



Drivers of practice change in land management in Australian agriculture: *preliminary national survey results*

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This document provides preliminary findings from the second phase of the Drivers of practice change in land management in Australian agriculture project, which involved a national survey of farm managers in 2010–11. This project is administered by the Department of Agriculture, Fisheries and Forestry (DAFF), and was developed specifically to inform management of the Sustainable Practices component of the Caring for our Country initiative.

Key findings

- The survey asked respondents about their adoption of several target practices within four management practice areas: cropping, grazing, native vegetation and Weeds of National Significance (WoNS) management, and specific motivations for adopting such practices. Motivations were grouped as: financial benefits, environmental factors, personal motivations, and availability of support.
- Financial benefits and environmental factors rated highly in influencing land management practice decisions. Personal motivations and availability of support appeared to be secondary motivations. The value landholders place on the availability

of support providers is likely to be associated with increasing their capacity to implement new management practices once they have decided to adopt.

- Financial benefits included increased returns, reduced costs and increasing land value. Increased availability of grazing fodder was also an important financial benefit for both the target cropping (for example, stubble retention) and grazing management practices.
- Improving soil quality was the major environmental motivation for all management practice areas except WoNS management. Reducing soil loss was also important in influencing adoption of cropping and grazing management practices.
- The desire to protect natural resources was a key personal motivation for adopting all the nominated management practices. Recognition from, and fitting in with, the community was important in influencing the adoption of grazing, native vegetation and WoNS management practices.
- Where availability of support for change motivated adoption, landcare or farmer production groups rated highest. Private consultants rated highly in supporting cropping and grazing management practices. Catchment management authorities (CMA) / natural resource management (NRM) regions were important in motivating native vegetation and grazing management practices. Government support was important in motivating WoNS management.
- From a selection of Australian government NRM programs, the pre-existing National Landcare Program had the best recognition, followed by Regional Landcare Facilitators and FarmReady. Respondent recognition requires interpretation with regard to age of program, whether the program has direct farmer contact, and regional differences in program focus.
- Activities and events that contributed management practice advice included field days, with more than half of respondents attending these. Training courses or workshops, trials and agribusiness events were also important sources of management practice advice.

- Of the total respondents to this survey, 31 per cent said they had a written property plan. The most frequently referred to components of farm plans were farm financial or business activities, followed by management of weed threats.
- Farmer involvement in groups that provided support for land management practice decisions included farmer industry organisations, which had the largest percentage of respondents involved, followed by landcare groups.
- Respondents identified lack of funds as the main factor limiting their ability to make changes to management practices, followed by available time/workload.

Rationale

This project aimed to better understand motivations influencing uptake of land management practices, with a specific focus on influences on the uptake of practices nominated under the Sustainable Farm Practices component of Caring for our Country. This research will inform future approaches directed at providing support for increasing uptake of these practices and will assist assessment of knowledge and skills targets for Caring for our Country.

This report provides preliminary findings and limited interpretation. The results will be comprehensively analysed in the final project report. In particular, the extent to which various socioeconomic characteristics (such as age, education, income and farm size) may interact with adoption and related motivations will also be investigated.

Method

Phase 1 of the project involved a qualitative study to identify the key drivers of practice change in soil and land management. This involved consultation with landholders, extension practitioners and practice change experts, policy staff and researchers about influences on adoption of land management practices. On this basis, a survey was developed for phase 2 that aimed to provide further quantitative evidence of these key influences on practice uptake. The drivers of

practice change survey was delivered as a supplement to the ABARES 2010–11 broadacre and dairy surveys, with a total of 1329 respondents. In addition, a pilot survey was conducted for the horticulture industry. The management practices examined were best practice for cropping, grazing, management of native vegetation and management of Weeds of National Significance (WoNS). The results from the ABARES supplementary survey, covering broadacre and dairy industries, are summarised in this document. Adoption results should be considered within the context that the nominated practices (see attachment 1) have different suitability in different regions.

Adoption of land management practices

Uptake of the nominated sustainable farm practices was generally in the range of 40–50 per cent, with the exception of native vegetation management activities, which were slightly lower.

The survey determined adoption rates for practices within four management practice categories: cropping, grazing, native vegetation and WoNS management (see attachment 1).

Adoption rates were comparable to those determined by other studies, including the Australian Resource Management Survey 2007–08. Respondents who had adopted were asked to nominate motivations for the adoption. These were grouped as four motivational areas: financial benefits (related to directly increasing income, including government

incentives); environmental factors (related to improving environmental performance); personal motivations (related to improving non-financial personal and social outcomes); and availability of support (related to the influence of support providers, including community, government, peers and commercial consultants—not including financial support).

