Beattie Consulting Engineers Pty Ltd
Structural and Civil Design

mla
MEAT & LIVESTOCK AUSTRALIA

final report

Project Code: B.COM.0338

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Date published: March 2012

PUBLISHED BY
Meat and Livestock Australia Limited
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NORTH SYDNEY NSW 2059

Market Need Analysis for Multi-Enterprise Cost of Production Tool for Livestock Producers

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

Acknowledgments

Thank you to the producers and service providers who willingly gave up their time to participate in this study. Their thoughts and views have been invaluable in guiding the development of the recommendations for this report.

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Executive Summary

The MCoP tool was developed by MLA in response to industry demand for a simple tool to enable the calculation of CoP and profit for multiple enterprises within the one business, and to summarise the performance of the business at the whole farm level. Feedback on the initial prototype from consultants suggested that, unlike the single enterprise CoP tools, the MCoP tool is too complex for provision to industry as a stand-alone web based application. In endeavouring to identify strategies for the effective delivery of the tool to industry, MLA engaged Beattie Consulting Services to undertake a market need analysis to seek feedback from a range of producers and agricultural service providers via a series of personal interviews. Feedback was sought from interviewees in regards to their perception of the ease-of-use and usefulness of the MCoP tool, their level of interest in utilising the tool and preferred modes for accessing and using the tool, including requirements for ongoing support.

All but one of the seven producers surveyed had previous experience with calculating CoP for their business. Given this past experience, most felt confident in being able to enter data into the MCoP tool and understand the outputs, however most also felt that the tool was not easy for farmers to use in general. Suggestions for improvement related mainly to reducing and simplifying the data requirements for the tool, and for improving the structure of the tool in terms of the logic, flow, and clarity of the data entry process and the presentation of outputs. Suggested additional outputs from the tool to increase its value to producers included the addition of beef and sheep enterprises to cater for studs, and presenting outputs on a per hectare basis. If improvements were made to the tool, all producers interviewed indicated that they would probably utilise it in their business, however only four producers indicated that they would be likely to use it in its current form.

In general producers felt that banks, accountants and agribusiness service providers such as Elders/Landmark, were not likely to be widely used by producers as avenues for accessing and using the MCoP tool. Private consultants and public agricultural extension officers were the preferred agents for accessing the tool due to their higher credibility in the area of farm business analysis, and their perceived greater trustworthiness.

All producers felt that the MCoP tool was more suitable for use by producers in a group context rather than in isolation, primarily due to increased motivation, expert assistance provided by a facilitator, and the opportunity for group discussion and performance comparisons. Producers felt that facilitators/advisors using the tool with groups need to be highly skilled in the subject matter and in motivating producers, but need not have received MLA accreditation in use of the tool.

Approximately 20 percent of service providers found the MCoP tool easy to use, however the vast majority of these did not enter any data to test its usability, and/or do not typically work with producers in providing farm management advice. A further 36 percent reported that while they found the tool fairly easy to use, it would not be easy to use for producers in general. Nine percent reported a similar sentiment in noting that perceived ease of use would depend on who the target user is and what alternative option was available for achieving a similar outcome.

A third of respondents reported that the program was not easy for them, or anyone else to use. Some of the adjectives used in qualifying this response included; confusing, complicated, daunting, and clunky. The most common suggestions for improving the usability of the tool related to the general user friendliness of the program in terms of formatting and labeling issues, and to the structure of the program in terms of the logic, flow and clarity of the data entry process.

The general consensus was that the MCoP tool is more involved and complicated to use than the single enterprise tools, but simpler than doing a whole farm analysis. Suggested improvements to the outputs provided by the tool included correction of errors, providing outputs on a per hectare basis, allowing for multiple years of data entry, providing outputs on a per head and/or per DSE basis, calculating gross margins, and adding provision for scenario analysis.

The vast majority of service providers felt that the MCoP tool was unsuitable for producers to use without support. The general feeling was that in its current form, the value of the MCoP tool was predominantly as a learning aide for use with either individuals, or more likely groups, to build producer confidence and capability in undertaking farm business analysis activities. For farm planning or detailed business analysis the general consensus was that producers would need to either use a tool/program with a broader suite of more relevant outputs and/or engage the services of a consultant. Although most service providers felt that the tool was more suited for use by consultants/service providers with producers than by producers on their own, many questioned whether service providers would be interested in using it with clients as most would already have their own purpose built or purchased tools.

Of the thirty three service providers interviewed, 58 percent reported that they would be unlikely to use the tool to any great degree or definitely wouldn't use the tool at all. The remaining 42 percent reported that they would be likely to, or definitely would, use the tool. Of those who reported that they probably would use the tool, many qualified that by saying that they would only, or would be more likely to do so if the tool was improved based on the feedback they provided.

General recommendations for the sustainable delivery of the tool to industry with the objective of maximising potential applications involved:

- Correction of calculation errors within the tool.
- Provision of enterprise CoP and profit outputs on a per hectare basis.
- Investing in a user interface to increase ease of use of the tool.
- Altering the methodology for splitting costs between multiple products from the same enterprise.
- Improving the structure of the tool to simplify the process of data entry.
- Provision for multiple years of data entry and analysis.
- Excluding the calculation of wool inventory on sheep backs from the tool.
- Developing a communication and marketing strategy to achieve widespread industry awareness of the existence of the tool and how to access it, and use of more personal communication to provide detailed information and persuasive arguments for adoption.
- Placing the initial focus for delivery of the tool to groups on its use as a learning aide rather than for direct benchmarking activities using individual producer data.
- Provision of ongoing support mechanisms for users to facilitate sustainable delivery and build momentum for adoption of the tool. Among other things, recommended support mechanisms include provision of gratis train-the-trainer activities for service providers and a Farm Ready approved producer training course.

Decisions regarding the level of investment by MLA in implementing the recommendations provided in this report will depend upon the relative costs and benefits of each recommendation, and MLA's criteria for success in regards to delivery of the MCoP tool to industry. It is suggested that when considering which recommendations to adopt that the costs of non-implementation are also considered, particularly with regard to building goodwill for MLA and the quality of the data provided

to users. Consideration of the requirements for desired functionality of the tool, and the relative importance of perceived ease of use and usefulness on influencing potential adoption will also be relevant.

1.0 Introduction

In the face of a continuing downward trend in agricultural terms of trade, internal and external challenges presented by climate change, and in many situations, a degrading resource base, the predominant avenue for Australian farmers to survive and prosper into the future is via the achievement of productivity growth. Australia's livestock sector has achieved relatively strong productivity growth over the past few decades, however recent research suggests that this rate of growth has slowed (Fuglie, 2010; Gray *et. al.,* 2011).

The value of human capital, and more specifically, managerial skill, in facilitating the process of productivity growth on Australian farms cannot be underestimated. In agriculture, productivity growth reflects improvements in the efficiency with which farmers combine inputs such as land, labour, capital and materials/services to produce outputs, such as wool, grain and meat. Given that the primary role of a farm manager is to make decisions regarding the selection and combination of these production inputs and the processes and technologies utilised for converting them into saleable products, the quality of these decisions, and thus the skill of the farm manager, will impact directly upon the success of the operation. As such, any investment in improving the managerial skills of farmers is likely to contribute to improved decision making and, notwithstanding a climate of uncertain seasonal conditions and markets, a greater capacity for achieving improvements in farm productivity.

Investment in the development and extension of computer based decision support systems (DSS) has been identified by government and industry as one strategy for improving the decision making capacity of farm managers. Meat and Livestock Australia (MLA) is one such industry organisation that has invested in decision support tools to enhance the decision making capacity of red meat industry farm managers. Among these tools are the beef and lamb single enterprise cost of production tools and the multi-enterprise cost of production tool (MCoP).

While the development of decision support tools and their subsequent exposure to farmers in various contexts might intuitively be expected to generate widespread improvements in decision making processes, the manifestation has not lived up to these expectations. A review of the relevant literature cites several key reasons for the relatively low adoption of DSS within agriculture (McCown, 2002; Newman *et.al*., 1999; Cox, 1996):

- Outputs from tools do not align with information and data requirements of end users.
- Excessive complexity of tools.
- Lack of field testing.
- Excessive data entry requirements.
- Poor alignment of data entry requirements with data management systems of end users.
- No reason seen for changing current management methods.
- Distrust for the output of a DSS because producers do not understand the underlying theories of the models.
- Mismatch of the DSS output with the decision-making style of the producer.
- Unclear definition of the beneficiaries (e.g., scientists, primary producers, and technology transfer agents).

The theory of diffusion of innovations provides some useful insights into how DSS developers can implement strategies in an attempt to avoid some of these pitfalls, and in doing so, enhance the opportunities for greater adoption levels of DSS by potential users (Rogers, 1995). As such, this paper utilises the theory of diffusion as a framework for identifying and evaluating potential strategies for achieving the objectives of the MLA project titled: Market Need Analysis for the Multi-Enterprise Cost of Production Tool for Livestock Producers.

More specifically, the evaluation of the MCoP tool within the framework of diffusion theory, combined with interview data collected from a selection of potential end users, is used to identify opportunities for maximising the utility of the MCoP tool, creating awareness and demand for the tool, identifying effective modes of deployment and identifying appropriate short and long term support mechanisms for sustainable use of the tool. These outcomes form the basis for provision of a series of key findings and recommendations with regard to the overall project objective of *"identifying the most appropriate sustainable approach for delivery and utilisation of the MCoP tool to industry".*

The following report presents a summary of the background to the project, the activities and methodology employed in achieving project objectives, and a discussion of potential strategies for the effective delivery and support of the MCoP tool to industry. The discussion concludes with a series of recommendations for achieving this overall project objective.

2.0 Background

MLA considers cost of production (CoP) to be a *"fundamental business profit driver"* and as such has promoted the calculation and understanding of enterprise CoP as a key focus of on farm flagship programs since 2004. The vehicles for facilitating this process have been the single enterprise beef and lamb CoP tools developed by MLA to enable producers to calculate CoP either on their own, or as part of a group activity. However over time significant feedback from industry has suggested that these tools are inadequate for producers with multiple enterprises, and are limited in terms of their analysis capacity.

In response to this feedback, and given the domination of mixed enterprise businesses within the Australian farming landscape (ABARES reported that in 2009/2010 there were an estimated 12,590 mixed livestock/cropping businesses and 4,144 mixed sheep/beef businesses representing an estimated 20.9 and 28.5 million hectares respectively), MLA invested in the development of a multi-enterprise CoP calculator to enable the calculation of CoP and profit for multiple enterprises within the one business, and to summarise the performance of the business at the whole farm level. The resultant MCoP tool allows for the calculation of CoP and profit per kilogram for lamb, wool, beef and cropping enterprises, and provides whole farm performance measures that include total operating profit, return on assets and return on equity.

Feedback obtained from trialing the MCoP tool with producers and during forums held with agricultural advisors suggested that unlike the single enterprise CoP tools, the MCoP tool is too complex to be provided to industry as a stand-alone web based tool. With the technical development completed, MLA now wishes to determine how the MCoP should be deployed to industry.

As such, the Market Need Analysis for the Multi-Enterprise Cost of Production Tool for Livestock Producers Project was developed with the aim of identifying the level of interest among producers and service providers in utilising the MCoP tool, potential applications and support required for its use, and the preferred mode of delivery to industry. The results and outcomes from this project will then

be used to plan an appropriate roll out of the MCoP tool to producers. Specific project objectives included:

1. Needs Analysis

a) Identify the level of interest in the MCoP tool and its potential applications and preferred mode of delivery to:

- Producers
- Relevant service provider users such as advisors, consultants, agribusiness, accountants and bankers.

b) Gauge their respective interest in the MCoP tool and the preferred means of delivery.

2. Develop Recommendations

a) From results of the needs analysis, make recommendations regarding the most appropriate and cost effective way in which to deliver the MCoP tool to industry.

The following section describes the activities and methodology employed in achieving these objectives.

3.0 Methodology

The methodology used for this study involved collecting data from producers and service providers using a standardized, open-ended interview process where the same open-ended questions were asked during each interview. The information obtained during these interviews was categorised into key themes which were then used to construct an understanding of producer and service provider attitudes and intentions regarding use of the MCoP tool. For some questions responses were collated based on frequency of simple positive and negative indications, while for questions that required more qualitative responses, information was grouped into recurring themes and ideas, and then reported in terms of the frequency with which these occurred among respondents.

Seven producers and 33 service providers were interviewed during the study. All but one of the producer interviews, and 28 of the 33 service provider interviews were conducted by phone. One producer and five service providers were interviewed face-to-face. Appointments for interviews were made by either phone or email in advance of the interview. The MCoP tool and instructions file were provided to interviewees well before the scheduled interview to allow sufficient time for review of the tool. Interviewees were requested not to provide the tool to other external parties without the prior consent of MLA. Prior to the interview commencing interviewees were briefed on the background to the study and data confidentiality arrangements were discussed. Each interview took approximately 20-30 minutes to complete, although some of the face-to-face interviews took significantly longer.

The 33 service provider interviewees consisted of three from the banking sector, two accounting firms, three agribusiness service providers, one product merchant, two agricultural education providers, three private business consultants, five private production consultants and fourteen state agriculture department employees. The label of agribusiness provider represents organisations that provide general livestock product and marketing services to producers. While the eight private consultants interviewed have been broadly classified as either business or production based, there is a gray area as all provide some form of both business and production advice to clients but have a bent toward one or the other as classified. The selection of these organisations was based on a combination of geographical location, previous experience with the MCoP and single enterprise CoP tools, size of mixed farmer client base and availability and willingness to be involved.

In terms of the state government employees, the original intention was to interview two from each of the New South Wales, South Australian, Tasmanian, Victorian and Western Australian agriculture departments. During the course of the interview process this number increased to three in Tasmania and Victoria and four in WA. In Tasmania one of the key people identified for interviewing was unable to be contacted, thus a replacement participant was selected and confirmed. However the original contact had been on leave and eventually did make contact to express a willingness to be involved, thus was also included in the study.

In Victoria an extra person was interviewed due to their experience in the area of decision support tool development. In WA, one of the original two interviewees recommended including another colleague who is an expert in production modeling in the study, and a fourth interview was conducted when a person contacted by MLA very early on in the study to request their involvement belatedly made contact to provide some useful comments.

Slightly different questionnaires were used for the producer and service provider interviews to account for the likely differences in potential use of the tool between these two groups. Both questionnaires were initially piloted with approximately 10 percent of interviewees and slight amendments made before final versions were completed. The questions asked during the interview process were intended to illicit responses from interviewees in the following key areas:

- To identify what other similar tools producers and service providers have used/do use and how they compare to the MCoP tool.
- To obtain feedback regarding the perceived ease of use of the tool.
- To obtain feedback regarding the perceived usefulness of the outputs from the tool.
- To obtain suggestions for changes to increase the usefulness of outputs and ease of use of the tool.
- To determine the level of interest among producers and service providers in utilising the tool.
- To determine how producers and service providers would prefer to access and use the tool and what kind of support they may require from MLA to do this.

The following section summarises the information obtained in these key areas from producer and service provider interviews.

4.0 Results

The results from the seven producer and 33 service provider interviews conducted during this study are summarised separately below. Sample quotes from interviewees have been used to illustrate the nature and range of views provided in each of the key areas discussed. Where appropriate, charts

have also been used to present the relative frequency with which particular views and ideas were expressed.

4.1 Producer Survey Results

Producers were first questioned regarding their previous experience with farm business analysis activities to establish the context for their responses to questions about the tool. They were then asked specific questions in relation to ease of use (usability), value of outputs (utility) and preferred means of accessing and using the tool. The results of these interviews are summarised below.

4.1.1 Previous Experience with Farm Business Analysis Activities

Of the seven producers surveyed, two have previously used the MCoP tool as part of a group activity, and five have used either or both of the single enterprise CoP tools in the same context. One producer has not used any of the MLA tools but is very familiar with farm business analysis and cost of production, having been a member of the Victorian Livestock Industry Farm Monitor Project (FMP) for the past five years. One producer has no previous experience with farm business analysis but is interested in calculating and monitoring performance data for his business.

