe)* _____

103. **What have been the main reasons that have led to these livestock production increases?** *(you may tick more than one box)*

- ☐ External service provider engagement (i.e. LLS, private consultant or point of inputs sale advice)
- ☐ Enterprise change
- ☐ Managing seasonal variation
- ☐ Education and training
- ☐ Stocking rate decrease
- ☐ Nutrition
- ☐ Infrastructure development
- ☐ Reduced competition from feral animals
- ☐ Rangeland Rehabilitation (e.g. waterponding)
- ☐ Improved disease/parasite management
- ☐ Technology
- ☐ Genetics
- ☐ Stocking rate increase
- ☐ Grazing management
- ☐ Control of predators
- ☐ Animal husbandry

Other *(please describe)* _____

104. **Do you think you will improve livestock production over the next five years?**

- ☐ Yes
- ☐ No → ***Go to Question 106***

105. **What do you think will be the main reasons for any improvement in production in the next five years?** *(you may tick more than one box)*

- ☐ External service provider engagement (i.e. LLS, private consultant or point of inputs sale advice)
- ☐ Enterprise change
- ☐ Managing seasonal variation
- ☐ Education and training
- ☐ Stocking rate decrease
- ☐ Nutrition
- ☐ Infrastructure development
- ☐ Reduced competition from feral animals
- ☐ Rangeland Rehabilitation (e.g. waterponding)
- ☐ Improved disease/parasite management
- ☐ Technology
- ☐ Genetics
- ☐ Stocking rate increase
- ☐ Grazing management
- ☐ Control of predators
- ☐ Animal husbandry

Other *(please describe)* _____

106. **How would you manage your pastures in times of drought? Would you…**
(you may tick more than one box)

- ☐ Sell your stock outright
- ☐ Reduce numbers to a core herd
- ☐ Move stock elsewhere on the property
- ☐ Supplementary feed
- ☐ Use a feed budget
- ☐ Move stock off the property
- ☐ Use a temporary drought feedlot
- ☐ Sacrifice key paddocks
- ☐ Cut scrub

Do something else *(please describe)* _____

107. **In managing your property do you regularly move stock between different paddocks to allow rest?**

- ☐ Regularly move stock between paddocks
- ☐ Don't move them (e.g. set stocking) → ***Go to Question 109***

108. **When making decisions about moving stock between paddocks on your property which of the following BEST describes your reasons to move stock *(tick only one box)***

- ☐ The area of bare ground in the paddock
- ☐ The height of pasture grass
- ☐ The condition of stock
- ☐ The browse height of shrub
- ☐ The level of use of palatable grasses
- ☐ Stock water availability

109. **Do you manage or control stock access to watering points as part of your management of domestic or feral stock, through for example, fencing off watering points or turning tanks on or off?**

- ☐ Yes
- ☐ No → ***Go to Question 111***

110. **What are your main reasons for controlling stock access to watering points? *(you may tick more than one box)***

- ☐ Preserve creek/river banks
- ☐ Prevent erosion
- ☐ Trap feral goats
- ☐ Stock health (e.g., prevent stock deaths in waterholes)
- ☐ Exclude feral or native animals
- ☐ Control domestic stock movements
- ☐ Preserving available pasture

Other reasons (please describe) _____

111. **Would you consider incorporating Total Grazing Pressure (TGP) fencing or multi-species exclusion fencing technologies on your property? *TGP excludes kangaroos and goats. Multi-species excludes goats, kangaroos, wild dogs and pigs.***

- ☐ Yes
- ☐ No

112. **What percentage of groundcover do you try to maintain in the majority of your paddocks throughout the year? Groundcover can include any live or dead vegetation, rock or other protective cover that has the capacity to break or stop raindrops making contact with the soil.**

_____(%) Percent *or* ☐ Whatever I can ☐ Don't know

Organic production

113. **What is your property's organic status** *(tick only one box)*

- ☐ My property is not organically certified and never has been → ***Go to Question 118***
- ☐ My property has been organically certified, but is not currently
- ☐ All or part of my property is organically certified

114. **In the past three years, have you sold organic certified products into an organic market or supply chain?**

- ☐ Yes
- ☐ No → ***Go to Question 116***

115. **What organic products have you sold to an organic market or supply chain?**

- ☐ Livestock
- ☐ Horticultural products
- ☐ Vegetables
- ☐ Grains

Other products *(please describe)*_____

116. **In the past three years, have you sold organic certified products into a conventional market rather than into an organic market or supply chain?**