Motivations for practice change

Survey respondents rated the degree of influence of each of the four motivational areas, nominating ‘to a great extent’, ‘to some extent’ or ‘not at all’ for practices they were currently adopting and for those they were considering. Table 1 shows average response rates for ‘to a great extent’, ‘to some extent’ and ‘not at all’.

Compared with the other motivational areas, financial benefits rated highest for the adoption of cropping, grazing and WoNS management practices, while environmental factors rated highest for the adoption of native vegetation management practices.

Both financial benefits and environmental factors rated highly as motivating land management practice decisions. Personal motivations and the availability of support providers (excluding financial support) appeared to be secondary motivations. The value landholders place on the availability of support providers is likely to be associated with increasing their capacity to implement new management practices once they have decided to adopt.

1 Motivations for adoption of management practices percentage of respondents

adoption motivations	crop management practices (%)			native vegetation management practices (%)			grazing management practices (%)			weed management practices (%)		
	great extent	some extent	not at all	great extent	some extent	not at all	great extent	some extent	not at all	great extent	some extent	not at all
Financial benefits	38	45	17	17	45	38	49	41	10	43	45	12
Environmental factors	31	43	26	32	47	21	22	47	31	22	45	33
Personal motivations	11	30	59	13	38	49	11	32	57	18	39	43
Availability of support	6	29	65	9	29	62	6	20	74	6	23	71

Relatively few respondents said that availability of support influenced them in land management practice decisions to a great extent. This lends support to the theory that external support sources are secondary to intrinsic motivations in natural resource management decisions.

Within the four motivation areas, respondents were asked to select up to three detailed factors (table 2) from up to six options that had been identified as influencing adoption of these practices, based on results of phase 1 of the project.

The relative importance of financial benefits were similar across all management practice categories, and related to increased returns, reduced costs and increasing land value. Provision of year-round grazing fodder was also an important financial benefit resulting from the nominated cropping and grazing management practices.

Increased land value was seen as a financial benefit for grazing, management of native vegetation and WoNS-related practices, but not for cropping practices. For WoNS management, ‘cost of not acting too high’ was selected in the top three financial motivations. Providing shelter for stock was the most important financial benefit arising from native vegetation management.

Environmental factors influencing adoption included improving soil quality, which was selected as the most important factor for all management practices except WoNS management. Reducing soil loss was also a major factor influencing adoption of cropping and grazing management practices.

2 Most frequently selected motivations for each management practice, ordered by importance to respondents

	Financial benefits	Environmental factors	Personal motivations	Availability of support
Crop management practices	<ul style="list-style-type: none"> • Increased returns • Reduced costs • Provides grazing in adverse conditions 	<ul style="list-style-type: none"> • Improves soil quality • Reduces soil loss • Reduces water run-off 	<ul style="list-style-type: none"> • Desire to protect natural resources • Reduction in workload • Liked the technologies involved 	<ul style="list-style-type: none"> • Landcare or farmer production group • Private consultant or agribusiness agent • Peers or neighbours
Grazing management practices	<ul style="list-style-type: none"> • Improved year-round feed ability • Increased returns/income • Increased land value 	<ul style="list-style-type: none"> • Improves soil quality • Reduces water run-off • Reduces soil loss 	<ul style="list-style-type: none"> • Desire to protect natural resources • Recognition by neighbours and community • Prepared to risk short-term production losses 	<ul style="list-style-type: none"> • Landcare or farmer production group • CMA/NRM region employed facilitator • Private consultant or agribusiness agent
Native vegetation management practices	<ul style="list-style-type: none"> • Provides shelter for livestock • Increased land value • Increased returns/income 	<ul style="list-style-type: none"> • Improves soil quality • Aligns with environmental goals and beliefs • Provides habitat for fauna 	<ul style="list-style-type: none"> • Desire to protect natural resources • Desire to improve amenity of the landscape • Recognition by neighbours and community 	<ul style="list-style-type: none"> • Landcare or farmer production group • CMA/NRM region employed facilitator • Government extension officer
Weed management practices	<ul style="list-style-type: none"> • Increased returns • Cost of not acting too high • Increased land value 	<ul style="list-style-type: none"> • Aligns with my environmental goals • Corporate social and environmental responsibility • Improved habitat for native fauna 	<ul style="list-style-type: none"> • Desire to protect natural resources • Recognition by neighbours and community • Fit in with practice of others in my community 	<ul style="list-style-type: none"> • Landcare or farmer production group • Government extension officer • Peers or neighbours

The importance of environmental factors was relatively similar for cropping and grazing practices. For management of native vegetation and WoNS management, alignment with environmental beliefs and protection of habitat were important motivations.