In addition to the MLA CoP tools and the FMP, other services and programs which have been used or are being used by the producers surveyed include Holmes and Sackett benchmarking (1), RCS benchmarking (1), Phoenix software (1), Practical Systems software (1) and tools developed themselves (2).

Producers identified four major uses for their outputs from previous farm business analysis activities:

- Group discussion which generates ideas for improvement.
- Compare own data to other group members.
- Monitor own performance over time.
- Compare performance of enterprises on own farm.
- Provide hard data to support ‘gut feel’.

All producers felt that undertaking some kind of business analysis is beneficial to their business and is something they would ideally plan to undertake as an annual activity. Several commented that how frequently they would actually do it would depend upon the effort required to obtain the outputs they needed. The following section presents the producer feedback regarding the ease of use and value of outputs from the MCoP tool.

4.1.2 Usability and Utility of the MCoP Tool

Usability

Three of the seven producers surveyed felt that the tool was not easy to use, and one commented that it would depend on the quality of farm records. The other three producers responded that yes, it was easy for them to use due to their backgrounds and past experience, but they felt that it would not be easy for most farmers. In support of this view, two of the producers who felt that it wasn’t easy to use have no previous experience with the MLA CoP tools.

Four of the producers felt confident in entering the required data into the program without assistance, one wasn’t sure as he hadn’t looked through the instructions properly to see how helpful they were, and two felt that they would definitely need assistance. Five producers provided suggestions for how the tool might be improved to make it easier for producers to use. One producer felt that the tool did

need to be easier to use but wasn't sure how to go about it so had no specific suggestions. The suggestions for improving the usability of the tool have been grouped into four general categories: structure, content, instructions and linkages with other software. The relative frequency of suggestions in each of these categories is presented in Figure 1.

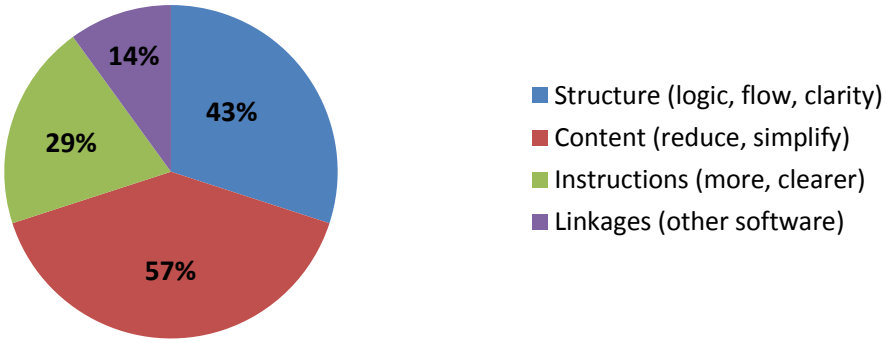

Figure 1: Producer suggestions for improving the usability of the MCoP tool.

Over half of the producers felt that the content of the tool needs to be re-examined with a view to reducing and simplifying input data requirements. Specific areas identified by producers as needing improvement included the handling of wool inventory and the process of livestock reconciliation data entry.

Sample Quotes

- *"The valuing of wool on sheep adds another level of complexity that doesn't need to be there for many producers, especially lamb producers. Better to just put it in terms of what wool cheques you got and is there any in the shed and what's it roughly worth - all of a sudden it's a much simpler process."*
- *"I was confused by the outputs – splitting CoP for a sheep enterprise into wool and lamb. It doesn't make sense for a prime lamb producer to calculate a CoP for wool. I'm also confused about the valuing of wool on the sheep's back and how it fits in to the calculations."*

Three producers felt that the structure of the tool in terms of the logic, flow and clarity of the data entry process needs to be improved. In general, these producers felt that it was difficult to see where data flowed from the initial point of entry to other sheets within the tool. There was also some confusion about what parts were optional to fill in and which weren't, and the logic of the order and presentation of data entry, particularly in regard to livestock numbers.

Sample Quotes

- *"It's just not that clear where things go and where data flows to."*
- *"The program is quite confusing and unclear in relation to wool and livestock data entry but I understand the outputs."*

One producer felt that the input process could be simpler if the data from the farm management software program he uses could be linked to the MCoP tool to automatically transfer the required data. Several others felt that the instructions could also be improved.

Utility

All but one of the producers surveyed felt that the outputs provided by the tool would be useful to them. These producers felt confident in being able to understand and use the outputs from the tool without any external assistance, however two commented that it would still be worthwhile to discuss their outputs with an outside party to seek someone else's views and check for accuracy. The producer who saw no value in the outputs has a stud enterprise and felt that the tool doesn't cater well for studs.

Of those producers who felt that the outputs would be valuable, the following general comments were provided as to how they might be used:

- Assist with product marketing decisions.
- Identify key factors affecting CoP by monitoring outputs over time.
- Compare enterprises on own farm to better target resource use to the more profitable ones.
- Outputs are only a starting point – would need to seek professional advice for planning any changes.
- Useful to compare own enterprises to other farmers and generate group discussion.
- Wouldn't use the outputs to make decisions about enterprise mix but could help to identify issues within enterprises.
- More useful to compare your own data over time than to compare with other farmers, but the latter is still worth doing.

In response to the question of whether any additional outputs could be added to the tool to increase its potential value to producers, three couldn't think of any, three provided suggestions, and one felt that while the outputs from the tool were fairly limited, the software he uses to do his own farm analysis is very comprehensive and provides all the information required for planning so it didn't really matter. The MCoP outputs were more of an interest in terms of comparing himself with other producers in his group.

The three suggestions for changes to the outputs were to correct errors, add in another sheep and beef enterprise to cater for studs and provide economic and production outputs on a per hectare basis:

> *"As an introductory tool you don't want to confuse people and bombard them with a heap of outputs, but at the same time if you're going to all that effort you want to get some use out of it. Production outputs are really important and useful, especially on a per hectare basis and if you want to compare livestock enterprises you really need to do that on a per hectare basis too."*

In comparing the value of the MCoP tool as a means of undertaking farm business analysis to some of the other tools/services used by producers, the general consensus was that it required fewer inputs than other activities/programs, but generated fewer outputs so was less useful for decision making and planning. Producers commented that the benefit of the MCoP tool and the single enterprise CoP tools is the potential to use them with groups to facilitate benchmarking against other producers. Thus producers who are currently using other products and services to analyse business performance will continue to do so to get a better whole farm evaluation and planning capability for decision making, but would potentially use the MCoP or BCoP/LCoP tools with their producer groups to benchmark performance.

4.1.3 Utilising and Accessing the MCoP Tool

Four of the seven producers reported that they would use the MCoP tool, and the other three said that they would use it if it was improved based on their feedback. All producers felt that they'd prefer to use the tool as part of a group activity with a trained facilitator, at least initially for some, rather

than on their own without assistance. The major benefits identified in using the tool as part of a group as opposed to on their own included:

- Increased motivation to provide data to the facilitator due to a sense of obligation to the rest of the group.
- Support and assistance provided by the facilitator to input data and interpret results.
- Group discussion and comparison of data with other farmers.

While the general consensus was definitely that the tool is better suited for use by producers in a group than in isolation, several producers did raise the issue that concerns regarding the confidentiality of data had limited group membership. One producer commented that he knew of several producers who intended to join his group but decided against it due to feeling uncomfortable about sharing their financial data with other producers.

A second producer commented that he had been involved with a group of about 10 producers who had undertaken a cost of production activity. When the results were presented to the group, five businesses had a CoP that was quite a bit higher than the other five. After that session the five with the higher values did not return, he suggests partly perhaps because they were embarrassed, and partly because they became defensive and probably then decided it was all a load of rubbish, but he wasn't sure. The producer noted that most of these enterprises were mainly breeding operations compared to others who had more trading so they were operating a different system. He commented that it was a shame they didn't come back for the follow-up workshops because they could have benefitted from the group discussion to identify areas for improvement and reasons why their figures were higher.

As an alternative to accessing the tool in a group context, producers were asked their views about accessing and using the tool via an accountant, banker, or agribusiness service provider (e.g. Elders/Landmark). The general feedback from producers is summarised in the following points:

- A perceived lack of interest by these service providers in providing this kind of service to producers (banks/agribusiness).
- A lack of confidence that staff would be sufficiently skilled to provide this service to producers (agribusiness/accountants/banks).
- A lack of trust that the service provider would have producers' best interests in mind and not just their own agendas (banks/accountants).
- A view that they would charge too much for the service (accountants).

Three producers felt that if you had a good 'switched on' accountant it could work. However in general accountants were not considered to be sufficiently skilled in this area. In any case, several producers commented that they would not necessarily trust that the bank/accountant would have the same objectives in using the tool as the producer. Several producers also commented that banks would probably be interested in using or viewing the outputs from the tool so may play a role in promoting its use by producers rather than actually using it with producers.

In general producers felt that private consultants and public agricultural extension officers were the most suitable agents to deliver the tool. This view was driven by the perception that these service providers have greater skill and expertise in this area, and are more trustworthy insofar as having no ulterior motives other than assisting producers to achieve their goals.

All but one producer responded positively to the idea of developing a Farm Ready approved course to provide training for producers in use of the MCoP tool. One producer felt disappointed that the CoP activity he had previously been involved with didn't take producers the 'next step' to show them how

to use the outputs effectively. He felt that a course would assist producers to understand how to make better use of the outputs from the tool:

> *"The disappointing thing about the group MCoP activity with Sandy was that it didn't take it to the next step or direct producers as to how to take it to the next step. You just got your results and had a bit of a look at how they compared to others in the group and that was it. There was no discussion about key enterprise or business profit drivers or how producers go about identifying what they need to do to improve. A course like this would help to take that next step and use the data more effectively."*

In terms of the potential value of a process of MLA competency accreditation for service providers using the tool with producers, the general consensus was that it might help if the facilitator/service provider was unknown to the producer, but it wasn't necessary. However producers did comment that service providers should know how to use the tool properly, and in a group context, a good group facilitator can make a big difference to the benefits/learning gained by producers from a business analysis type activity. To this end, the survey responses identified that a facilitator needs to be highly knowledgeable in the subject, skilled at motivating and inspiring producers, and ideally should be familiar with the local operating environment for producers in the group.

4.2 Service Provider Survey Results

Service providers were first questioned regarding their previous experience with using farm business analysis tools/programs with producers. They were then asked specific questions in relation to their views on the ease of use (usability), value of outputs (utility), their level of interest in using the tool with clients, and the kind of support they would require to do this.

4.2.1 Previous Experience with Farm Business Analysis Software

Several of the service providers interviewed were already familiar with the MCoP tool having been involved in either providing feedback on the methodology or in trialing the tool with producers. Most of the public extension and private consultant service providers interviewed were familiar with the MLA single enterprise tools, with many having used them with producer groups. Interviewees from the banking, accounting, and agribusiness fields were generally less familiar with these tools, and with the exception of one agribusiness interviewee who is an ex-state government employee, none had previously used these tools with producers.

Many service providers, both public and private, have developed their own suite of tools for use with producers. Some are very simple introductory level tools intended for providing an initial diagnostic assessment or as a learning aide, while others are more complex and detailed and are used for the purpose of planning and decision making. The former are typically used with the client and the latter by the consultant to generate outputs for the client.

In addition to the MLA tools, other publically available programs used by service providers include Cash Manager, Agrimaster, Optimizer, Plan to Profit, FarmPlan, Agrigater, state government gross margin tools, SheepsBack, @Risk and FarmPack.

4.2.2 Usability and Utility of the MCoP Tool

Usability

Figure 2 presents the views of interviewees regarding the usability of the MCoP tool.

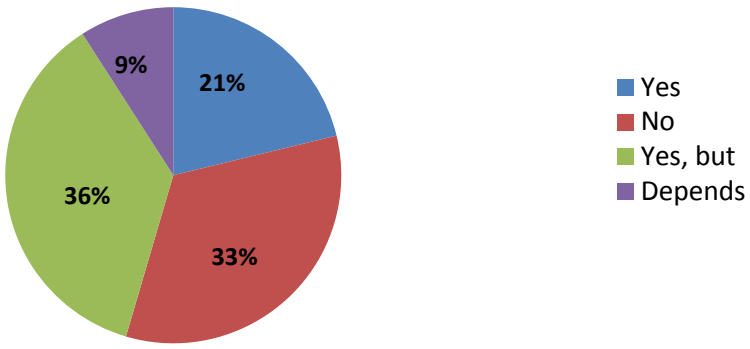

Figure 2: Service provider responses to the question: Do you think the MCoP tool is easy to use?

Just over 20 percent of respondents found the tool fairly easy to use. In qualifying some of these positive responses, it should be noted that at least half of these respondents had not actually entered any data into the program. One provider tried but was unable to enter data as cells had 'locked him out'. In terms of the type of service providers who found the program easy to use, all but one were professionals who do not typically provide farm management type advice to producers. That is, they were service providers from the education, banking, accounting and agribusiness fields rather than public or private consultants/extension staff.

Just over a third of respondents (36 percent) reported that while they found the program fairly easy to use, they didn't think other people, particularly producers, would. These respondents are categorised as 'Yes, but' in Figure 2.

Sample Quotes

- *"It's easy for me to use, but I think it's a bit too sophisticated for most farmers. In general farmers will struggle with it."*
- *"For me yes, but for farmers it's too complex. I suggest that the majority of farmers (95%) would look at this and put it straight into the too hard basket. While it's technically very good - in reality very few producers would go to this level of analysis."*

A third of respondents reported that the program was not easy to use. Of these, just over 90 percent were either private consultants or state government employees.

Sample Quotes

- *"No, not at all. It's clunky, confusing, lacks direction for the user, not at all polished or professional looking. It has a long way to go if it's to be useable by either consultants or producers. It needs a lot of work."*
- *"No, it's too complicated and there are things in there that don't need to be in there."*
- *"No, not really. It was confusing and unclear. Some sections of it were easy, but in general, to get the information I wanted I seemed to have to flick through sheets back and forth a lot. There was no clear, logical progression about what flowed where."*

Several interviewees (9 percent) responded that how easy the program was to use depended on who was using it and what alternative options you were comparing it to. These responses were categorised as 'Depends' in Figure 2.

Around a quarter of service providers interviewed had no suggestions for changes to improve the usability of the tool. Some simply had no suggestions, while others felt that 'it was the nature of the

beast' so to speak in that it required quite a bit of data input to get the desired outputs, so it couldn't really be simplified a great deal.

Suggested improvements for increasing the usability of the MCoP tool have been categorised as relating to either the structure, content, instructions, linkages with other tools/programs, or general user friendliness of the tool. The relative frequency of suggestions provided in each of these five areas is presented in Figure 3.

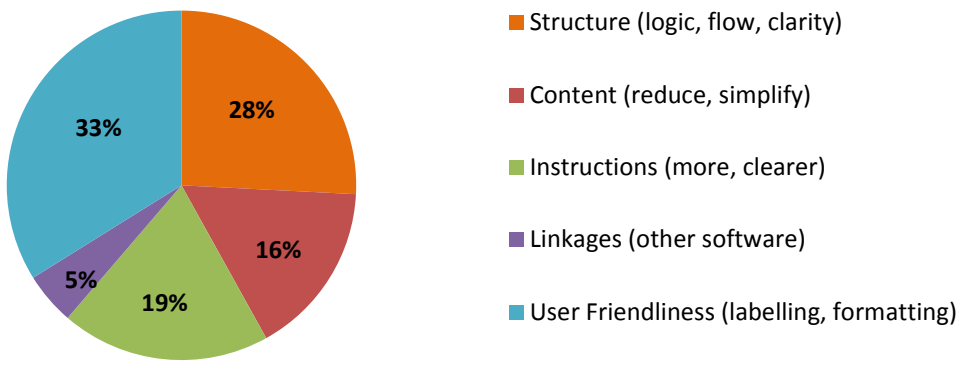

Figure 3: Service provider suggestions for improving the usability of the MCoP tool.

