

Attitudes and needs of grain growers to developing lucerne-based farming enterprises

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Abstract

We are involved with an applied research and extension project, working with grower groups across northern Victoria to increase the area of lucerne grown in crop rotations. A formal questionnaire, facilitated discussions and ranking of priorities were used to measure growers' current practices and attitudes to lucerne. This information is being used to help plan research and extension activities with grower groups. It is also being used to evaluate the success of the project. Strong interest in lucerne was reflected by the good attendance at public meetings. At five initial meetings, a total of 66 growers completed two questionnaires each. Growers attending these meetings already had positive attitudes and aspirations for lucerne use. For these 66 growers, average farm area was 1005 ha with 49% cropped. The area sown to lucerne had increased from 7% to 17% over seven years. If practical problems with lucerne establishment and management could be overcome, they would like to have about 21% of their farm sown to lucerne, without any decrease in the area cropped. When asked to rank activities that would help them to develop better lucerne-crop rotations, the whole-farm economics of lucerne was ranked as the highest priority for future workshops. Other highly ranked priorities included information-sharing sessions on farm and paddock comparisons of lucerne farming practices. This farmer-based research has helped us develop our project and is relevant to other areas of Australia where lucerne in cropping enterprises is being promoted.

Introduction

The development of dryland salinity is a major environmental issue in the grain growing zones of south-eastern Australia. Cropping rotations that include lucerne will help reduce this risk whilst ensuring continued crop productivity (2). Many growers are now successfully incorporating lucerne into their cropping rotations, although the achievement of greater adoption will depend on overcoming a number of agronomic and economic constraints. We are involved in an applied lucerne research and extension project that aims to increase the area of lucerne sown in rotation with cereal crops. We aim to provide grain growers in northern Victoria with relevant technical and economic information through on-farm participatory research, workshops and field days and printed material. Grower meetings were used to investigate initial grower attitudes to lucerne, the results of which are reported in this paper and will guide future extension programs.

Method

Grower meetings were held at Dookie (north east Victoria), Wycheproof and Maryborough (two meetings) (north central Victoria), and Rainbow (northern Wimmera) between November 2001 and April 2002. Localities were selected because of previous and current lucerne promotion activities associated with dryland salinity. Meetings were publicised by personal letters to members of existing salinity management or crop improvement groups. Each meeting had three main components. On arrival growers were asked to complete a questionnaire on their experiences with, and attitudes to lucerne. It took about 20 minutes to complete and was done prior to any reporting or discussion about lucerne so that their initial knowledge, attitudes, skills, aspirations and current practices could be determined for future evaluation of the effectiveness of our project. The meetings then involved discussions on various lucerne issues and concluded with a second questionnaire to identify grower preferences for future local activities on lucerne.

The introductory questionnaire asked about (a) farm details, area of crop, long fallow, pasture and lucerne, and soil types; (b) reasons for growing or not growing lucerne, and perceived benefits and disadvantages for grain crops following lucerne; (c) lucerne establishment success in the past, and plans for the future; and (d) lucerne in cropping rotations-suitability, profitability, grazing practices and livestock management. The second questionnaire contained 14 short questions that required tick-the-box answers, and priority ratings of 1 (very low) to 5 (essential). Questions asked about the types of information sessions they would like (field days, farm walks, bus tours and technical meetings), economic analyses, and local trials and demonstrations.

Results and discussion

The 66 growers who completed the initial questionnaire collectively managed 66,400 hectares and crop 45% of their farm (Table 1). Pasture accounted for 46% of the farm area, 5% was fallowed and 4% was classified as “other” or “unproductive”. The lucerne area had increased from 7% seven years ago to 17% currently. If establishment and management problems limiting their use of lucerne could be overcome, they would like to have about 21% of their farm sown to lucerne in seven years time.

Table 1: Summary of farm details from the initial questionnaire.