- ☐ Yes
- ☐ No → ***Go to Question 118***

117. **What organic products have you sold into a conventional market?** *(please describe)*

_____

118. **Are you planning to gain or regain organic 'in conversion' status or certification in the next three years?**

- ☐ Yes → ***Go to Question 120***
- ☐ No

119. **Why aren't you planning to gain or regain organic 'in conversion' status or certification in the next three years?**

_____

Enterprise change

120. **In the last ten years, have you changed enterprises (including expanding or reducing an enterprise) in your business?** *(For example, a change in the type of crops or livestock breeds)*

☐ Yes

☐ No → ***Go to Question 122***

121. **What changes did you make?**

_____

_____

122. **Are you considering or planning to make any changes to your enterprise in the next five years?** *(For example a change of enterprise from cattle to sheep)*

☐ Yes

☐ No → ***Go to Question 125***

123. **What changes are you considering or planning?**

_____

_____

124. **Which of the following factors contributed to your decision to make these changes?** *(you may tick more than one box)*

☐ Improving profitability

☐ Reducing labour requirements

☐ Diversification to reduce risk

☐ Infrastructure

☐ Success of other producers

☐ Education and training

☐ Seasonal conditions

☐ Managing seasonal variation

☐ Improving grazing management

☐ Land types

☐ Markets and marketing alternatives

Other *(please describe)* _____

125. **What is the distance to your closest market (km)?**

_____ (km)

Invasive Native Scrub

126. **During the time you have been on your property has invasive native scrub ever been a problem?**

☐ Yes

☐ No → ***Go to Question 137***

127. **Have you been able to *successfully* manage the invasive native scrub?**

☐ Yes

☐ No → ***Go to Question 129***

128. **What was the main thing you did to *successfully* manage the invasive native scrub?**

_____

129. **In the last 3 years have you actively managed invasive native scrub on your property?**

☐ Yes

☐ No → ***Go to Question 133***

130. **Which of the following methods have you used to control invasive native scrub?** *(You may tick more than one box)*

☐ Fire

☐ Grazing goats

☐ Chemicals

☐ Cultivation such as cropping

☐ Controlling stocking rates and total amount of grazing

☐ Blade ploughing, grubbing, chaining or other mechanical methods

Other methods _____

131. **Do you control invasive native scrub with one treatment or multiple follow up treatments?**

☐ One treatment

☐ Multiple follow up treatments

132. **In managing invasive native scrub on your property do you currently have…?** *(You may tick more than one box)*

☐ Access to credit and funds to undertake the work

☐ Good markets and income for your products

☐ A belief that you could address the issue

☐ Optimism about addressing the issue

☐ Equipment, machinery and materials to address the issue

☐ Favourable climate and seasonal conditions

☐ The knowledge of how to address the issue

☐ Favourable land and water conditions on your property

☐ Practical skills to address the issue

☐ A property able to support change

☐ Support from neighbours or formal group

☐ Support from businesses and contactors

☐ Support from friends and family

☐ Time available to do the work

☐ Good health so as to undertake the work

☐ People to help do the work

133. **In your opinion, would you say invasive native scrub on your property is a….**

☐ Minor problem

☐ Moderate problem

☐ Major problem

134. **Over what area of your property is invasive native scrub a problem?**

_____ Acres OR _____ Hectares

135. **Would you say your ability to address invasive native scrub is…**

☐ Very low
☐ Low
☐ Moderate
☐ High → ***Go to Q137***
☐ Very high → ***Go to Q137***

136. **Why do you say your ability to address this issue is low to moderate?**
(You may tick more than one box)

☐ Don't live on the property	☐ Cannot be fixed	☐ Topography of my land (hilly or flat)
☐ Lack of labour and help	☐ My poor health	☐ No help or support from neighbours
☐ Poor land condition	☐ Lack of time	☐ Lack of knowledge (don't know how to fix it)
☐ No need to address issue	☐ Too old	☐ Lack of machinery, equipment or materials
☐ Seasons and climate	☐ Lack of money	☐ Regulations or legislation

Other reasons_____

Introduced weeds (such as Parkinsonia, Mesquite and Boxthorn)

137. **During the time you have been on your property have introduced weeds ever been a problem?**

☐ Yes

☐ No → ***Go to Question 145***

138. **Have you been able to *successfully* manage introduced weeds on your property?**