Suggestions for improvement to the structure of the tool generally related to changes to improve the logic, flow and clarity of the data entry process and the viewing of outputs.

Sample Quotes

- *"You feel like you need to put a fair bit of trust in the program in that you just can't see where inputs flow to i.e. you enter things in one sheet and they're totaled in other, especially the livestock numbers. It's just very convoluted and poorly structured."*
- *"MLA needs to invest in developing a user interface for it – get away from it just being in a spreadsheet format. It needs to be made easier to tailor to the user instead of having all the enterprises in front of them."*

Suggestions for changes to the content of the tool related to reducing the amount of data input required by eliminating and/or simplifying data entry sections. Specific suggestions related mainly to the issues of wool and livestock inventory calculations.

Sample Quotes

- *"The valuing of wool on a sheep's back is not necessary – it's only going to be a guess anyway and the effort required for a producer to do it doesn't justify the value gained."*
- *"My preference would be to 'dumb it down' if you want cockys to use it. It gives a precise measure but that's not useful if no-one does it. There's better value in having a tool that gives a less precise answer but is easier for cockys to use so more of them do it."*

Suggestions for improved instructions to increase ease of use related to increasing the clarity of instructions and increasing the amount of instructions provided in the excel program. Several interviewees also commented that there are a large amount of grammatical errors in the instructions file, and to a lesser extent in the comment boxes, that need correcting.

Sample Quotes

- *"Instead of having the stupid disclaimer on every page which suggests to the user that the developer has no confidence in the program because he keeps telling them on every page, get rid of it and put some instructions in that space. A lot of people won't read the 30 page instructions file so put bits of it down there and add more in as comment boxes instead."*
- *"Some of the comment boxes actually cause confusion because comments contradict units or messages provided elsewhere. It needs to be reviewed and improved."*

Several respondents suggested developing linkages between the MCoP tool and other tools/software to reduce double handling of data and to increase the value of outputs from the tool. Suggestions for increasing the general user friendliness of the tool primarily related to various, very specific, labeling and formatting issues within the spreadsheets.

Utility

In regards to the value of outputs provided by the MCoP tool, the general consensus was that there are limited outputs provided relative to the amount of inputs required, and that these limited outputs are not particularly suitable for farm analysis.

Sample Quotes

- *"Given the effort required to obtain and enter data I expect that many farmers would be disappointed with the simple outputs."*
- *"A lot of the key measures that producers would expect to get from a tool like this and what I think they would want from a tool like this aren't there."*

Several interviewees commented that any value that the tool may or may not have would be dependent upon the target user audience and the purpose for which the tool is intended. However some interviewees had more positive comments to make about the potential value of the outputs from the MCoP tool.

Sample Quotes

- *"The outputs from this tool are very useful for benchmarking a business against itself year on year. Farmers often don't see the value in doing this initially – they are more focused on comparing themselves with other businesses."*
- *"Yes the outputs are good – definitely useful for producers and for our organisation to assist producers."*

Several interviewees felt that despite their view that the MCoP had value as a tool for producers, few would actually use it.

Sample Quotes

- *"The tool is good in that it's comprehensive and has all the right information in there but that's not going to help if farmers don't use it and I don't think they will."*
- *"The MCoP calculator is a very good tool. It is extensive and covers off all areas of the farming business. Those who may be inclined to complete the required data entry would be the ones to benefit, but most won't do it – it's too complex and time consuming."*

Many of the service providers interviewed had specific issues with the measure of CoP as an indicator of enterprise performance and subsequently saw little or no value in the MLA tools.

Sample Quotes

- *"It (the MCoP tool) really has very little value at the enterprise level, as monitoring CoP on its own tells you nothing. The whole farm data is more useful."*

- *"CoP as a measure doesn't tell you anything about the technical efficiency of a business. There needs to be some account taken of farm size if you want to compare businesses or compare the same business over time."*

There were some suggestions that the development of the MCoP tool could present MLA with an opportunity to address the issue of standardisation of the methodology for calculating CoP:

> *"There's a problem with lack of consensus among service providers regarding methodology. There is a lot of inconsistency in what is meant to be a very simple output – everyone has a different opinion about how it should be calculated. We need to get consensus on this to increase the value of the outputs to not only farmers, but industry in general. If MLA wants to play in this space they can't just sit in the muddy water – they need to clean it up and make it clear for everyone."*

Approximately one third of service providers interviewed had no suggestions for improvements to the outputs provided by the MCoP tool. One interviewee from the education sector and two state government extension staff made the comment that the tool would only be used as a learning aide, so for that purpose the outputs were "okay". Others simply had no suggestions for improvement.

The suggested improvements to the outputs provided by the tool were fairly consistent and relatively evenly spread across seven main areas. These suggestions and the relative frequency with which they were made are presented in Figure 4.

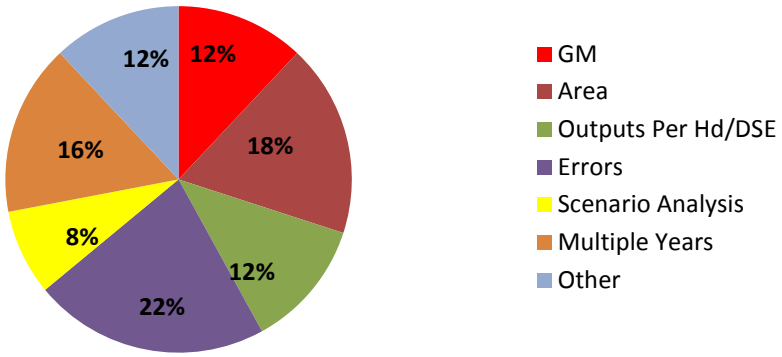

Figure 4: Frequency of service provider responses regarding suggested improvements to MCoP tool outputs.

The most commonly expressed area for improvement regarded correction of errors in the program. Note that some of the same errors were identified by multiple interviewees. The second most common suggestion was to provide outputs on a per hectare basis, followed closely by the capacity for the tool to allow for multiple years of data entry. In addition to presenting outputs on a per hectare basis, many interviewees also suggested providing outputs on a per head and/or per DSE basis.

Many service providers felt that gross margin was a more useful measure for producers than CoP, and one they can more easily relate to. The capacity to do scenario analysis to quantify the impacts on CoP of changes in key variables was also considered by several interviewees to be a desirable potential application of the tool.

Sample Quotes

- *"My clients, and I suppose most farmers, think in terms of gross margins per hectare when they are looking at enterprise profitability and then overhead costs and farm profit. I don't know why MLA took the CoP approach when it's not how farmers on the ground think about their enterprise performance."*
- *"I find it frustrating that if I want to do a bit of 'what if' testing to see the impact on profit if I change particular input variables, I have to go back into the den and change things and trudge back to the output to see the impact of the change each time – people will soon get sick of that and not bother with it – it's not user friendly at all. I want to be able to easily change an input and see the impact on output/profit straight away."*

Suggestions provided in the 'other' category included adding the capacity to do cash flow budgeting, adding more cropping enterprises into the program, adding in production outputs such as yield per hectare, stocking rate and weaning/calving percentages, and negative comments regarding the method used for calculating CoP in terms of splitting costs between wool and lamb outputs from the one enterprise.

4.2.3 Comparison of the MCoP with Other Tools Utilised by Service Providers

The general consensus was that the MCoP tool is more involved and complicated to use than the single enterprise tools, but simpler than doing a whole farm analysis. Most service providers commented that the tools they use with clients are in general simpler, require less time to input data and generate outputs that are more relevant to their clients' needs.

Sample Quotes

- *"The single enterprise CoP tools are useful because they are easier to use but they are less valuable because users will most likely have other enterprises so it'd be better to use the mixed tool - but it's just too complicated."*
- *"It's easier to use than doing a whole farm analysis in terms of data required to get outputs, but the trade-off is less useful data. It can only really be used to provide perspective and motivation, not for decision making."*

4.2.4 Utilising the MCoP Tool

The following section presents the views of service providers regarding the potential applications for the MCoP tool, and the level of their own interest in using the tool with clients in the future.

Potential Applications for the MCoP Tool

The vast majority of service providers felt that the MCoP tool is not suitable for producers to use without support. The general feeling was that in its current form, the value of the MCoP tool is predominantly as a learning aide for use in a group context to build confidence and capability among producers in the area of farm business analysis. For farm planning or detailed business analysis, the general consensus was that producers would need to either use a tool/program with a broader suite of more relevant outputs and/or engage the services of a consultant.

Sample Quotes

- *"The tool is more for consultants and service providers and perhaps a small number of producers who have the skill, interest and experience in using it. It's certainly not a tool for the general farmer population to go off and use on their own with little or no support."*
- *"The MCoP tool can be used to compare farms in a group and engage in a discussion. It's great for engaging farmer discussion."*

Although most service providers felt that the tool is more suited for use by consultants/service providers with producers than by producers on their own, many questioned whether service providers would be interested in using it with clients as most would already have their own purpose built or purchased tools.

Sample Quotes

- *"The MCoP tool will be way too complicated for producers and is really only suitable for use by consultants. Having said that, many consultants will already have their own tools that they use so they may not be interested in using this one."*
- *"Most consultants would have their own simpler spreadsheets for calculating the key measures that they think are important for their clients. I don't think many of these consultants would be interested in using this tool due to the lack of suitability of the outputs and the poor structure and complexity of the tool in general."*

Service Provider Interest in Utilising the MCoP Tool

Of the thirty three service providers interviewed, 58 percent reported that they would be unlikely to use the tool to any great degree or definitely wouldn't use the tool at all. The remaining 42 percent reported that they would be likely to, or definitely would, use the tool. Of those who reported that they probably would use the tool, many qualified that by saying that they would only, or would be more likely to, use the tool if it was improved based on the feedback they provided. Figure 4 below presents the proportion of interviewees in each of the service provider categories surveyed who expressed an interest in using an improved MCoP tool.

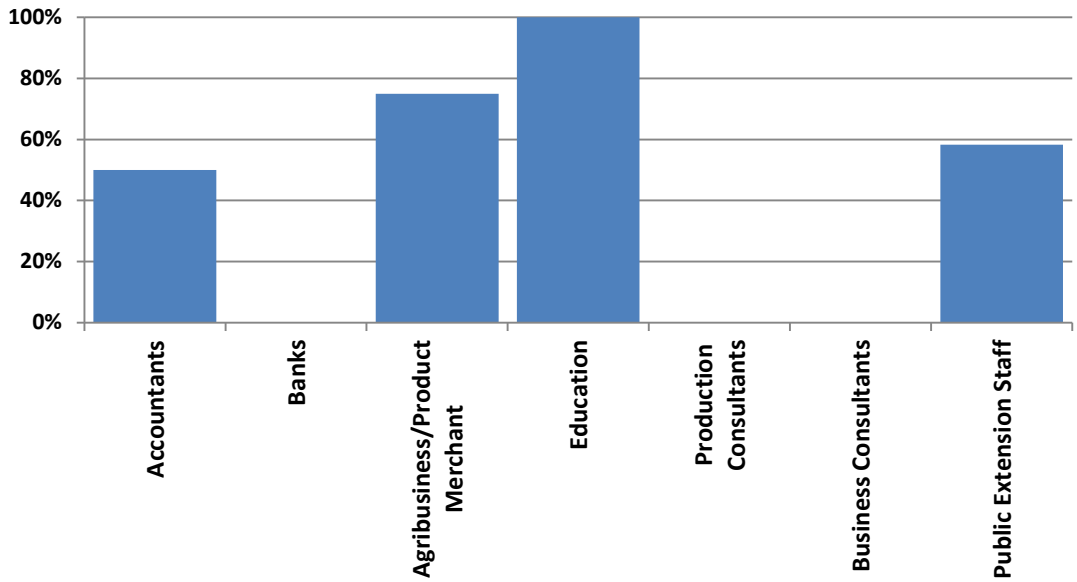

Figure 5: Percentage of service providers who expressed an interest in using the MCoP tool.

Explanations for the responses given by each of the service provider groups regarding their interest in utilising the MCoP tool in the future are provided below.

Accountants

One of the accounting firms surveyed has considerable previous experience in providing a farm business analysis and benchmarking service to clients. However with the exception of the cotton industry, the firm no longer provides this service due to a lack of producer interest. If a group of clients in a particular area are interested in doing some farm business analysis or benchmarking, the firm now

contracts Holmes and Sackett to provide that service on an as needed basis. If a single client is interested in doing some benchmarking, the firm would be much more likely to recommend that they pay $750 to do a Holmes and Sackett benchmarking analysis where they get one-on-one expert advice and a copy of the Ag Insights report, than charging them $1,000-$1,500 for the time required to work through the MCoP tool.

The other accounting firm surveyed is positioned at the other end of the spectrum in that they have observed demand for a farm business analysis type service for several years and are consequently interested in establishing such a service for clients. They see a potential role for the MCoP tool in initially attracting clients to this new service and to collect some basic entry level data, which would then be compared to data from other clients as a starting point for identifying areas for business improvement.

It was estimated that around 150 clients might be interested in using the MCoP tool in their practice, and including other branches in Victoria, possibly up to 500 clients in total. The company has over 3,000 employees nationally (also offices in NZ) so potentially the tool could be used by clients all over Australia.

Banks

In general, feedback from the banks surveyed indicated that they would not utilise the MCoP tool to any great degree as part of regular banking operations, however it may play a small role in some situations with clients who were already using it to assist in addressing particular issues that a producer may have. The value of the tool to banks was considered to be in demonstrating that a client using it on a regular basis was proactively managing their business. However the actual inputs and outputs from the tool would not be suitable for use in assessing client credit risk. In addition, the banks did not see the provision of farm management advice as part of their core role, although noted that it does happen to some extent. In general, interviewees felt that their role would be more to direct clients in where to access the tool, rather than using it directly with clients.

Agribusinesses/Product Merchant

The product merchant interviewed represented a major company providing animal health products and services. Given the perceived complexity of the MCoP tool, it was not considered to be suitable as a resource at the point of sale. However, once a producer has committed to purchasing a product, the company does see potential in providing them with the MCoP tool and giving a brief tutorial in how to use it to track the impact of using their product on production and profit. It was estimated that company staff would have face-to-face contact with between 30 and 40 percent of land owners with more than 1,000 breeding ewes. Of these it was estimated that a third might use the MCoP tool with some encouragement.

One of the agribusiness companies interviewed is not particularly interested in using the MCoP tool as they feel there are better tools available that meet their needs for use with clients. This type of use involves basic types of analysis with clients on an ad hoc basis to assist with marketing and production decisions. In contrast, the other two companies interviewed have intentions to move into the area of providing farm business management advice to clients. These firms have not traditionally operated in this market but both wish to broaden the suite of services available to clients. Both companies will provide farm management advice to clients on a fee for service basis separate from any other services clients are already accessing.

One of the firms is taking a fairly ad hoc approach to the development of this service in that staff are at liberty to use whatever tools they like to assist with providing advice to clients. The interviewee

from this firm felt that there could be a role for the MCoP tool, particularly if some key improvements are made to it, to be widely adopted by staff for use with clients. It was estimated that across the whole organisation the potential market could be upwards of 60 producers using the tool annually.

The other company is taking a very strategic and structured approach to developing their service. They are in the process of developing their own software for use with clients as part of the new service, however they do see a potential role for the MCoP tool in terms of possibly utilising the same methodology for calculating CoP in this software. The new software program will be very comprehensive and detailed, and as such they feel that it won't suit all producers. The MCoP tool may have a role to play as perhaps a stepping stone for some producers to use and build confidence before they feel sufficiently comfortable to use the larger program. However they acknowledge that many producers won't be interested in the larger program at all, but may be happy to use a less involved program like the MCoP. If, after having a closer look at the tool they are satisfied with the way it works, they would certainly be interested to incorporate its use into their new fee for service program.