	Growers completing questionnaire	Growers with some lucerne	Growers with lucerne in future plans	Average annual rainfall (mm)	Average farm area (ha)	Crop area (% total farm)	Current pasture area (% total farm)	Current lucerne area (% total farm)
Dookie	16	13	16	554	638	41	51	7
Maryborough (north)	9	9	9	500	651	25	70	13
Maryborough (west)	18	14	18	472	1107	39	58	20
Rainbow	4	4	4	368	1618	76	16	10
Wycheproof	19	16	19	378	1233	49	37	19
All groups					1005	45	46	17

The farm practices of growers attending the Wycheproof and Rainbow meetings were compared with the 1996 Australian Bureau of Statistics (ABS) farm census data for the surrounding shires (Table 2). This indicated that growers attending these meetings were a highly selected group with a strong interest in lucerne. For instance, growers attending the meeting at Wycheproof had 17% of their farm under lucerne while the average for the Buloke shire was 1.7%. At this meeting, 96% of growers had lucerne on their farm while across the Buloke shire only 12% of farms had some lucerne. There was little difference in the percentage of farm under crop between growers attending the Wycheproof meeting (49%) and in the surrounding shire (51%). The findings for growers attending the Rainbow meeting and the surrounding Yarriambiack shire were similar (Tables 1 and 2). Based on the 1999 ABS farm census data (only 20% population surveyed), the area of lucerne in the Yarriambiack and Buloke shires was estimated to have

increased by 0.3% in both shires, to 1.1% and 2.0% of total farm area respectively, which is still well below the values from our survey.

Table 2: Selected data on cropping intensity and lucerne pastures from ABS 1996 farm census for the shires in which the Wycheproof (Buloke) and Rainbow (Yarriambiack) meetings were held.

	Number of holdings	Number of holdings with crop (%)	Number of holdings with lucerne (%)	Average farm area (ha)	Crop area (% total farm)	Lucerne area (% total farm)
Buloke	799	91	13	891	51	1.7
Yarriambiack	776	95	7	785	54	0.8

Over 85% of growers completing our questionnaire believed that lucerne benefited crop growth, grain yield, soil nitrogen and soil structure (Table 3). Questionnaire results and meeting discussions indicated concern over the effects of drier soil profiles after lucerne on grain yield, grain size and percent screenings in lower rainfall areas, while in higher rainfall areas several growers reported very good crops with high grain proteins after lucerne.

From the questionnaire, 126 paddocks had been sown to lucerne over the previous 3 years; of these, growers classified 71% as successful, 19% as partially successful and 10% as failures. While this success rate is good, other questionnaire results indicated that establishment issues still concern many growers (Table 4). Almost one third of growers had indicated that “establishment difficulties” prevented them from growing larger areas of dryland lucerne. However, few growers thought there were “too many practical problems with lucerne establishment and management to make it successful on our farm”. Establishment costs did not seem to be a major factor. Discussions during the meetings, and results from the second questionnaire, indicated that growers are keen to learn from each other on this topic. Preferred activities were local paddock inspections and discussions.

Table 3: Growers’ perceptions on the effects of lucerne on the following grain crops.

Lucerne effect	Beneficial effect (%)	No effect (%)	Negative effect (%)
General crop growth after lucerne	89	11	0
Crop yields after lucerne	86	14	0
Grain quality (protein, grain size, screenings) after lucerne	65	29	6
Soil nitrogen status after lucerne	89	9	3
Soil water status after lucerne	32	29	38

Soil structure after lucerne	85	9	6
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Table 4: Growers' perceptions on the success of lucerne establishment under dryland conditions.

Lucerne establishment factors	Disagree %	Neutral %	Agree %
Costs of establishment are too high to justify returns	57	32	11
Failure rates are too high	49	36	15
Establishment difficulties a deterrent to sowing larger areas	52	19	29
Too many practical problems with establishment and management	74	21	5

Growers attending our Wycheproof meeting had similar areas of their farms under crop, compared with growers across the Buloke shire (Tables 1 and 2). This suggests they are no less committed to cropping - but have replaced annual pastures with lucerne. Over the 5 meetings only 22% thought that "cropping is our main enterprise and lucerne has no role in our farming situation" (Table 5). Positive attitudes to lucerne-crop rotations were also supported by 61% of growers who agreed that they would "prefer mostly lucerne pastures if the practical problems with lucerne were overcome".