☐ Yes

☐ No → ***Go to Question 140***

139. **What was the main thing you did to *successfully* manage introduced weeds?**

_____

140. **In the last 3 years have you actively managed introduced weeds on your property?**

☐ Yes

☐ No → ***Go to Question 142***

141. **In managing introduced weeds on your property do you currently have…?**
(You may tick more than one box)

☐ Access to credit and funds to undertake the work
☐ Good markets and income for your products
☐ A belief that you could address the issue
☐ Optimism about addressing the issue
☐ Equipment, machinery and materials to address the issue
☐ Favourable climate and seasonal conditions
☐ The knowledge of how to address the issue
☐ Favourable land and water conditions on your property
☐ Practical skills to address the issue
☐ A property able to support change
☐ Support from neighbours or formal group
☐ Support from businesses and contactors
☐ Support from friends and family
☐ Time available to do the work
☐ Good health so as to undertake the work
☐ People to help do the work

142. **In your opinion, would you say weeds on your property are a….**

☐ Minor problem ☐ Moderate problem ☐ Major problem

143. **Would you say your ability to address this issue is…**

☐ Very low ☐ Low ☐ Moderate

☐ High → ***Go to Q145*** ☐ Very high → ***Go to Q145***

144. **Why do you say your ability to address this issue is low to moderate?** (You may tick more than 1 box)

☐ Don't live on the property
☐ Lack of labour and help
☐ Poor land condition
☐ No need to address issue
☐ Seasons and climate
☐ Cannot be fixed
☐ My poor health
☐ Lack of time
☐ Too old
☐ Lack of money
☐ Topography of my land (hilly or flat)
☐ No help or support from neighbours
☐ Lack of knowledge (don't know how to fix it)
☐ Lack of machinery, equipment or materials
☐ Regulations or legislation

Other reasons _____

Groundcover (Includes any live or dead vegetation, rock or other protective cover that has the capacity to break or stop raindrops making contact with the soil)

145. **During the time you have been on your property has low groundcover, that is less than 50% vegetation on the ground ever been a problem?**

☐ Yes

☐ No → ***Go to Question 153***

146. **Have you been able to *successfully* manage the low groundcover on your property?**

☐ Yes ☐ No → ***Go to Question 148***

147. **What was the main thing you did to *successfully* manage low groundcover?**

_____

148. **In the last 3 years have you actively managed low groundcover on your property?**

☐ Yes

☐ No → ***Go to Question 150***

149. **In managing groundcover on your property do you currently have…?** *(You may tick more than one box)*

☐ Access to credit and funds to undertake the work
☐ Good markets and income for your products
☐ A belief that you could address the issue
☐ Optimism about addressing the issue
☐ Equipment, machinery and materials to address the issue
☐ Favourable climate and seasonal conditions
☐ The knowledge of how to address the issue
☐ Favourable land and water conditions on your property
☐ Practical skills to address the issue
☐ A property able to support change
☐ Support from neighbours or formal group
☐ Support from businesses and contactors
☐ Support from friends and family
☐ Time available to do the work
☐ Good health so as to undertake the work
☐ People to help do the work

150. **In your opinion, would you say low groundcover on your property is a….**

☐ Minor problem ☐ Moderate problem ☐ Major problem

151. **Would you say your ability to address this issue is…**

☐ Very low ☐ Low ☐ Moderate

☐ High → ***Go to Q153*** ☐ Very high → ***Go to Q153***

152. **Why do you say your ability to address this issue is low to moderate?** *(You may tick more than 1 box)*

☐ Don't live on the property
☐ Lack of labour and help
☐ Poor land condition
☐ No need to address issue
☐ Seasons and climate
☐ Cannot be fixed
☐ My poor health
☐ Lack of time
☐ Too old
☐ Lack of money
☐ Topography of my land (hilly or flat)
☐ No help or support from neighbours
☐ Lack of knowledge (don't know how to fix it)
☐ Lack of machinery, equipment or materials
☐ Regulations or legislation

Other reasons _____

Soil erosion (sheet, rill, river bank or gully erosion e.g., along fence lines and tracks)

153. **During the time you have been on your property has soil erosion ever been a problem?**

☐ Yes

☐ No → ***Go to Question 161***

154. **Were you able to *successfully* manage the soil erosion?**

☐ Yes

☐ No → ***Go to Question 156***

155. **What was the main thing you did to *successfully* manage soil erosion?**

_____

156. **In the last 3 years have you actively managed soil erosion on your property?**