Education

Both agricultural education providers interviewed are currently using the MLA single enterprise CoP tools, and expressed interest in using the MCoP tool as a training aide in their Agriculture Diploma and Advanced Diploma courses. Whether or not they end up using it will be dependent upon reviewing it more closely, and gaining the agreement of course deliverers. One provider also felt that the tool could be used by students as part of an assessment activity where they would be required to input their own, or case study, data and report on the outputs.

The course deliverer for one provider is using amended versions of both the beef and lamb single enterprise tools in the cost of production section of the Diploma. It was felt that given the whole farm context of the MCoP tool, it could also be used as part of the whole farm planning section of the course. The major outcome from the perspective of these education providers in using the tool would be to improve their capacity to generate more highly skilled graduates as potential future farm managers.

Both organisations estimated that if they decided to incorporate the tool into their Diploma and Advanced Diploma courses, around 200 students each would be exposed to it across Victoria. One organisation also felt that the tool could be used by other institutes across Australia but was unsure how many students this might potentially involve.

Private Consultants

None of the three business consultants surveyed are currently using the MLA single enterprise tools, although all were aware of them. Two use tools they've developed themselves and one uses a purchased program. Two reported that they definitely would not use the MCoP tool with clients in its current form, and one felt that they probably wouldn't use it unless a client specifically asked for it. Reasons provided for the lack of interest in using the tool included:

- CoP is not an appropriate measure to use for decision making and planning.
- The tool is too complicated for clients to understand and use.
- The methodology is not compatible with the database used for benchmarking clients.

Three of the five production consultants interviewed have previously used the MLA single enterprise CoP tools with producers in a group context. One is currently using his own altered version of the beef CoP tool with clients, three are using their own tools and one is using a purchased program.

None of the production consultants expressed an interest in using the MCoP tool with clients, although one commented that if he had a group that was interested in using it he would engage an expert facilitator to run the activity. General comments regarding the lack of interest in using the tool included:

- It doesn't generate the type of outputs required for clients.
- It's too complicated and frustrating to use.
- It requires a lot more inputs than is necessary to get a reasonable estimate for CoP.
- Clients don't keep good enough records to be able to provide the required data for this tool without a lot of time and effort.

The general feeling was that the MCoP tool on the one hand is too limited in its outputs, and on the other hand, is too detailed in the inputs it requires and too confusing in terms of the format in which inputs are required and outputs are presented. Several consultants completely dismissed the value of the tool due to the only enterprise level output being a CoP/profit per kilogram, and seeing no value in this measure for assisting producers to make more informed business decisions.

State Government Departments

The type of activities undertaken with producer groups by government extension staff is largely driven by the needs and wants of the producers. Interviewees reported that producers are primarily interested in production type issues, and history has shown that attempts to engage them in farm business analysis type activities have been very difficult, time consuming and frustrating:

> *"Farmers' interest is in production so it's a battle to promote this kind of tool and you have to make the best use of your time. The theory is good because people need hard data to make good decisions but if you can't get them to provide the data then you're wasting your time."*

While staff certainly see the value in producers undertaking such activities, many have concluded that the effort required on both their and the producers behalf, the demand for other production based activities, a general lack of internal skills in farm business management, and fewer staff on the ground means that undertaking farm business analysis types of activities with producer groups is not a high priority:

> *"In general as a Department we've always struggled to get people with the skills required in farm business economics to get a regular program going – key staff leave and there's no-one to replace them. It has been an ongoing problem. There used to be about 26 sheep and wool officers in the Department but now there's only 11 so we have less opportunity to do these (farm business analysis activities) things."*

Many government and private consultants reported discovering through experience that the only way to get producers to provide their farm figures in an accurate and timely manner is to collect the data on farm using a person who is familiar with farm records and program data requirements. If an activity or program relies on farmers providing their data without any assistance then the participation rates have historically been shown to be poor. This obviously places prohibitive time and cost requirements on government extension staff and presents a significant barrier to undertaking such activities with producers.

Those who expressed an interest in using the MCoP tool commented that the extent to which it would be used would depend upon a combination of interest from producers and willingness and interest from staff. Others felt that the tool certainly has potential for use with groups but needs a lot of work before that potential is realised:

> *"The concept is great and the tool has potential but it needs a lot of work. At the moment there is nothing in it to help clients get any direction or to entice them to use it. It's a long way from being ready to roll out. I would have thought it would have been better to get more of the bugs out before doing this (seeking feedback on the tool) so MLA could get better feedback on the concept and how it could be used instead of having to focus on the structure and the problems with the actual tool. If money was invested to really fix the tool up and MLA was clear about what users could expect to get out of it and how they could use the results, it would be a good extension tool to use with groups."*

Interview feedback suggests that the MCoP tool may have the greatest role in existing extension programs as a learning aide to assist in developing strategic planning skills and increasing producers' knowledge and capability in the areas of farm business management and planning.

The most interest in using the MCoP tool with producers came from Victoria and South Australia. Victoria has a relatively long history in the provision of farm management economics services to producers, due mainly to the continued support of government and industry in funding the long running Farm Monitor Project. The existence of this project and the follow-on demand generated by it for information about key profit drivers has enabled ongoing employment of a core group of specialist farm management economists.

Other state governments have not had such a sustained focus on farm management economics and subsequently many lack expertise in this area, as noted by many of the extension staff interviewed. As such, it was generally considered that the private sector has taken over provision of these types of services to producers, particularly in WA:

> *"This kind of thing is largely covered by the private sector in WA. There aren't many government extension officers around anymore so there's limited opportunity to reach large numbers. There's probably more scope through private consultants for its use with farmers."*

Interviewee feedback suggests that most states would ideally like to have an established long term benchmarking program for producers, however as noted previously, only Victoria has had any success in this area. Several states have tried but failed to get such a program going, and WA is currently in the process of attempting to establish an ongoing benchmarking program with a particular focus on the beef industry. Several people commented that perhaps the development of the MCoP tool might provide an opportunity and a vehicle for the establishment of a national producer benchmarking database.

4.2.5 Accessing the MCoP Tool and Training and Support for its Use

The following section summarises service provider feedback regarding interest in undertaking training in use of the MCoP tool, preferences for a process of user certification or training accreditation, support required for using the tool, and views on providing access to the tool via the web.

Training and Support

Most service providers who expressed an interest in using the MCoP tool with clients reported that they were more likely to use their own staff rather than employing the services of an external agent. As such, most of these service providers were interested in accessing any training that may be provided by MLA. A small percentage felt that they already had the required skills in house and thus would not need to access any training. It was suggested by one interviewee that to generate the skilled and credible staff required for use of the MCoP tool with clients, any training undertaken by staff would need to involve more than just a day.

In the context of using the MCoP tool with producer groups, one service provider suggested that it might be more efficient for MLA to train and promote a small number of experts who would then travel the nation to deliver workshops with producer groups. It was also suggested that two workshops would be required for producer groups to gain maximum benefit from exposure to the tool – one to introduce the tool and explain how to use it, and a second to present group data and discuss the results. This view was also supported by several other interviewees.

In addition to the provision of train-the-trainer activities for service providers and the user manual, other suggestions for the type of support that could be provided to assist with adoption and use of the tool by both producers and service providers included:

- Strong marketing from MLA to promote the existence of the tool and how to access it.
- MLA to clearly identify and articulate the intended purpose of the tool, how to use the outputs from the tool and the type of benefits that could be expected from its use.
- Providing an example case study farm on the web using the inputs and outputs from the tool.
- Assistance with establishing new producers groups interested in using the tool.
- Providing access to a telephone helpline.
- Establishing a mentoring network for service providers using the tool with producers.
- Utilise YouTube to provide a visual demonstration in using the tool and providing a link to the demonstration on the MLA website (Evergraze have used this approach with their Feed Budget and Rotational Planning Tool).
- Providing ongoing funding to continually improve and develop the tool based on user feedback.

Several interviewees made the general comment that MLA should commit to providing ongoing support for the development of all of the decision support tools they provide to industry:

> *"These tools take a long time to get right – many loops of putting out a version, getting feedback, putting out another version and so on. They need continued support to get them right. You can't just have one go, get negative feedback on the product and little uptake then dump it and 12 months later spit something else out. If organisations focused on a single tool and invested over a longer period of time to get it right they would be getting a much higher return on investment than giving up all the time and starting over with new tools. These kinds of tools have huge potential but it's rarely realised because investors want overnight success and the tools don't lend themselves to that."*

Service Provider Accreditation

Approximately half of the service providers interested in undertaking training in use of the MCoP tool felt that certification or accreditation in competency was not a necessary requirement for establishing credibility. From a producer perspective, they felt that the credibility of a person using the tool would not be influenced by the attainment of any kind of certification or training accreditation. It was suggested that prior knowledge of the service provider gained either through direct experience or reputation, was more relevant to establishing credibility. However if producers were not familiar with a service provider, then some kind of accreditation, or at the very least, a declaration of having attended MLA training, would assist to establish credibility. Others felt that accreditation of service providers using the tool with producers was a good idea from MLA's perspective in terms of quality control and ensuring integrity and consistency in use of the tool.

Accessing the MCoP Tool Via the Web

When questioned regarding their views on making the MCoP tool available for download on the MLA website, most felt that it should go on the web in so far as providing broad access to the tool for

producers and industry, however many predicted that it would not be downloaded or used to any great degree.

Thirteen percent of respondents felt that it was not an option to make the MCoP tool widely available on the web. Others felt that it should only be made accessible via the web if user support was also provided.

Sample Quotes

- *"This tool should not be made available to the farming public in its current form. It will serve no purpose but to frustrate and confuse users."*
- *"No. If it was sold as a stand-alone tool on a shelf, it would be a complete failure as it is. It's just not polished enough to have as a stand-alone tool. It needs to look professional and engaging to farmers and it doesn't."*

The results presented above were analysed in the context of relevant research in the areas of decision support systems and theories of adoption to develop a series of recommendations relating to the potential application of the MCoP tool for various market segments, and appropriate modes for the sustainable delivery of the tool to industry. The findings of this analysis are discussed in the following section.

5.0 Discussion

The degree to which delivery of the MCoP tool to industry will generate a return on investment to MLA will ultimately depend upon the value of the tool to red meat industry producers. The greater the perceived functionality and usefulness of the tool by producers, the more widely it could be expected to be adopted and utilised by industry. Gould (1995) suggests that developing a successful DSS requires a clear understanding of 'who the end users will be, and what they will be doing with the system'. In considering the first of these issues, the potential users of the tool will include mixed farm managers and a range of public and private agricultural service providers. The results from the producer and service provider interviews shed some light on the second issue by revealing that there are a range of desired potential applications for the MCoP tool and several likely beneficiaries from its use by producers.

In a broad sense, the major potential beneficiaries are MLA itself, Australian mixed farming businesses, and a range of agricultural service providers. While MLA is not specifically considered to be a target audience for the tool in terms of the objectives of this study, it is nonetheless suggested that potential benefits to MLA as the investor in developing the tool could include the following:

- **Building goodwill among stakeholders and industry** - positive reaction by levy payers and industry in terms of MLA being seen to be proactive in endeavouring to assist producers to enhance their capacity for improving business performance.
- **Generating industry performance data for Australian mixed farming enterprises** – data generated by the tool could potentially be accessed and used by MLA to monitor producer performance over time to assist with investment decision making and to evaluate the effectiveness of research and extension programs.

Potential benefits to producers from using the MCoP tool include increased knowledge and skills in the area of farm business analysis, and increased capacity for improved decision making ability via the provision of hard data to assess business performance. Potential benefits to service provides typically

relate to an enhanced capacity to assist producers/students to increase knowledge and skills in the area of farm business management, and in providing one-on-one production and management advice. With private sector service providers there will invariably be some fee for service cost to producers in generating these potential benefits.

Given that producers are the major stakeholders in MLA, and that there is little market failure in terms of the availability of and capacity for developing alternative tools for use by service providers, it is suggested that producers are the primary target audience for the MCoP tool. The role of service providers is as potential vehicles for delivery of the tool to producers, in assisting to generate demand for the tool among producers and in providing support for its use with producers.

In order for service providers to be willing to support the use of the MCoP tool with producers they must see a benefit in doing so, and its use must also be perceived to have some relative advantage over current or alternative means for achieving the same or similar outcomes. In addition, the level of demand for use of the MCoP tool by producers will also impact upon the willingness of service providers to facilitate its use among producers.

Interview findings indicate that producers as the primary potential beneficiaries of the MCoP tool are likely to use the tool for different purposes and will have different preferences for accessing the tool and different requirements for support. Hence the development of effective strategies for delivery and support of the tool will necessitate the targeting of specific market segments. Research suggests that market segmentation of potential users of agricultural DSSs should be based on the specific needs of the producer, and on the type of support system required for use of the DSS, including the type of advisory services accessed by the producer (Hochman & Carberry, 2011). On this basis, and utilising information obtained during the interview process regarding desired potential applications for the MCoP tool, the following market segments have been identified:

- Producers using the tool in a facilitated group context to benchmark performance against peers.
- Producers using the tool either with or without the aid of a service provider to monitor individual business performance over time.
- Producers using the tool either with or without the aid of a service provider to compare the relative performance of enterprises within an individual business.
- Producers using the tool with or without the aid of a service provider to assist with product marketing decisions.
- Producers/agricultural students using the tool as a learning aide in the context of either formal education programs or informal training/extension activities.
- Producers using the tool one-on-one with service providers for the purpose of seeking farm business management advice.

These segments are not likely to be mutually exclusive in that a producer in one segment may also seek to be in one or more other segments. Regardless of any cross-over, the potential benefits to MLA will depend directly upon the level of adoption of the MCoP tool by each market segment and the relative benefits to producers from use of the tool for each potential application. The level of adoption for each segment will depend upon the willingness and capacity of service providers to promote, support and directly use the MCoP tool with producers, and the willingness of producers to use the tool either with or without the support of specific service providers. The following section discusses the key issues that are likely to impact upon the willingness of both service providers and producers to adopt the MCoP tool.

5.1 Adoption of the MCoP Tool

An examination of the relevant literature reveals that there are a large number of variables that can be used to predict the likely adoption of DSS by producers. Some of these variables relate to the characteristics of the potential user and others relate to the characteristics of the DSS. Additional issues considered to affect decisions to adopt a particular DSS relate to issues of communication and marketing around the DSS, modes of deployment and support and the degree of user involvement during DSS development.

For the purposes of this study, we are only interested in those variables over which MLA has some control insofar as gaining some useful insights that may inform the identification of potential applications for the MCoP tool and the most effective modes for sustainable delivery to identified market segments. As such, the following issues will be explored in relation to their impact on the potential adoption of the MCoP tool by producers:

- Characteristics of the MCoP tool.
- User involvement in the development of the MCoP tool.
- Communication and marketing.
- Modes of deployment and support.

This section of the report provides a discussion of the likely impact of each of these variables on the adoption of the MCoP tool, and subsequently identifies a series of key findings and recommendations for strategies to increase opportunities for adoption of the tool in each market segment.

5.1.1 Characteristics of the MCoP Tool that will Impact on Adoption

While there are a broad range of system characteristics identified in the literature as potentially influencing user adoption of DSSs, there seems to be general consensus regarding the critical nature of two variables in particular: perceived ease-of-use and perceived usefulness.

The relationship between these two constructs and the impact they have on DSS adoption appear to have been most widely explored by researchers within the framework of a technology acceptance model (TAM) developed by Davis (1993). Davis proposes that DSS usage is determined by the attitude that an individual has towards using the innovation and that this attitude is primarily influenced by system design characteristics, the most important of which are perceived usefulness and perceived ease of use of the system. Davis proposed that perceived ease-of-use has a causal effect on perceived usefulness, and that perceived usefulness is by far the more important of the two constructs for predicting system adoption. The perceived ease of use and usefulness of the MCoP tool are discussed in turn below.