Table 5: Growers' perceptions on the suitability and management of lucerne in mixed farming enterprises.

Lucerne suitability and management	Disagree (%)	Neutral (%)	Agree (%)
Annual legumes are better suited to our situation than dryland lucerne	29	46	26
Cropping is our main enterprise and lucerne doesn't have a role on our farm	78	16	6
If practical problems with lucerne were overcome, we would prefer mostly lucerne pastures	8	31	61
Dryland lucerne has little or no place in our future plans	91	6	3
Rotational grazing is very difficult to carry out on our farm	57	17	26

A previous survey of randomly selected growers in north central Victoria (1) indicated that suitable grazing practices for lucerne were a concern, especially in lower rainfall areas where paddock sizes are larger. Growers attending our meetings had more positive attitudes to managing lucerne and stock together. For example, 57% did not support the statement that "rotational grazing of lucerne is very difficult to carry out on our farm" (Table 5). Most growers (72%) believed that lucerne-crop rotations were profitable (Table 6). Only 5% thought that there was no economic justification for investing in dryland

lucerne enterprises. Discussions during and following our meetings have yet to find one grower who has undertaken a detailed economic analysis of their lucerne-crop rotations. Very high ratings were given to future activities involving economic analyses of lucerne establishment, livestock enterprises with lucerne, crops after lucerne and the benefit of lucerne to the whole farm business.

Table 6: Growers' perceptions on the effects of lucerne on the profitability of their farm.

Profitability of lucerne	Disagree (%)	Neutral (%)	Agree (%)
Increased areas of dryland lucerne would increase our overall profitability	5	24	72
Current economic conditions don't warrant investments in lucerne	71	24	5

Conclusion

Although the growers attending our meetings are not a random sample, they have very positive attitudes to the role of lucerne in their cropping enterprises. They represent a core group of growers who are keen to make crop rotations with lucerne work better. Their positive attitudes were similar to the market segment of "established lucerne growers" who made up 6% of growers in a random survey of growers in north central Victoria (1). This project will address the needs of these motivated growers in making grain – lucerne farming systems a profitable practical alternative.

Most growers with substantial areas of lucerne are still developing their farming practices. There was wide support for all types of information and activities, including economic analyses, local farm walks, and farm-scale demonstrations and trials. Even growers involved with benchmarking groups have not yet undertaken economic analyses of the benefits of lucerne to their cropping enterprises. These groups will continue to be core drivers for the integration of lucerne with grain crops on-farm and have highlighted the need to test lucerne guidelines under local conditions. As well, economic assessments that consider the benefits, costs and risks associated with a transition to lucerne-crop rotations are needed. The first stage of our project has been to work with this self-selected group of growers to assist them in realising their aspirations for lucerne in their cropping enterprises.

Currently crop-lucerne rotations can neither be proved nor disproved to be as profitable as crop-only farms. Even if they could be, we cannot simply assume they will gain wider acceptance. The promotion of lucerne to the wider cropping community raises many other issues. The very positive attitudes to lucerne of the random group of growers in north central Victoria (1), possibly because they do not consider their soils suitable for continuous cropping, may not be reflected elsewhere in Victoria. Discussions by the authors with farmers from other districts, who have very high cropping intensities on suitable soils, and their cropping advisers, raise many negative attitudes to lucerne. These farmers consider crop-lucerne rotations are likely to be less profitable because of their livestock component and in some cases there is a personal preference for working with crops and machinery rather than with livestock. As well, in lower rainfall areas, there is still considerable farmer and scientific debate concerning ground water recharge and the necessity or frequency of a lucerne phase. Thus this project aims to develop a suite of options based on thorough economic analyses for a range of soils and climates.

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