☐ Yes

☐ No → ***Go to Question 158***

157. **In managing soil erosion on your property do you currently have…?** (You may tick more than one box)

☐ Access to credit and funds to undertake the work
☐ Good markets and income for your products
☐ A belief that you could address the issue
☐ Optimism about addressing the issue
☐ Equipment, machinery and materials to address the issue
☐ Favourable climate and seasonal conditions
☐ The knowledge of how to address the issue
☐ Favourable land and water conditions on your property
☐ Practical skills to address the issue
☐ A property able to support change
☐ Support from neighbours or formal group
☐ Support from businesses and contactors
☐ Support from friends and family
☐ Time available to do the work
☐ Good health so as to undertake the work
☐ People to help do the work

158. **In your opinion, would you say soil erosion on your property is a….**

☐ Minor problem ☐ Moderate problem ☐ Major problem

159. **Would you say your ability to address this issue is…**

☐ Very low ☐ Low ☐ Moderate

☐ High → ***Go to Q161*** ☐ Very high → ***Go to Q161***

160. **Why do you say your ability to address this issue is low to moderate?**
(You may tick more than one box)

☐ Don't live on the property
☐ Lack of labour and help
☐ Poor land condition
☐ No need to address issue
☐ Seasons and climate
☐ Cannot be fixed
☐ My poor health
☐ Lack of time
☐ Too old
☐ Lack of money
☐ Topography of my land (hilly or flat)
☐ No help or support from neighbours
☐ Lack of knowledge (don't know how to fix it)
☐ Lack of machinery, equipment or materials
☐ Regulations or legislation

Other reasons _____

Wild dogs

161. **During the time you have been on your property have wild dogs ever been a problem?**

☐ Yes

☐ No → ***Go to Question 169***

162. **Were you able to *successfully* manage the wild dogs on your property?**

☐ Yes

☐ No → ***Go to Question 164***

163. **What was the main thing you did to *successfully* manage wild dogs?**

_____

164. **In the last 3 years have you actively managed wild dogs on your property?**

☐ Yes

☐ No → ***Go to Question 166***

165. **In managing wild dogs on your property do you currently have…?** *(You may tick more than one box)*

☐ Access to credit and funds to undertake the work
☐ Good markets and income for your products
☐ A belief that you could address the issue
☐ Optimism about addressing the issue
☐ Equipment, machinery and materials to address the issue
☐ Favourable climate and seasonal conditions
☐ The knowledge of how to address the issue
☐ Favourable land and water conditions on your property
☐ Practical skills to address the issue
☐ A property able to support change
☐ Support from neighbours or formal group
☐ Support from businesses and contactors
☐ Support from friends and family
☐ Time available to do the work
☐ Good health so as to undertake the work
☐ People to help do the work

166. **In your opinion, would you say wild dogs on your property are a….**

☐ Minor problem ☐ Moderate problem ☐ Major problem

167. **Would you say your ability to address this issue is…**

☐ Very low ☐ Low ☐ Moderate

☐ High → ***Go to Q169*** ☐ Very high → ***Go to Q169***

168. **Why do you say your ability to address this issue is low to moderate?** *(You may tick more than one box)*

☐ Don't live on the property
☐ Lack of labour and help
☐ Poor land condition
☐ No need to address issue
☐ Seasons and climate
☐ Cannot be fixed
☐ My poor health
☐ Lack of time
☐ Too old
☐ Lack of money
☐ Topography of my land (hilly or flat)
☐ No help or support from neighbours
☐ Lack of knowledge (don't know how to fix it)
☐ Lack of machinery, equipment or materials
☐ Regulations or legislation

Other reasons_____

Other animals (excluding unmanaged goats and wild dogs)

169. **During the time you have been on your property have any of the following animals been a problem?**

☐ No animals have been a problem → ***Go to Question 177***

☐ Camels	☐ Emus	☐ Pigs	☐ Cats
☐ Foxes	☐ Rabbits	☐ Donkeys	☐ Kangaroos
☐ Carp	☐ Locusts	☐ Wild horses	☐ Cane toads

Others (describe) _____

170. **Were you able to *successfully* manage these animals?**

☐ Yes ☐ No → ***Go to Question 172***

171. **What was the main thing you did to *successfully* manage these animals?**

_____

172. **In the last 3 years have you actively managed these other animals on your property?**