Ease of Use

A review of the relevant literature indicates that the perceived ease of use of a DSS by potential users is influenced not only by how easy the DSS actually is to use, but also by factors such as past experiences of the user with similar applications, user level of education, role of user involvement in DSS development, user intelligence, having undertaken prior training in use of the DSS, exposure to persuasive communication and user innovativeness (Adams *et. al.*, 1992; Agarwal and Prasad, 1998; Xia & Lee, 2000). The results from the interviews conducted during this study support this view in that many produces suggested that due to their background and past experience with the use of similar tools, they found the MCoP tool to be fairly easy to use, but felt that most producers without their background or previous experience would find the tool more difficult to use.

In seeking to influence perceptions regarding ease-of-use of the MCoP tool, MLA can obviously only address those issues which are external to the user, such as the actual ease of use of the tool, provision of training, user involvement in ongoing development of the tool and providing persuasive communication messages to potential users. The actual ease of use of the tool will be discussed here, while the remaining issues will be covered in subsequent sections of the report.

The general consensus from feedback provided during the interview process was that the MCoP tool is too difficult for most producers to use on their own without support. In addition, many service providers also found the tool very difficult to use. Research conducted by Cox (1996) suggested that several reasons why producers find many DSS systems difficult to use include the complexity and unreasonable amount of data input required by the farmer, and the need for farmers to be competent computer users. Other commonly reported problems with the use of such software applications is that they often require the farmer to provide data that they do not typically collect and/or they require re-entering of data that has already been entered into other software programs used by the farmer (Glyde & Vanclay, 1996; Stubbs *et. al.*, 1998; Stapper, 1992). All of these issues were raised by interviewees during the survey process.

Feedback from interviews also suggested that the format in which the tool is presented to producers can also affect perceptions regarding ease of use. In theory the MCoP tool should be no more difficult to use than the single enterprise tools, however in general it was perceived by interviewees to be much more difficult. Many of the producers and service providers interviewed felt that the biggest challenge for MLA would be to convince producers to have a go at using the tool as it appears very daunting at first glance.

The following key findings and subsequent recommendations for increasing both the actual and perceived ease of use of the MCoP tool have been based on a combination of these key findings from the of DSS literature, and feedback from producer and service provider interviews. While quantifying the magnitude of expected costs and benefits for each recommendation is beyond the scope of this study, the recommendations have been presented in the order in which they are expected to generate the greatest net benefit to MLA.

Key Findings and Recommendations for Increasing Perceived Ease-of-Use of the MCoP Tool

Finding

The MCoP tool is presented in a format that appears very daunting to users which is likely to decrease the perceived ease of use and subsequent adoption of the tool by many potential users.

Recommendation

The most effective means of rendering the tool less daunting and thereby increasing the perception of ease of use is to invest in the development of a user interface for the tool. An effective user interface will increase the perception of ease of use in the following ways:

- Actually make the tool easier to use.
- Decrease the time required to enter data.
- Reduce training needs.
- Increase satisfaction from the use experience.
- Allow users to tailor the tool to their own situation and in doing so create an increased sense of ownership of and commitment to the tool.

Finding

Interview findings suggest that the MCoP tool is poorly structured both in terms of the data entry process and to a lesser extent, in the presentation of outputs. While the addition of a user interface will help to reduce this perception, particular issues with the process of livestock reconciliation and wool inventory require significant improvement.

Recommendation

The structure of the MCoP tool needs to be reviewed and improved to increase the ease of the data entry process and the viewing of outputs by users. Specific areas for improvement relate to the process of data entry for livestock reconciliation and wool inventory calculations. In particular it is recommended that all data required for enterprise livestock reconciliation be inputted on the one page and the balances also presented on the same page. This would involve removing the optional sales and purchases per head sheets from the tool and incorporating this information into the livestock reconciliation sheet.

Finding

Interviewees reported a large number of relatively small issues that were considered to reduce the general user friendliness of the program. These mainly related to labeling and formatting issues. It is suggested that even these small issues, particularly when the cumulative impacts of a large number of them is considered, can contribute toward reducing the quality of the user experience, and may therefore contribute to the decision by a potential user to either not use the program at all, or to not use it again.

Recommendation

The large number of fairly minor, mainly labeling and formatting issues identified during the interview process need to be corrected. In addition it is recommended that the tool be reviewed to identify and correct any other minor formatting/labeling issues not already identified by interviewees.

Finding

Several interviewees suggested that the ease of use of the MCoP tool could be improved by reducing or simplifying the inputs required, particularly in relation to the issues of wool and livestock inventory. Interviewees commented that while the calculation of an inventory of wool on a sheep's back may be technically correct in terms of accurately calculating the total kilograms of wool produced, it does present several challenges to users.

Firstly, values inputted for the quantity and value of wool on a sheep's back will invariably be guesses, thus their potential value is already limited. Secondly, the process of identifying then valuing wool on a sheep's back may add significant time to the data entry process with questionable value at the other end. In addition, calculation of wool inventory on the sheep's back will not be relevant for many enterprises, particularly lamb enterprises, but also many wool enterprises that do not trade wool on sheep to any great degree.

It is therefore concluded that for the majority of businesses who will use this tool, the benefit of any potential increase in accuracy will not justify the effort required by the user to calculate an inventory of wool on the sheep's backs, particularly given most of the data required will be based on pure guesswork. In terms of livestock reconciliation, it was suggested that calculating an inventory change will not be relevant for steady state breeding enterprises and therefore could be either dropped from the program or made optional for the user.

Recommendation

If MLA wishes to target the MCoP tool at the majority of producers, and more specifically red meat as opposed to wool producers, it is recommended that the calculation of wool inventory on sheep's back be excluded from the program.

Calculation of livestock inventory is much more important, thus while the process can be made simpler it cannot be excluded entirely from the calculations.

Finding

Many interviewees commented that the instructions need to be improved in terms of access, the amount provided in the program, and the clarity of instructions provided in both the program and the instructions document. Specific issues identified included:

- Few producers will read the 30 page word document.
- The document is in a different file to the tool thus making it difficult to access both simultaneously.
- The document is repetitive and contains many grammatical errors.
- Instructions provided in comment boxes are sometimes confusing and inadequate.
- More instructions are required in the excel file.

Recommendation

Key recommendations for addressing these issues include:

- As part of the process of developing a user interface for the MCoP tool, provide the user with HELP buttons throughout the tool to present relevant sections of the instructions document embedded within the program for viewing.
- Undertake a review process of the instructions document to correct any grammatical errors and improve the general readability of the document.
- Provide screenshots throughout the instructions to increase its usefulness for users.
- Review the content of comment boxes to eliminate confusing and inadequate instructions. This should be undertaken in tandem with the process of providing HELP instructions throughout the file to ensure double up of instructions is minimized.

Providing help sheets within the excel file will assist to expose producers to relevant parts of the instructions manual that they may not otherwise bother to read in the word document. It will also increase the amount of instructions available within the excel file, and will therefore significantly lessen the issue of the instruction document being a separate file from the tool.

Finding

Redundancy of effort in terms of entering the same raw data into two or more different software programs used by producers was recognised by several interviewees as a factor reducing the ease of use of the MCoP tool. In addition to addressing this issue by creating links with other tools, it was suggested by interviewees that the usefulness of the MCoP tool could also be enhanced by linking its inputs and outputs to other MLA tools.

Recommendation

The following recommendations are provided for addressing the issue of redundancy of effort in data entry:

- The data input format for the single enterprise CoP tools be aligned directly with that for the MCoP tool to minimise redundancy of effort issues for producers who progress from using the single enterprise tools to the MCoP tool.
- Investigate opportunities for linking inputs/outputs to any other DSS tools provided by MLA.
- Attempts to link input processes with other software programs and accounting packages certainly has potential to increase the ease of use of many software programs used by producers, including the MCoP tool, however given the time and money that would be required to achieve this objective it is considered to be beyond the scope of this project.

Usefulness

Factor analysis by Davis (1989) indicated that perceived usefulness and perceived ease of use are statistically distinct constructs. Later research conducted by Davis (1993) revealed that perceived usefulness of an innovation was 50 percent more influential than ease of use in determining usage. Davis commented that users are driven to adopt an application primarily because of the functions it performs for them, and secondarily for how easy or hard it is to get the system to perform those functions. Thus it seems that no amount of ease of use can compensate for a system that does not perform a useful function.

It is therefore suggested that the most important consideration in determining the level of adoption of the MCoP tool will be its suitability for the desired potential applications previously identified for each of the market segments. An evaluation of the suitability of the MCoP tool for each market segment is provided below. Although MLA has not specifically been identified as a target audience for use of the MCoP tool, it is none the less a potential beneficiary from use of the tool by producers, thus the usefulness of the tool for generating direct benefits to MLA is also discussed below.

Potential Direct Benefits to MLA

1. Generating Positive PR and Goodwill for MLA

Several interviewees congratulated MLA on producing the MCoP tool in terms of endeavouring to provide producers and service providers with a tool to assist in the management of their businesses. One interviewee commented that MLA has done its job by generating the tool, now it's up to individuals as to whether they want to use it or not. Whilst this is true, MLA can certainly play a role in marketing the tool to producers and industry by making it accessible to all, informing industry of its existence, and explaining what people can expect to achieve or gain by using the tool. The better job that MLA can do in these areas, the more producers and service providers are likely to adopt the tool, and the greater the degree of positive PR and goodwill for MLA.

While positive PR and goodwill are difficult benefits to quantify, they certainly have value to MLA in terms of increasing the perception of the MLA brand among producers and industry in general which in turn could generate benefits including:

- Increasing co-investment opportunities with other organizations.
- Assisting to attract and retain high quality staff.
- Increasing producer and service provider willingness to be involved in MLA funded and co-funded activities.

Suitability of the MCoP Tool for this Purpose

If the MCoP tool is made available to industry in its current form it would not only fail to generate positive PR and goodwill for MLA, but it would negatively impact upon the MLA brand. The major reason for this assessment is that the tool is currently riddled with calculation formula errors such that

a large proportion of the outputs generated by a producer/service provider in using the tool are likely to be incorrect. While many producers and service providers may use the tool and not realise that these errors exist, others will, and MLA obviously has a duty of care to its stakeholders to provide them with accurate and trustworthy information.

Finding

The MCoP tool contains a large amount of calculation errors in formulas such that many of the outputs generated from use of the tool will be incorrect.

Recommendation

- The MCoP tool should not be made publically available until a thorough error checking and correcting process is undertaken.
- The value of the tool for this purpose could be enhanced by maximising its value to each market segment identified. The recommendations for achieving this objective are provided in each of the relevant sections below.

2. Generating Industry Performance Data for Australian Mixed Farm Businesses

Research outcomes and funding in Australia include a strong focus on benefits to farmers' livelihoods and agricultural productivity. Establishing a database of whole farm and enterprise level performance indicators for mixed farm businesses in Australia could assist MLA in quantifying these benefits by:

- Providing data to evaluate return on investment in research and extension activities.
- Providing data to target future investment in research and extension activities.
- Providing data for use as part of communications and marketing strategies to report on industry trends and to promote and communicate the achievements of MLA to stakeholders.

At a base level data could be collected and collated from producers participating in the Majority Markets Programs as currently occurs with the single enterprise CoP tools. Data could also potentially be collected from producers using the tool on their own, as part of other state government extension programs, or with service providers such as private consultants/advisors, accountants or bankers.

At a broader level, several interviewees suggested that the MCoP tool could potentially be used as a vehicle for establishing a national enterprise performance database for industry. State government departments, consultants, agribusiness providers, bankers and accountants could all potentially benefit from a national database of enterprise level performance indicators.

The key success factors for generating significant amounts of data to represent industry performance and trends will include:

- Willingness of a large number of producers to use the MCoP tool on a regular basis.
- Willingness of producers to provide this data to MLA/other industry organisations such as state government departments.
- Availability of funding to collect and analyse data.

Suitability of the MCoP Tool for this Purpose

Given the considerable amount of errors in the tool and the resultant generation of inaccurate outputs, the tool is currently unsuitable for generating accurate industry performance data. If these errors are corrected, there still remains an issue regarding the suitability of the outputs from the tool for use in evaluating and comparing farm business performance. At the very least the tool would need

to generate outputs on a per hectare basis for it to have any value for MLA in the applications described above. Per unit of production CoP/profit outputs on their own can only provide insight into whether an enterprise is making a profit or not and the magnitude of that margin per kilogram, but this provides no indication of the efficiency of a business in terms of utilising scarce resources such as land, labour and capital to generate profits, and nor does it provide any indication of the relative performance of different businesses in terms of efficiency and profitability.

Finding

The MCoP tool is currently not suitable for generating industry enterprise performance data for evaluating return on investment in research and extension activities, targeting future investment in research and extension activities or monitoring trends in industry performance over time.

Recommendation

The MCoP tool could be rendered suitable for use in generating industry enterprise performance data for the purpose described above by:

- Providing CoP and enterprise profit outputs on a per hectare basis.

The suitability of the MCoP tool for use in generating industry enterprise performance data for the purpose described above could be further enhanced by:

- Providing gross margin level outputs.
- Providing production type outputs such as product output per hectare, stocking rate and weaning percentages.

Potential Benefits to Producers

There is often a stronger focus by farm managers at the operational and tactical levels of the business and a weaker strategic focus. While it is acknowledged that operational and tactical management skills are essential, these businesses run the risk of falling into the trap of being very efficient at getting the wrong job done. Recognising how operational and tactical activities contribute to the achievement of farm goals by determining the cause-and-effect relationships that exist is considered an essential skill for successful business managers. The more intimately they know their business, the better placed managers are to recognise opportunities for improvement when they are arise. Hence, the process of farm business analysis is essential to providing this objective perspective to farm managers. As a vehicle for assisting producers to undertake farm business analysis activities, producers have identified a range of specific desired applications for the MCoP tool. A discussion of the value of these potential applications to producers, and the suitability of the MCoP tool to provide that value is provided below.

1. Benchmark Enterprise Performance Against other Producers

Benchmarking can be a very powerful tool for assisting producers to identify potential avenues for improving current performance and to identify what levels of performance are possible. As such, it is considered that participation in benchmarking activities can assist producers to set or re-evaluate farm goals, and to identify potential strategies for achieving these goals. As a process it therefore has a key role to play as a change agent for advancing on-farm action to improve business outcomes. Bogan and English (1994) in their book *Benchmarking for Best Practices: Winning Through Innovative Adaptation* claim: *'If organisations decide to approach the management of change in a systematic way, benchmarking is arguably the single most powerful tool within their grasp'.* They state that benchmarking can:

- Create motivation for change.
- Provide a vision for what an organisation can look like after change.
- Provide data, evidence, and success stories for inspiring change.
- Identify best practices for how to manage change.
- Create a baseline or yardstick by which to evaluate the impact of earlier changes.

However others have been more critical of benchmarking as a means for influencing farm management decision making processes. Makeham and Malcolm (1993) summed up these arguments by saying:

> *"A major fallacy was the belief that historical records and comparative analysis of technical ratios and average activity gross margins achieved on different farms were useful for farm management analysis. They are not very useful. Farm management is about dealing with what might happen. What happened in different, past circumstances is of limited relevance. The weaknesses of emphasis on accounting and recording is that generally it leaves out of the analyses the critical technical and human aspects and the management economics way of thinking, and has a past, not future, orientation."*

While these concerns are acknowledged as valid, it is suggested that the primary purpose of benchmarking is as an activity to engage producers in the process of farm business analysis for the purposes of learning and to provide a context for their own performance. It is not intended to replace marginal economic analyses for future planning, but rather to assist producers in setting realistic and achievable business goals and to identify ideas and opportunities for improving businesses performance. Producers should then be directed to evaluate the likely physical, social, environmental, financial and economic implications of implementing these ideas/strategies, which in part will involve the use of marginal analysis processes, and depending on the skills and experience of the producers, most likely with the assistance of a consultant.

Despite ongoing concerns regarding the limitations of benchmarking by producers, the longevity of various producer benchmarking services in Australia suggest that there is clearly an appetite among farmers for the opportunities for learning and improvement that benchmarking activities can provide. These activities are typically undertaken in a small group context with an expert facilitator/advisor, but are also accessed via mass participation as part of typically publically funded and anonymous programs, and within client bases of service providers such as consultants and accountants.