The desire to protect natural resources was the most frequently selected personal motivation for all management practice categories. Recognition from, and fitting in with, the community rated in the top three motivations for all management practice categories except cropping.

For crop management practices, interest in technologies and reduced workload were selected as important personal motivations for adoption. Preparedness to risk short-term losses was selected as an important influence on the adoption of grazing management.

Where availability of support for change was a motivation, farmers rated landcare or farmer production groups most highly across all management practice categories. Private consultants rated highly in supporting cropping and grazing management practices, with CMA/NRM region and government support more important for native vegetation and WoNS management, respectively.

CMA/NRM region facilitators were among the top three providers of support for grazing and native vegetation management. Government extension officers were key support providers for native vegetation management and weed management. Peers and neighbours rated in the top three motivations for WoNS and crop management practices.

Participation in Australian Government NRM programs

The term 'National Landcare Program' had the best recognition by farmers (90 per cent), followed by Regional Landcare Facilitators (55 per cent) and FarmReady (32 per cent). For those participating in the nominated programs, the majority reported that this participation had resulted in changed practices or skills/knowledge improvement.

The study examined recognition and participation in NRM programs, including new programs such as Caring for our Country and pre-existing programs such as the National Landcare Program. As expected, programs that have been going longer received greater recognition than new programs.

Respondent recognition of these programs should be considered in the context of three potential influences. Respondents may have been responding to term recognition rather than knowledge of the program.



Second, the majority of these programs are implemented on-ground through community groups, NRM organisations and networks, and commercial business providers. Because several of these programs do not work directly with farmers but with providers, farmers responding to the survey may be familiar with the provider but not the program. Third, these programs do not operate in all regions to the same degree and hence national recognition percentages may understate recognition among stakeholders targeted for the specific program. For example, Caring for our Country targets groups rather than individual farmers.

Table 3 highlights awareness of national NRM programs among respondents. It also shows the proportion of respondents who participated in the programs and the proportion of those respondents who said that participation had resulted in changes or skills/knowledge improvement.

The indication that participation in national NRM programs led to related positive changes or improvements in knowledge/skills suggests that extension approaches used in these programs are effective.

Activities, events and group membership informing land management practice decisions

Activities and events that respondents had participated in within the past two years that contributed land management practice advice included: field days, which were attended by 57 per cent of respondents; training courses or workshops (34 per cent); trials (32 per cent); and agri-business events (31 per cent).

3 Awareness of, participation in and change resulting from Australian NRM programs

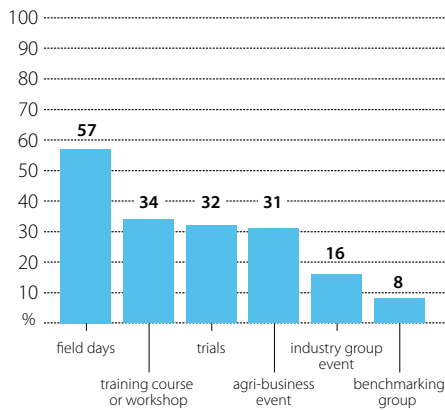
	awareness – percentage of total respondents aware of the program	participation – percentage of those aware of each program who participated	change – percentage of respondents who participated in each program who said change occurred
Caring for our Country	29	16	80
National Landcare Program	92	36	80
FarmReady	32	40	95
Australia’s Farming Future	22	7	89
Sustainable Farm Practice Facilitators	18	16	100
Regional Landcare Facilitators	55	36	94

Note: Totals are not cumulative, as this was a multiple choice question and respondents could select more than one program.



Figure 1 indicates the types of activities and events from which respondents obtained management practice advice (percentage).

1 Participation of respondents in various types of events and activities



Note: As this was a multiple choice question, respondents could select from more than one activity and therefore the total is not cumulative.