☐ Yes ☐ No → ***Go to Question 174***

173. **In managing other animals on your property do you currently have…?** *(You may tick more than one box)*

☐ Access to credit and funds to undertake the work	☐ Practical skills to address the issue
☐ Good markets and income for your products	☐ A property able to support change
☐ A belief that you could address the issue	☐ Support from neighbours or formal group
☐ Optimism about addressing the issue	☐ Support from businesses and contactors
☐ Equipment, machinery and materials to address the issue	☐ Support from friends and family
☐ Favourable climate and seasonal conditions	☐ Time available to do the work
☐ The knowledge of how to address the issue	☐ Good health so as to undertake the work
☐ Favourable land and water conditions on your property	☐ People to help do the work

174. **In your opinion, would you say these animals are a….**

☐ Minor issue ☐ Moderate issue ☐ Major issue

175. **Would you say your ability to address this issue is…**

☐ Very low ☐ Low ☐ Moderate

☐ High → ***Go to Q177*** ☐ Very high → ***Go to Q177***

176. **Why do you say your ability to address this issue is low to moderate?** *(You may tick more than 1 box)*

☐ Don't live on the property	☐ Cannot be fixed	☐ Topography of my land (hilly or flat)
☐ Lack of labour and help	☐ My poor health	☐ No help or support from neighbours
☐ Poor land condition	☐ Lack of time	☐ Lack of knowledge (don't know how to fix it)
☐ No need to address issue	☐ Too old	☐ Lack of machinery, equipment or materials
☐ Seasons and climate	☐ Lack of money	☐ Regulations or legislation

Other reasons _____

A decline in the diversity of native plants and animals

177. **During the time you have been on your property has a decline in the diversity of native plants and animals ever been a problem?**

☐ Yes

☐ No → ***Go to Question 185***

178. **Were you able to *successfully* manage the decline in diversity?**

☐ Yes ☐ No → ***Go to Question 180***

179. **What was the main thing you did to *successfully* manage the decline in diversity?**

_____

180. **In the last 3 years have you actively managed the decline in diversity on your property?**

☐ Yes

☐ No → ***Go to Question 182***

181. **In managing the decline in diversity on your property do you currently have…?** *(You may tick more than one box)*

☐ Access to credit and funds to undertake the work
☐ Good markets and income for your products
☐ A belief that you could address the issue
☐ Optimism about addressing the issue
☐ Equipment, machinery and materials to address the issue
☐ Favourable climate and seasonal conditions
☐ The knowledge of how to address the issue
☐ Favourable land and water conditions on your property
☐ Practical skills to address the issue
☐ A property able to support change
☐ Support from neighbours or formal group
☐ Support from businesses and contactors
☐ Support from friends and family
☐ Time available to do the work
☐ Good health so as to undertake the work
☐ People to help do the work

182. **In your opinion, would you say the decline in the diversity of native plants and animals on your property is a….**

☐ Minor problem ☐ Moderate problem ☐ Major problem

183. **Would you say your ability to address this issue is…**

☐ Very low ☐ Low ☐ Moderate

☐ High → ***Go to Q185*** ☐ Very high → ***Go to Q185***

184. **Why do you say your ability to address this issue is low to moderate?** *(You may tick more than 1 box)*

☐ Don't live on the property
☐ Lack of labour and help
☐ Poor land condition
☐ No need to address issue
☐ Seasons and climate
☐ Cannot be fixed
☐ My poor health
☐ Lack of time
☐ Too old
☐ Lack of money
☐ Topography of my land (hilly or flat)
☐ No help or support from neighbours
☐ Lack of knowledge (don't know how to fix it)
☐ Lack of machinery, equipment or materials
☐ Regulations or legislation

Other reasons_____

Access to water for agricultural purposes

185. **During the time you have been on your property has the access to water for agricultural purposes ever been a problem?**

☐ Yes

☐ No → ***Go to Question 193***

186. **Were you able to *successfully* address the access to water on your property?**

☐ Yes

☐ No → ***Go to Question 188***

187. **What was the main thing you did to *successfully* address access to water?**

_____

188. **In the last 3 years have you done anything to address access to water on your property?**

☐ Yes ☐ No → ***Go to Question 190***

189. **In managing access to water on your property do you currently have…?** *(You may tick more than one box)*