Suitability of the MCoP Tool for this Purpose

Lower CoP does not necessarily mean higher profits. Hence, comparison of CoP/profit per kg of production is not a useful indicator for benchmarking performance between producers in terms of identifying relative efficiency of producers in a group. Using actual 2010/2011 financial year farm data from the Victorian DPI Farm Monitor Project to illustrate:

Utilising the MCoP tool methodology for calculating cost of production, Farm A has a lamb cost of production of $2.01 per kg DW and Farm B has a cost of production of $3.00 per kg DW. According to the MLA farm efficiency scale provided in the single enterprise CoP tools, Farm A would be considered in the 'most efficient' group of farms and Farm B in the 'least efficient' group of farms. On what basis is Farm A more efficient than Farm B? On the basis of having a lower cost of production per unit of production - but what does that mean in terms of enterprise productivity, and more importantly in terms of profitability?

Both enterprises were cross-bred ewe based over a terminal sire with similar average wool microns and received an almost identical average lamb sale price per kg DW (Farm A received $0.02 more per kg DW). On a per hectare basis, Farm A generated an enterprise operating profit of $339 compared to

Farm B who's profit was more than double at $721 per hectare. Farm B is obviously more efficient at utilising farm resources to generate profit than Farm A, thus illustrating the inaccuracy and inappropriateness of the output from the CoP tools in comparing results between farms, and in placing incorrect labels of relative efficiency on enterprises based on this measure alone. This example illustrates that production efficiency is determined by considering the relationship between total production per hectare, total costs per hectare and product price, not costs or profit per unit of production.

Finding

In its current form, the MCoP tool is not suitable for use by producers for benchmarking enterprise performance against other producers.

Recommendation

- For the MCoP tool to be suitable for application as a benchmarking tool outputs must be provided on a per hectare basis. Thus information regarding farm size and proportion of land utilised for each enterprise is required. This need not be an onerous task for the user. Identification of area cropped is fairly straightforward. Splitting grazed area utilised by livestock could be achieved by assigning DSE ratings to opening and closing livestock numbers. These ratings should be provided as defaults for each category, or even via a lookup table where the user enters average dry weights for sheep categories and an appropriate DSE rating is automatically assigned. Given the greater importance of utility over ease of use reported in the literature, it is considered that the extra effort required to achieve this will be easily outweighed by the increased utility and functionality of the tool.

  Note that the allocation of land use between livestock enterprises should not be based on relative income from different enterprises as it is in the MLA beef CoP tool, but rather either on estimates provided by the user, or relative DSE for each livestock enterprise as discussed above. The relationship between relative enterprise income and land area utilised for production is mediated by the influences of many factors, not least of which are seasonal conditions and product prices, and is therefore not consistent over time. Thus use of income as a means of splitting land use will give very misleading and inconsistent results over time.

- The suitability of the MCoP tool for benchmarking could be further enhanced by providing a gross margin per hectare output. While this recommendation is not considered to be essential for enabling producers to benchmark their performance against peers, indications from service providers suggest that gross margin is a commonly used indicator for measuring enterprise performance among producers and thus it is considered that its inclusion will add significant value to the tool for many potential users. Further, it is suggested that the cost of making this change to the tool would be minimal relative to the potential additional benefits for users.

- The suitability of the MCoP tool for benchmarking could be further enhanced by providing production outputs such as product output per hectare and stocking rate. Again, this recommendation is not essential for enabling producers to benchmark their performance against peers, however the addition of these outputs would assist to generate group discussion and understanding regarding likely cause and effect relationships within enterprises.

2. Use of the MCoP Tool to Assist with Making Product Marketing Decisions

The measure of CoP is often promoted as being useful for price setting. While CoP may appear to be a simple measure to use for assisting with decisions regarding what price to accept for products, it is

suggested that it has little value for this purpose for livestock producers. The theory is that by knowing CoP a producer is better positioned to identify when an offered or available price is acceptable or not in terms of whether it exceeds the CoP for that product.

Suitability of the MCoP Tool for this Purpose

There are several flaws with the concept of utilising CoP for product marketing decisions:

- CoP is an average cost and consideration of the average price required to cover that cost has little relevance when the product sold is not homogenous – that is not all of the product sold from one enterprise will have the same value due to different product characteristics e.g. differences in wool micron and other quality variables, differences in age and sex of cattle sold, and differences in sale weights and quality of lambs sold.
- The objective of a marketing plan should not be simply to cover cost of production, but should focus on minimising downside risk while maximising opportunities for upside risk.
- Decisions regarding timing and marketing of sale produce must consider issues such as business cash flow requirements, predicted future product price movements, desired return on capital, and cost and management implications of various product selling times, all of which have no relevance to average product CoP.
- Allocation of overhead costs between enterprises is arbitrary therefore the measure of CoP is a false indicator as a basis for use in marketing decisions.

Finding

The outputs from the MCoP tool are of limited value for use by livestock producers in determining product marketing strategies.

Recommendation

The CoP outputs from the MCoP tool should not be used or promoted for the purpose of identifying acceptable product prices. This will involve ensuring that any training activities or communications that promote the potential benefits that could be achieved from use of the MCoP exclude mention of its use for product marketing, and informing potential deliverers of the unsuitability of the tool for this purpose.

3. Use of MCoP Tool to Monitor Changes in Farm Performance over Time

One of the most commonly reported benefits of farm business analysis activities undertaken by producers, either in a group context or in isolation, is to monitor business performance over time. The benefits of this strategy may include the following:

- Evaluating the success or otherwise of existing management plans.
- Identifying trends in performance over time.
- Demonstrating proactive business management to credit providers.
- Providing motivation and confidence to producers in their ability to make business decisions.
- Providing long term data that can be used as input for processes to plan and evaluate strategies for business improvement.

Suitability of the MCoP Tool for this Purpose

In order to be useful, the methodology used for calculating performance measures must be consistent over time. The methodology used for allocating costs between wool and lamb products from the one sheep enterprise and grain, fodder and grazing income from cropping enterprises involves the use of relative gross income received from these products in any one year. This means that any differences observed in grain, lamb and wool CoP measures generated by the MCoP will be artificially influenced by changes in the relative income received for these products, which has little bearing on cost of production.

For example, a producer could spend exactly the same amount on costs of production and produce exactly the same kilograms of lamb in successive years, but the income received from wool decreases relative to that received for lamb such that the resultant lamb CoP increases despite the producer having the same costs and the same production. The problem is obvious and significant to the point that the MCoP cannot be used to accurately monitor the value of outputs generated by the tool over time for sheep or cropping enterprises. This is not an issue for beef enterprises as income is received from only one product type.

In addition to the issue of methodology, a further issue is that changes in the magnitude and direction of CoP/profit per kilogram between years do not necessarily reflect the same changes to total enterprise profit. For example, an increase in CoP between years might be viewed as a negative result, however that increase could easily represent the impacts of a sound management decision to increase expenditure in an area that resulted in greater production per hectare and an overall increase in profit per hectare. A third factor limiting the suitability of the MCoP tool for enabling producers to monitor performance over time is that it only provides for one year of data entry.

Finding

The MCoP tool is currently not suitable for use to monitor changes in enterprise performance over time. However the MCoP tool is currently suitable for monitoring changes in whole farm level performance over time, though the opportunity for producers to do this is limited by the ability to enter only one year's worth of data into the tool.

Recommendation

Alter the method utilised for calculating enterprise CoP and profit for wool, lamb and grain outputs to exclude the use of relative product income for allocating costs to enterprise outputs. It is suggested that two alternative methods for calculation of CoP be considered:

- For enterprises where the user is interested in calculating the CoP for more than one product it is suggested that a predetermined estimate of the relative percentage of total enterprise costs for generating each product be consistently used to split costs between products. This estimate may be based on a long term view of the relative income earned from each product or on a simple guestimate of cost requirements for each product. It will by nature be a rough guess, but the key is that regardless of the approach taken to split costs between products, the same process must be consistently used each year to allow for the accurate evaluation of changes in enterprise performance over time. This approach will be particularly appropriate where the type and relative quantity of products generated by an enterprise are fairly stable over time.

- For enterprises where the user has one product as the primary focus above other less important outputs a more suitable approach would be to simply divide all enterprise costs by total production for the primary product under consideration. This method takes the approach that other outputs are secondary to the main objective of producing the key output. That is not to say that the contribution made by these secondary outputs to income is not valued, just that

decisions regarding expenditure are primarily based on impacts to the primary rather than secondary products. Using this approach, changes to the CoP of the primary product over time can be accurately determined.

Income from secondary products is subtracted from this CoP to provide a break-even price for the primary product. This break-even price is then subtracted from the average price received for the primary product to generate a profit per kilogram of production for the primary product.

- In regard to any fodder income for a cropping enterprise, it is suggested that the costs of making the fodder be excluded from the total CoP and instead be subtracted from any income received from fodder to provide a net fodder income. The cost of making the fodder bears no relationship to the costs of growing the grain, and given that these costs are easily identifiable they should be excluded from CoP and simply used to calculate a net fodder income.

For the MCoP tool to be suitable for monitoring enterprise performance over time, CoP and profit outputs must be provided on a per hectare basis.

To enhance the suitability of the MCoP for monitoring whole farm and enterprise performance over time, provision should be made for entry of at least five years worth of data, and ideally presentation of trend data in graphical as well as tabular form.

4. Use of the MCoP Tool to Compare Performance of Enterprises within a Business

Several producers and service providers indicated that the MCoP tool could potentially be used to compare the performance of enterprises within a business to identify better performing enterprises with a view to possible reallocation of resources. Most producers choose to run multiple enterprises for a range of reasons which may include:

- Personal preferences.
- Perceived synergies between enterprises.
- Improved risk management.
- Improved cash flow.
- Matching land use to outputs.
- Increase labour efficiency.

However decisions regarding the 'perfect' enterprise mix for a business will be different in any one year due to the impacts of markets and seasonal conditions on relative outputs and prices. Despite this variation, the issue of identifying the most profitable enterprise mix remains a key objective for many mixed farm managers.

Suitability of the MCoP tool for this Purpose

There are several issues with this potential application of the MCoP tool:

- Any decisions for resource allocation or reallocation between enterprises should be based on marginal analysis of future expected costs and incomes, not on average figures based on historical performance.
- Comparing profit per kilogram of different enterprises tells producers nothing about the relative contribution that each enterprise is making to whole farm profit.
- While total enterprise profit outputs do show the contribution of each enterprise to total farm profit, there are no outputs from the tool that provide the user with information as to the relative efficiency with which each enterprise is making their contribution to whole farm profit.

- The existence of synergies between enterprises means that the performance of each enterprise is affected to some extent by the existence of other enterprises.
- Issues such as land capability, farm infrastructure, labour availability, cash flow and risk management all play crucial roles in determining the most appropriate enterprise mix for a business, none of which are addressed by the MCoP tool.

Finding

The MCoP is currently not suitable for use by producers for comparing the relative performance of enterprises within a business, or for making decisions regarding enterprise mix.

Recommendation

For the MCoP tool to be suitable for comparing the relative efficiency of enterprises within a business outputs must be presented on a per hectare basis.

Even with outputs on a per hectare basis the MCoP tool is not suitable for making decisions regarding reallocation of resources between enterprises. This decision should involve the use of marginal analysis combined with consideration of synergies between enterprises, land capability, farm infrastructure, labour availability, cash flow and risk management.

5. Use of the MCoP Tool as a Learning Aide in Groups

During the interview process agricultural education providers, private consultants and public extension officers identified the potential application of the MCoP tool for use with students/producers as a learning aide in the context of either formal education programs or informal training/extension activities.

It was suggested by both producers and service providers that a group activity in use of the MCoP tool could generate new ideas and information for improving business performance. On the one hand, this could be achieved simply by the learning gained during the process of data entry in terms of identifying what is being spent in different areas and the process for calculating profit, and on the other hand from group discussion generated as a result of undertaking the activity.

Suitability of the MCoP Tool for this Purpose

In an education context consideration of the process of calculating enterprise CoP can certainly assist students in increasing knowledge in areas including awareness of the various types of cost categories that contribute to total costs, the process of undertaking a livestock reconciliation, and the impact of economies of scale on CoP. However for the exercise to be useful, students must also be informed of the limitations of the use of CoP as a measure for the purposes previously discussed.

It is suggested that there are two ways that the MCoP tool could be used as a learning aide with producer groups, neither of which are mutually exclusive.

- As either a once off or annual farm analysis/benchmarking activity using either actual or case study farm data.
- As a regular tool for use in evaluating and discussing various production based subjects being explored by groups.

The limitations of the MCoP tool for the purpose of benchmarking relative business performance have already been discussed. However despite the many technical flaws associated with the measure of CoP, in the context of a farmer group led by an experienced facilitator who understands the

limitations of the CoP measure, the discussion generated as a consequence of undertaking a COP activity can assist individual farmers to gain ideas about what they might be able to do to improve farm profits.

One may argue that there are better ways to achieve this end than to undertake a CoP analysis, but in favour of such an approach, farmers in general seem to relate to CoP as a measure because they can compare it directly to price and therefore gain a simple handle on unit of product profit margin. Thus, in terms of assisting farmers to understand the value of evaluating the costs and benefits associated with management decisions, it is suggested that undertaking a CoP analysis is the most likely point of entry for many farmers, as limited as it is in value. The problem is that many facilitators and consultants who utilise CoP analysis do not view it as a fairly useless introduction into the world of farm business analysis, but rather as a measure to directly inform farmer decision making in relation to choices for improving farm profit.

Finding

There is currently demand for use of the MCoP tool in formal agricultural education programs, and in its current form the MCoP tool is suitable for this purpose.

In its current form, the MCoP tool could be suitable for using case study data as a basis for generating group discussion provided that the group facilitator understands the limits of the outputs from the tool.

In its current form the MCoP tool is not suitable for comparison of either actual or case study farm data for different businesses, and is unlikely to be suitable for the evaluation of economic impacts of various production based issues. The relevant issues have already been previously discussed.

Recommendation

The following recommendations are provided to increase the utility of the MCoP for use as a learning aide by producer groups:

- Provide CoP and enterprise profit outputs on a per hectare basis.
- Provide additional production outputs including production per hectare, stocking rate and weaning rates.
- Provide gross margin level outputs.
- Provide opportunity for undertaking scenario analyses.

6. Use of the MCoP Tool by Service Providers One-on-One with Producers for the Purpose of Providing Farm Business Management Advice

Feedback from the interview process indicated that there was interest from some service providers in using the MCoP tool one-on-one with producers, but none from others. Those service providers who expressed little or no interest in using the tool with clients generally reported that the program was too difficult to use with producers, and the outputs were not suitable and/or too limited for undertaking farm business analysis with the purpose of providing farm management advice.

Those service providers who did express interest in using the tool with clients generally did not currently have access to an alternative tool that generated the outputs provided by the MCoP tool, however it is suggested that most, if not all of these service providers would have the capacity to develop a similar type of tool themselves.

Suitability of the MCoP Tool for this Purpose

Previous discussions have highlighted the limitation of CoP and profit per unit of production as measures of enterprise performance. A minimum requirement for effectively evaluating enterprise performance is for CoP and enterprise profit outputs to be presented on a per hectare basis. In addition, the usefulness of the tool for identification of areas for improvement in a business could be greatly enhanced by including measures of gross margin and production outputs such as reproductive rates, product outputs per hectare and stocking rate. In addition, the opportunity to undertake scenario analysis would assist service providers to get a general feel for the impact of different management strategies on overall farm profit, and the provision for multiple years of data entry would facilitate the process of monitoring and evaluation of management decisions.

Finding

The MCoP tool outputs are not suitable for farm enterprise performance analysis, thus the MCoP tool is currently not suitable for use by service providers for the provision of one-on-one farm advisory services.