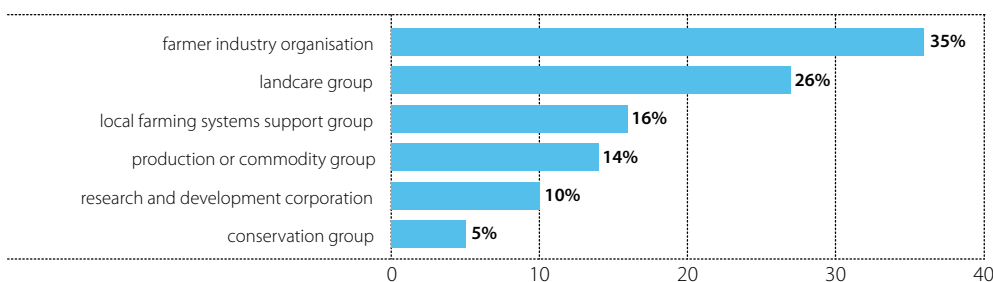
Of the total respondents to this survey, 31 per cent said they had a written property plan. The most frequently referred to component of farm plans were farm financial or business activities, followed by management of weed threats.

There was some variation across states, with respondents in Western Australia, New South Wales and South Australia most likely to have a property plan. Respondents were asked what was in their property plan, with the most commonly included components being farm production activities and farm financial or business activities (75 per cent). This was followed by management of natural resources (51 per cent), people management (46 per cent) and management of major weed threats (45 per cent). Farm financial or business activities and management of weed threats were always referred to when making decisions by 35 per cent and 26 per cent of respondents, respectively.

Of groups that provided support for land management related decisions, farmer industry organisations had the highest percentage of respondents involved (36 per cent), followed by landcare groups (27 per cent).

Figure 2 details the proportion of respondents involved in these groups.

2 Involvement in groups that provide support for land management decisions



Note: The total is not cumulative, as respondents could be involved with more than one group.

Barriers to practice change

Lack of funds was identified by 53 per cent of respondents as a factor limiting their ability to make changes to management practices, followed by available time/workload (44 per cent).

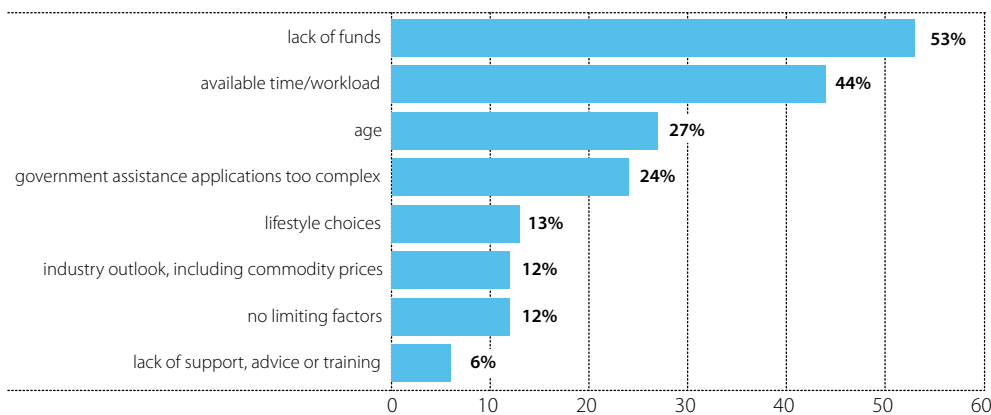
Age was seen as a limiting factor by 27 per cent of respondents, and complexity of government assistance applications was reported as a limiting factor by 24 per cent (figure 3). As this was a multiple choice question, many respondents chose more than one option.

In summary, the results of the survey highlight a number of factors that are important to better understand influences on uptake of land management practices on

farm. The results indicate that concurrent improvement in farm productivity and environmental aspects on farm provides motivation for uptake of land management practices. As productivity improvement creates private benefits, the issue of barriers to implementing practice change, including lack of resources, requires further investigation. The study also has implications for our understanding of support provision. For the most part, this support appears as a secondary driver to individual motivations, as supported by behaviour change theory. However, results show that this support was considered more important in influencing activities that result in potentially less private benefits (native vegetation and weed management practices).

These implications and full detail on the results of the study will be outlined in a full report to follow.

3 Factors limiting ability to change management practices



Attachment 1

Adoption of soil and land management practices

	practice	adoption rate (%)
Cropping management	minimum till	59
	fallowing	36
	stubble retention	55
Native vegetation management	native pasture establishment or management	23
	native vegetation maintenance and management	38
	fencing native vegetation	41
Grazing management	cell or rotational grazing	47
	minimum groundcover targets for the long term	42
	established or maintained deep rooted perennial pastures	45
Weed management	management of Weeds of National Significance	50

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