☐ Access to credit and funds to undertake the work
☐ Good markets and income for your products
☐ A belief that you could address the issue
☐ Optimism about addressing the issue
☐ Equipment, machinery and materials to address the issue
☐ Favourable climate and seasonal conditions
☐ The knowledge of how to address the issue
☐ Favourable land and water conditions on your property
☐ Practical skills to address the issue
☐ A property able to support change
☐ Support from neighbours or formal group
☐ Support from businesses and contactors
☐ Support from friends and family
☐ Time available to do the work
☐ Good health so as to undertake the work
☐ People to help do the work

190. **In your opinion, would you say your access to water for agricultural purposes is a….**

☐ Minor problem ☐ Moderate problem ☐ Major problem

191. **Would you say your ability to address this issue is…**

☐ Very low ☐ Low ☐ Moderate
☐ High → ***Go to Q193*** ☐ Very high → ***Go to Q193***

192. **Why do you say your ability to address this issue is low to moderate?** (You may tick more than one box)

☐ Don't live on the property
☐ Lack of labour and help
☐ Poor land condition
☐ No need to address issue
☐ Seasons and climate
☐ Cannot be fixed
☐ My poor health
☐ Lack of time
☐ Too old
☐ Lack of money
☐ Topography of my land (hilly or flat)
☐ No help or support from neighbours
☐ Lack of knowledge (don't know how to fix it)
☐ Lack of machinery, equipment or materials
☐ Regulations or legislation

Other reasons_____

Total Grazing Pressure
(grazing of domestic, feral and native animals, i.e. goats, rabbits and kangaroos)

193. **During the time you have been on your property has total grazing pressure ever been a problem?**

☐ Yes

☐ No → ***Go to Question 203***

194. **Were you able to *successfully* manage the total grazing pressure on your property?**

☐ Yes

☐ No → ***Go to Question 196***

195. **What was the main thing you did to *successfully* manage total grazing pressure?**

_____

196. **In the last 3 years have you actively managed total grazing pressure on your property?**

☐ Yes

☐ No → ***Go to Question 198***

197. **In managing total grazing pressure on your property do you currently have…?** *(You may tick more than one box)*

☐ Access to credit and funds to undertake the work
☐ Good markets and income for your products
☐ A belief that you could address the issue
☐ Optimism about addressing the issue
☐ Equipment, machinery and materials to address the issue
☐ Favourable climate and seasonal conditions
☐ The knowledge of how to address the issue
☐ Favourable land and water conditions on your property
☐ Practical skills to address the issue
☐ A property able to support change
☐ Support from neighbours or formal group
☐ Support from businesses and contactors
☐ Support from friends and family
☐ Time available to do the work
☐ Good health so as to undertake the work
☐ People to help do the work

198. **In your opinion, would you say total grazing pressure on your property is a….**

☐ Minor problem ☐ Moderate problem ☐ Major problem

199. **In managing your total grazing pressure do you try to restrict the grazing of feral and native animals?**

☐ Yes

☐ No

200. **What area of your total property is fenced for the purpose of managing the impact of feral or native grazing animals?**

_____ Acres _____ Hectares

201. **Would you say your ability to address this issue is…**

☐ Very low ☐ Low ☐ Moderate

☐ High → ***Go to Q203*** ☐ Very high → ***Go to Q203***

202. **Why do you say your ability to address this issue is low to moderate?** *(You may tick more than 1 box)*

☐ Don't live on the property	☐ Cannot be fixed	☐ Topography of my land (hilly or flat)
☐ Lack of labour and help	☐ My poor health	☐ No help or support from neighbours
☐ Poor land condition	☐ Lack of time	☐ Lack of knowledge (don't know how to fix it)
☐ No need to address issue	☐ Too old	☐ Lack of machinery, equipment or materials
☐ Seasons and climate	☐ Lack of money	☐ Regulations or legislation

Other reasons _____

203. **Would you like the $20 IGA grocery voucher to be sent to you or would you like the money sent to the Royal Flying Doctor service as a donation?** *(tick only one box)*

☐ Send me $20 IGA Voucher

What address do you want the voucher sent to? _____

_____

OR

☐ Send the money to the Royal Flying Doctor Service (RFDS)

What address do you want the RFDS receipt sent to? _____

_____

204. **Would you like Western Local Land Services to add your address to their mailing list?**
Your responses to this survey will remain confidential. Only your mailing address will be used for the mailing list.

☐ Yes

☐ No

Mailing address: _____

_____

THANK YOU FOR YOUR HELP. PLEASE RETURN THE QUESTIONNAIRE IN THE REPLY-PAID ENVELOPE