Recommendation

For the MCoP tool to be considered suitable for use by service providers in the provision of one-on-one advisory services CoP and enterprise profit outputs will need to be provided on a per hectare basis, and additional outputs such as gross margins and production outputs including stocking rate, product output per hectare and weaning rates will need to be included.

The usefulness of the MCoP tool in the provision of one-on-one farm management advice could be further enhanced by increasing the functionality of the tool to provide for scenario analysis and to enable data entry for more than one year, ideally five.

7. Summary of Key Findings and Recommendations Regarding Usefulness of the MCoP Tool

Findings

- In its current form the MCoP tool is unsuitable for generating positive PR and goodwill for MLA, or for generating industry enterprise performance data for use by MLA in evaluating or developing research and extension activities.
- The current outputs from the MCoP tool are not suitable for enabling producers to benchmark enterprise performance against other producers, to compare the performance of different enterprises within a mixed farming business, for monitoring changes in enterprise performance over time, or for assisting with making marketing decisions for livestock products.
- The MCoP tool is not suitable for use by service providers to provide one-on-one farm management advice to producers.
- The MCoP tool is suitable for use as a learning aide by agricultural education providers provided that students are made aware of the limitations of CoP as an enterprise performance measure.
- The MCoP may be suitable for use as a learning aide by service providers with producer groups providing that it is used in the right context and that the facilitator/deliverer is aware of the limitations of CoP as an enterprise performance measure.

Recommendations

If MLA intends for the MCoP tool to be suitable for any of the potential applications identified by producers and service providers during the survey process then several key changes will need to be made to the outputs provided by the tool. The recommendations for required changes are summarised in the table below. Primary recommended changes are those required in order to render the tool suitable for use in each of the potential applications. Secondary recommendations are those which enhance the suitability of the MCoP tool for each potential application.

Table 1: Primary and secondary recommendations for increasing the usefulness of the MCoP tool for each of the potential applications identified.

Potential Application	Primary Recommended Changes to Outputs	Secondary Recommended Changes to Outputs
Generate goodwill for MLA.	• Correct calculation errors.	• Provide CoP and profit outputs on a per hectare basis. • Include gross margin outputs. • Include production outputs. • Provision for scenario analysis. • Include provision for five years worth of data entry along with the capacity to graph trend data. • Alter the method used to calculate CoP to exclude the use of income as a means for splitting costs between product outputs.
Generate industry performance data.	• Correct calculation errors. • Provide CoP and profit outputs on a per hectare basis.	• Include gross margin outputs. • Include production outputs.
Benchmarking performance against other producers.	• Correct calculation errors. • Provide CoP and profit outputs on a per hectare basis.	• Include gross margin outputs. • Include production outputs.
Monitoring enterprise performance over time.	• Correct calculation errors • Provide CoP and profit outputs on a per hectare basis. • Include provision for five years worth of data entry along with the capacity to graph trend data. • Alter the method used to calculate CoP to exclude the use of income as a means for splitting costs between product outputs.	
Comparing relative enterprise performance within a business.	• Correct calculation errors. • Provide CoP and profit outputs on a per hectare basis.	
Assist with product marketing decisions.	• This is not a suitable application for the MCoP tool. As such, MCoP tool training and marketing materials should not promote use of the tool for this purpose.	
Group learning aide.	• Correct calculation errors.	• Provide CoP and profit outputs

		on a per hectare basis. • Include gross margin outputs. • Include production outputs. • Provision for scenario analysis.
One-on-one use with service providers for provision of management advice.	• Correct calculation errors. • Provide CoP and profit outputs on a per hectare basis. • Include gross margin outputs. • Include production outputs.	• Provision for scenario analysis. • Include provision for five years worth of data entry along with the capacity to graph trend data.

In summary, primary recommendations for rendering the MCoP suitable for potential applications include:

1. Correct calculation errors for all potential applications.
2. Provide CoP and profit outputs on a per hectare basis.
3. Include provision for five years worth of data entry along with the capacity to graph trend data.
4. Alter the method used to calculate CoP for sheep and cropping enterprises to exclude the use of income as a means for splitting costs between product outputs.
5. Include gross margin and production outputs.

Secondary recommendations for enhancing the suitability of the MCoP tool for potential applications include:

1. Provision made in the tool for conducting scenario analyses.

As previously noted it is beyond the scope of this project to quantify the relative costs and benefits of implementing each of these recommendations. In the instance where not all recommendations are selected for implementation, choices regarding which, if any, to implement will ultimately be based on the perceived net benefit to MLA from each of the potential applications for the MCoP tool, the number of potential applications affected by each recommendation, and the relative costs and likely impact of each recommended change to the tool.

It will also be relevant to consider the relative importance of ease of use and usefulness on influencing potential adoption of the tool. For example, Keil *et. al.* (1995) suggested that software that fares low in ease of use and usefulness will be rejected. DSSs which are high in ease of use and low in usefulness may be embraced by users initially but will have little lasting capabilities. DSSs which are low in ease of use but high in usefulness will be used only by competent computer users as the time and effort required to learn outweighs potential benefits. The ideal DSS aims high in ease of use and high in usefulness. It is suggested that the MCoP tool is currently low in both ease of use and usefulness. Placing a focus on improving the outputs without consideration for the ease of use of the tool will generate a product that will be attractive to only a small section of interested and skilled producers and service providers. The objective will therefore be to achieve an ideal balance between the two.

The relative requirements for producers and service providers in terms of outputs from the tool is also relevant to decisions regarding which recommendations to adopt. For example, feedback from the interview process suggested that produces require only a small number of outputs from the tool, compared to service providers who require a broad suite of outputs. There is clearly a conflict. The development of a user interface will assist to mediate this conflict by allowing users to tailor the outputs to their own particular needs. The user interface can be used to allow users to identify which

outputs they wish to calculate and which they don't and in this way can assist to facilitate the process of increasing overall functionality of the tool without compromising perceptions of usefulness.

5.1.2 User Involvement in Ongoing Development of the MCoP tool

The relationship between perceived usefulness and perceived ease of use and intention to use a software application is well established. However of interest to program developers is the issue of how to ensure that the systems developed are easy to use and useful, not from their perspective, but from the perspective of the target audience. The only sure way to achieve this is to involve users in the development phase, either in initial development, or in trialing and modifying the software after a draft prototype has been developed by the 'experts'. The latter is the approach that has been taken by MLA, and the consultation process undertaken during this study has clearly highlighted the often divergent perceptions of expert developers and final end users regarding program ease of use and usefulness.

In addition to increasing the likelihood of developing a final product that will be more useful and therefore more used by the target audience, research has revealed the following explanations as to why involving users in the development process leads to greater adoption of the final product (Ives and Olson, 1984; Lin & Shao, 2000):

- Development of a more accurate user assessment of system information requirements.
- Avoidance of development of unacceptable or unimportant features.
- More realistic expectations of the system by users.
- Increased perceived ownership amongst users.
- Decreasing resistance to possible changes.
- Greater commitment to use of the system.

Moving forward, the task now becomes how to incorporate ongoing feedback from users into the continuous improvement of the tool to maximize value to industry. Brennan *et. al.*, (2007) highlight the importance of ongoing evaluation and developing a process for collecting and analysing user feedback as essential requirements for the continued growth in adoption of a DSS. They suggest that evaluation should fit within an Action Research framework, whereby evaluation activities seek data and feedback from stakeholders in a manner that can inform future directions for ensuring that the systems continues to meet the needs of users.

Finding

Research has highlighted the importance of user involvement in the development and ongoing improvement of DSS as a key driver of adoption.

Recommendation

It is recommended that MLA investigate strategies and opportunities for obtaining ongoing feedback from users of the MCoP tool to ensure that any issues, particularly debugging, are dealt with swiftly and the tool continues to meet the needs of industry users. This may involve providing an email address on the tool for users to provide feedback to MLA, and/or a short questionnaire/survey for producers using the tool in groups. At a higher level, it may also involve conducting surveys or focus groups with users to obtain more detailed feedback on a less frequent basis.

5.1.3 Communication and Marketing

Diffusion theory indicates that communication is an important aspect of innovation adoption in terms of creating awareness and demand for the innovation, and in responding to user needs for information to reduce uncertainty regarding the innovation-adoption decision (Rogers, 1995). In order to adopt a system, potential users must first be made aware of its existence, and then be convinced that it will have some value for them before deciding to invest time and effort in its use.

To create awareness of an innovation, mass media channels will be the most cost effective means for reaching a broad audience in a relatively short period of time. Once awareness has been achieved, the innovation literature suggests that it is the user's perceptions of the characteristics of an innovation, rather than the characteristics as defined by experts or change agents, that will affect decisions regarding adoption (Rogers, 1995). User beliefs and attitudes are subjective and idiosyncratic and they are generally formed and changed over a period of time. Thus an essential element of communication strategies must be to identify mechanisms that may positively influence user beliefs and attitudes so as to increase the likelihood of system adoption and use.

The literature suggests that the technology transfer approach to communication regarding delivery of DSS has largely been unsuccessful. That is, the assumption that demonstrating a DSS to farmers and then expecting that they will clearly see the benefit of the tool and adopt it. Farmers must first perceive a need for the tool and be convinced that a particular tool can meet that need more effectively and efficiently than alternative options. The latter is referred to in the literature by Rogers (1995) as the perceived relative advantage of a system. The power of persuasion in increasing the perception of relative advantage has been shown to be an effective communication strategy for increasing adoption of DSS (Xia & Lee, 2000).

Rather than adoption of the technology transfer approach, Rogers (1995) suggests that direct communication exchanges about the innovation with peers and opinion leaders will have a greater impact on developing firm attitudes and reducing adoption uncertainty among potential users. These channels are more trusted and have greater effectiveness in dealing with resistance or apathy on the part of the potential user. These findings suggest that it is best to use personal communication channels to persuade opinion leaders to establish or change prevailing attitudes about an innovation.

However even when opinion leaders do adopt an innovation, Moore (1991) suggests that their influence on other producers is limited as pragmatists (early majority) do not tend to reference the visionaries (innovators and early adopters) that researchers and marketers typically engage with. It is suggested that this lack of referencing between these two groups of farmers creates a chasm in the traditional bell shaped diffusion curve which may limit, or at the very least, slow down adoption levels by inhibiting the diffusion of a DSS from innovators through to early adopters, early majority, and finally to the late majority.

In attempting to counter this issue among the potential audience for the MCoP tool, it is suggested that communication efforts must be targeted to a wider group of opinion leaders, including some of the early adopters and early majority, as innovations are less likely to trickle-down. This communication will necessarily involve some degree of information dissemination to reduce uncertainty, but it must also involve some persuasive argument to convince potential users of the likely benefits to be gained from its adoption. The opinion leaders will then be able to use this argument, which will ideally resonate with the masses, to not only support their own adoption decision, but to influence others to also adopt the tool.

Targeting Communication and Marketing Efforts

In addition to the process of market segmentation assisting to ensure that system functionality meets the needs of end users, segmentation is also important for targeting communication and marketing

strategies to groups of potential users who are likely to reference one another. Marketing strategies need to maximize opportunities for leverage by identifying self-referencing segments of the market where communication channels are likely to be bounded, thus increasing opportunities for achieving some level of ongoing word-of-mouth communication to increase knowledge and awareness.

Opportunities for targeting communication and marketing strategies to encourage awareness and generate interest in use of the MCoP tool by producer groups should primarily be targeted at group facilitators. This is a fairly straight forward task as the communication channels for this segment are fairly tightly bound. As such, communication and marketing strategies would involve creating awareness via established producer group networks including the Market Majority Program, BetterBeef, Evergraze, Grain 'n Graze, and BestWool/BestLamb. Personal communication with group members would then be required to increase knowledge and decrease uncertainty regarding adoption of the tool.

Personal communication should involve use of a combination of information delivery and persuasive argument. It may involve providing group members with an information flier as part of the launch of the MCoP tool. The flier would need to explain who the tool is for, what it does and how it will benefit producers. It would also ideally contain 'stories' about other producer experiences with the tool. There may be an opportunity to identify a range of producer group members within a region to participate in an MCoP awareness information session after which they could relay the information and their perceptions of potential costs and benefits from use of the tool to the rest of the group.

Targeted communication and marketing strategies to create awareness among private consultants for use of the MCoP tool with clients might best be achieved via web based communication with state based consultant organisations such as SA Livestock Consultants, and national consultant organisations such as AAAC. More personal communication channels such as email or mail could then be used to provide specific information regarding the functionality of the MCoP tool and the likely benefits it may have for private consultants and their clients.

Targeting producers who are not involved in groups and do not utilise private consultants is a more challenging task due to the more loosely bounded communication channels for this segment and the subsequent reduced opportunities for self-referencing. It is suggested that widespread awareness of the MCoP tool be achieved via change agents such as accountants, agribusiness providers and bankers. There may also be an opportunity to place announcements in agricultural newspapers, and industry newsletters such as those produced by Evergraze. Some information flow would also be expected to these producers from those in the other two segments through existing social systems.

Regardless of the mediums used to reach potential users, research suggests that communication strategies for delivery and deployment of the MCoP tool should involve provision of sufficient information to enable potential users to fully understand and evaluate the process by which outputs are generated. A study by Hamilton (1996) revealed that farmers must understand how a software program works before they will trust the output. The study found that once farmers understand and trust the process by which outputs are arrived at, they are much more willing to use the software. This issue was highlighted during the interview process for this study when one service provider commented that the user needs to put a fair bit of trust in the outputs from the tool because it is unclear how they were arrived at, and similarly, several producers commented that they were confused about how the outputs were calculated.

It is argued by Hamilton (1996) that by farmers understanding the basic calculations and methodology of a tool they have an opportunity to question and alter assumptions and are therefore much more likely to utilise its outputs for subsequent decision making. In addition, it is suggested that the process

of understanding the workings of the tool would be expected to provide valuable learning about the management processes that the tool is designed to aide.

Finding

Diffusion of innovation theory predicts that mass media is the most effective means for creating awareness of innovations, while interpersonal contacts are best used to provide information and influence opinion and judgment via direct communication with industry opinion-leaders.

Recommendation

It is recommended that a formal communication and marketing strategy be developed that will involve:

- Use of mass communication channels to create awareness of the existence of the MCoP tool by advertising its availability on the MLA website and via state government departments and private consultants through existing farmer networks such as the Majority Markets, Grain n Graze, BetterBeef, and Evergraze. There may also be an opportunity to place announcements in agricultural newspapers, and industry newsletters such as those produced by Evergraze.
- Identification and targeting of a broad range of opinion leaders including innovative and successful leaders, in addition to some of the less innovative and more skeptical producers. Opinion leaders will also include a broad range of service providers who have the opportunity and capacity to influence potential users of the tool.
- Identifying and targeting change agents who may not necessarily be direct users of the tool, but who may influence direct users of the tool. For example, these may include service providers from the agribusiness, banking and accounting sectors. This strategy is likely to involve a combination of directly approaching managers of major organisations, and engaging in communication with industry organisations such as the Australian Bankers Association.

Finding

A study of the relevant literature revealed that persuasion is a powerful but under-utilised communication mechanism for enhancing user adoption of IT innovations.

Recommendation

The formal communication and marketing plan for the MCoP tool should involve the development and subsequent utilisation of effective persuasive communication strategies to influence perceptions among potential users regarding the benefits of adoption of the MCoP tool. Some examples of persuasive communication strategies may include:

- Clearly articulate in both the instructions file and the tool itself, the identified target user audience for the tool, the purposes for which it can be used, the likely benefits that can be gained from use, the limitations of the tool (what it can't do or be used for) what support is available and how to access it, and where to go/what to do to take the next step in terms of farm business analysis e.g. seek assistance from a consultant or use more advanced planning and analysis software such as Agrigater/Phoenix.
- Use of producer stories as marketing material. This would involve engaging some users of the MCoP tool to identify how they have used the tool, why they have used it, and what benefits they gained from using it. This information could be presented on the web, and/or in newsletter articles and other publications distributed to the potential target audience.

- Hold regional producer awareness workshops to target a broad range of opinion leaders, where not only is information imparted, but persuasive argument is used to reduce uncertainty regarding the likely costs and benefits of adoption.
- Development of a flier to mark the launch of the MCoP tool that could be provided to both producers and service providers. The flier would need to outline the purpose of the tool in terms of who it is for and what it does, in addition to what benefits the user can expect to gain from adoption. It should also ideally contain some producer 'stories' about positive user experiences.

Finding

Research has shown that producers are more likely to not only adopt the MCoP tool, but to gain greater value from using it if they understand and accept how the outputs are generated.

Recommendation

The process of how the outputs are calculated should be clearly explained and communicated in a section of the MCoP tool. With the addition of a user interface this could easily be achieved by providing a button labeled calculation methodology or something similar. In addition, it is recommended that an overview of the process for calculating the outputs from the tool is provided as part of any producer/service provider training and extension programs. This is likely to involve the use of case study data to illustrate the usability and utility of the tool.

5.1.4 Delivery of and Support for the MCoP Tool

Research into strategies for development and delivery of DSS reveal that the social context into which an innovation is introduced will impact upon the adoption levels of that innovation (Rogers, 1995). There are three key social contexts involved in delivery of the MCoP tool to producers:

- Facilitated producer groups.
- Producers with one-on-one support of a service provider.
- Producers in isolation.

Of these three social contexts, it is suggested that use by producers in isolation represents the greatest area of market failure. The majority of producers who currently do not undertake any kind of business analysis activity, but who may potentially be interested in doing so, are likely to be inhibited by issues such as lack of awareness of how to access resources for such opportunities, the cost of obtaining appropriate software, lack of skills for developing their own tool, and aversion to or lack of opportunity to be involved in producer groups.

There is perhaps less market failure, but arguably more opportunity for adoption of the MCoP tool in a producer group context. Finally, it is suggested that the market failure and opportunities for adoption are lowest in the context of use by producers one-on-one with service providers. It is therefore concluded that investment by MLA in delivery and ongoing support of the MCoP tool would best be focused on delivery of the tool as a stand-alone application and for use by facilitated producer groups. Issues and options for successful delivery and support of the MCoP tool in each of the social contexts identified are discussed in turn below.

Delivery Via Service Provider Facilitated Producer Groups

Producers interviewed during this study had a clear preference for delivery of the MCoP tool in a group context. The primary reasons for this preference included the opportunity for benchmarking

with peers, the support provided by an expert facilitator, and the increased motivation to provide input data into the tool due to a sense of obligation to the rest of the group. The advantage of this social context over the other two is the increased opportunity for learning from other producers as a result of group discussion and comparison of farm data with peers, and increased motivation and opportunity for developing a culture of continuous improvement among group members.

Potential barriers to the widespread use of the MCoP tool in a facilitated group context may include:

- Difficulty associated with the establishment of new producer groups.
- General producer preference for production based activities.
- Limited number of government extension staff on the ground.
- Limited skills among many government extension staff and private consultants in the area of farm management economics.
- Limited interest among public extension staff and private production consultants in undertaking farm business analysis with producers due to previous bad experiences, and perceived lack of interest among producers.

In turn it is suggested that the lack of enthusiasm for using the tool among many service providers will affect the degree to which it is promoted and the light in which it is cast as a learning aide for use by producer groups. In the situation where self directed learning is the basis for selection and undertaking of activities, the inclination of the group facilitator will have a major bearing on creating demand for group activities. If the group doesn't know about the MCoP tool they can't use it, and if it's not presented to them in an enthusiastic and positive way that motivates them to want to do it, then demand will be limited.

It is suggested that there are several opportunities for overcoming some of these potential barriers:

- Rather than require group members to enter their own data into the tool, the group facilitator could simply illustrate the process of calculating CoP using case study data. Producers could then be asked to consider what the likely impact on the profitability of the case study business will be from implementing various alternative management strategies.
- Rather than using the tool as a once off activity with producer groups, it could be used regularly in evaluating and discussing various production based subjects being explored by groups. The benefit of this approach is that producers are exposed to the MCoP tool in a less confronting way to assist with their understanding of issues that interest them. In addition, incorporating some level of economic evaluation of production based issues as a routine activity will assist to build the skills and confidence among producers for undertaking such analyses themselves. It may therefore gradually increase demand among producers for entering their own data into the tool.
- Provision of training for private consultants and extension officers in use of the tool for these two purposes will assist to build skills, confidence and motivation for its use with producer groups. It is also suggested that the establishment of a mentoring or coaching program would assist with achievement of these objectives. This may involve using skilled staff from within state agriculture departments, or where they are unavailable, accessing skills from within the private sector.
- Provision of support by MLA for establishment of new producer groups by assisting to build demand for use of the MCoP tool among the general producer target audience.
- Increased focus on involving farm women in extension and training activities. For many family owned businesses it is typically the female partner who handles the data management aspect of business activities.

Given that activities undertaken by producer groups are largely determined by the producers themselves, the general aversion of producers to farm business management type group activities in preference for production based subject matter would be expected to limit demand for use of the tool in this social context. As such it is suggested that the initial delivery of the MCoP tool via producer groups should place preferential focus on use of the tool as a learning aide rather than as a tool for direct use in benchmarking type activities. Xia and Lee (2000) showed the importance of gradual direct use experiences in altering user perceptions of the ease of use and value of decision support tools. Providing producers with the opportunity to gradually become familiar with the tool as a learning aide using case study farm data without having to invest a great deal of time and effort in doing so, is much more likely to gradually build demand within groups for more direct use of the tool with producer's own figures.

This less direct approach is also likely to result in a much more positive experience for producers when they eventually do use their own figures with the tool. It should be a lot less difficult and certainly less daunting as producers will already be familiar with how the tool works, what data is required and what value to expect out of it. Given that the benefits of measuring farm performance are increased by generating performance data on a regular annual basis, the more positive the first experience of a user with the tool, the more likely they are to use it again.

Several of the service providers interviewed during this study raised the issue of limited involvement of female partners in extension programs as a barrier to gaining farmer involvement in farm business analysis activities, as in many cases it is the female partner who manages the administration side of the business and thus has knowledge of the data management systems used. In support of this view, a study by Mackrell (2006) found that farm women are the main computer users for standard "off the shelf" applications and are generally more willing than men to enter data on a regular basis. It is therefore suggested that encouraging farm women to be involved in the use of the MCoP tool may assist to convince male partners of its usefulness, and also to increase potential adoption rates by involving women not only in the process of data entry but also in the evaluation of data outputs. This will necessitate the facilitation of farm women involvement in training and extension activities.

In support of this strategy, Mackrell (2006) discovered that involving women in agricultural training and education programs contributed to greater empowerment and increased confidence to contribute in enterprising ways to a broader range of farm management tasks, and to make innovative applications of computer based farm management tools. The study concluded that gender differences in the acceptance and usage of computerised DSS can be used to advantage through a joint husband and wife team approach to their use. A study by Bryant (1999) also recommended that encouraging farm men and women to work collaboratively to enter, analyse and interpret data from DSS would contribute to increased levels of adoption. However findings from research conducted for RIRDC suggests that this may be easier said than done. The study found that even though the female partner typically has the computer expertise and financial knowledge, ineffective communication often resulted in poor decision-making, with the male farmer making decisions without seeking advice from his wife (Daniels & Woods, 1997).

A key success factor for maximising the potential advantages of delivering the MCoP tool in a group context will involve provision of suitable train-the-trainer opportunities for group facilitators to build skills, knowledge and confidence in use of the tool. It is suggested that a core part of facilitator training should involve establishing a minimum level of farm management economics understanding. Despite the apparent simple nature of CoP as a performance indicator, the correct use of CoP and understanding how it may or may not be used in the context of farm decision making requires some degree of understanding of the principles of farm management economics.

Feedback obtained during the interview process suggested that a one day training activity would be inadequate for imparting the level of skill and knowledge that would be required to effectively deliver use of the MCoP tool to producer groups. Depending on the funding available to deliver such training, it would be better in terms of generating more competent service providers to offer a two day training course. The obvious drawbacks are potential decreased interest among service providers, especially those from the private sector, due to increased time requirements, and the increased cost to MLA.

While the general consensus among producers was that accreditation of facilitators/service providers in use of the tool with producers was not necessary, many service providers felt that there may be merit to a process of accreditation from MLA's perspective to assist with quality control and integrity and consistency in use of the tool. However the practicalities of delivering the tool to a broad range of producers will necessitate making it available via the web, thus essentially nullifying any attempts to implement a system of deliverer accreditation.

Finding

The key success factor for maximising the potential advantages of delivering the MCoP tool in a group context will involve access to a highly skilled and knowledgeable group facilitator.

Recommendation

- MLA can act to enhance the skills and knowledge in use of the MCoP tool by providing gratis train-the-trainer activities for group facilitators.
- MLA could also assist with establishment of state based mentoring and coaching programs for use of the MCoP tool with producer groups.

Finding

The demand for use of the MCoP tool by producer groups may be limited due to a natural aversion of many producers for engaging in farm business analysis activities, and a natural preference for production based activities. Research suggests that over time, positive direct use experiences with decision support tools can increase perceptions regarding ease-of-use and usefulness which may subsequently result in higher adoption levels.

Recommendation

The initial focus of delivery of the MCoP tool to producer groups should involve its use as a learning aide rather than as a vehicle for farm benchmarking activities. This could involve use of the tool to evaluate various management strategies utilising case study or research data, and for generating discussion around various production based subjects being explored by groups. Over time it would be expected that group members would become more confident in using the tool and interest in inputting their own data may increase.

Finding

Research suggests that close cooperation between male farm partners (with technical farming knowledge) and female partners (with computer and data management knowledge) could hold the key to improved adoption and usage of the computer for farm management. These partnerships could also provide the key to improved adoption rates of DSS for family managed rural enterprises as many problems associated with adoption involve the aversion of male partners to entering and collating

data. Encouraging a joint team approach using the strengths of both genders could therefore be a useful strategy to increase the dissemination of the MCoP tool to many rural businesses.

Recommendation

Investigate opportunities for involving more husband and wife teams in extension and training activities for the MCoP tool. This may involve more targeted marketing and communication strategies, consideration of timing and location of activities, and securing funding for the provision of child minding services during training and extension activities.

Delivery to Producers via One-on-One Support from Service Providers

Findings from interviews conducted during this study suggest that there is limited opportunity for adoption of the MCoP tool in this social context. The issues include:

- In its current form the MCoP tool was perceived as unsuitable by private consultants for use with clients (due to a combination of perceived poor usability and poor functionality of the tool).
- There is potential interest but questionable opportunity and aptitude for use of the MCoP tool by service providers such as accountants, product merchants and agribusiness providers one-on-one with producers.
- There is limited interest and opportunity for banks to use the MCoP tool with producer clients.

Even if recommendations for improving the usefulness and utility of the tool are implemented, it is suggested that many private consultants will still be reticent to use it with clients due primarily to a perceived lack of relative advantage over existing tools/systems used for provision of advice. The major barriers to adoption will include:

- Sunk costs in terms of time and money already invested in developing/purchasing existing computer based client data analysis systems.
- Familiarity and proficiency with use of existing client data management and analysis systems.
- Desire for market differentiation in terms of using their own tools with clients.
- Lack of compatibility of MCoP methodology with internal or external client benchmarking databases.
- Lack of acceptance of MCoP methodology.

Given the general lack of market failure in this social context in so far as most private consultants either already have alternative tools/processes or the capacity to develop them, combined with the predicted general lack of interest from private consultants in using the MCoP tool one-on-one with clients, it is suggested that MLA's incentive to invest heavily in overcoming these barriers and targeting delivery to this market segment is likely to be low. That said, possible delivery strategies to enhance the degree of adoption by service providers for the provision of individual farm business advice may include:

- Provision of gratis train-the-trainer opportunities for service providers.
- Targeting specific communication and marketing strategies at private consultants.
- Continue to seek feedback from consultants regarding the suitability of the tool for their intended purposes and involvement in any ongoing consultative processes for tool development
- Implement strategies to maximize demand for the MCoP tool from producers.
- Seek to achieve industry consensus on the tool methodology.

Interviewees from the agribusiness/product merchant and accounting sectors expressed interest in participating in any train-the-trainer opportunities provided by MLA. While many of the private consultants who indicated that they would not use the MCoP tool with clients stated that they were not interested in participating in training opportunities, others indicated that they might undertake training 'just-in-case' there was more demand for use of the tool among clients than they anticipated. Others stated that they would be more likely to participate in train-the-trainer if the tool was improved based on feedback provided.

The greater the demand from producers for using the MCoP tool the greater the likely adoption of the tool for use by service providers in provision of one-on-one advice. Thus implementation of recommendations for increasing the ease-of-use and utility of the MCoP tool for producers and for use of appropriate communication and marketing strategies to producers is likely to assist with increasing adoption for this market segment.

Findings

- The interest among private business and production consultants in using the MCoP tool one-on-one with clients is likely to be low.
- Many producers do not perceive accountants, product merchants and agribusiness providers as suitable agents for delivering the MCoP tool to clients due to a perceived lack of expertise, untrustworthy motives and the likely high cost of the service.
- There is likely to be limited demand from producers in using the MCoP tool one-on-one with accountants and agribusiness service providers.

Recommendations

Recommendations for delivery of the MCoP tool to service providers for use in providing one-on-one management advice to producers include:

- Implement strategies to increase the demand for the MCoP tool from producers. These will include recommendations provided previously for improving the ease-of-use and utility of the tool for producers. It will also include use of appropriate modes of deployment and communication, and provision of appropriate support.
- There may be benefits in attempting to gain consensus in the methodology for calculating CoP, however given that agricultural consultants recognise the limited value this measure has for clients they would be unlikely to use it anyway, thus consensus remains purely academic. It is therefore suggested that the likely large cost and time requirements for attempting to gain such consensus, combined with the arguably low chance of success and the perceived low value of the measure by service providers, that the net benefits from such a course of action cannot be justified.
- Where possible, involve private consultants in the ongoing development and deployment of the MCoP tool to industry, and where valid, incorporate consultant feedback to increase the value of the tool for their desired purposes.
- Target appropriate service providers for involvement in gratis train-the-trainer activities in use of the MCoP tool. Post training, service providers may have greater motivation for use of the tool with clients to generate a return on investment on the time taken to undertake the training activity.

It is important to consider that even if all of these recommendations are implemented, adoption of the MCoP tool by service providers may still be limited due to other factors previously identified, including

sunk costs and familiarity with the use of existing tools, and desire for market differentiation in terms of the analysis tools utilised.

Direct Delivery to Producers for Use Without Service Provider Support

The greater the complexity of a DSS the more suited it is to one-on-one delivery and the less suited it is for use by producers in isolation due to greater requirements for support. Initial consultant feedback on the MCoP tool indicated that it is too complicated to be delivered to producers as a stand-alone tool. This view has been overwhelmingly supported by feedback from both producers and service providers interviewed during this study. However there is no question that both the actual and perceived ease of use of the MCoP tool can be dramatically improved by implementing the key recommendations provided in this report to the degree that it is suggested that the tool would be suitable for delivery as a stand-alone DSS. However, that is not to say that it would be widely adopted in this context. Key barriers to the adoption of the MCoP tool as a stand-alone application are likely to include:

- Lack of interest from producers.
- Lack of computer skills and limited use of computers for supporting farm management decision making among producers.
- Lack of awareness that the tool exists and how to access it.
- Perception that costs of using the tool would outweigh benefits.
- Perceived lack of relative advantage in use of the tool.
- Lack of sufficient support for its use.

Many producers simply have no interest in 'doing the figures' regardless of any benefits in doing so. Their focus is primarily on the practical and production based day to day activities of running a farm business as opposed to office work. Bryant (1999) reported a common attitude among farmers is that office work, unlike physical, outside work, is not considered to be 'real work'. It is suggested that this attitude is reasonably common among the farming population, and that these producers are unlikely to adopt the MCoP tool even if they are well aware of and acknowledge the benefits it may generate for them.

ABS research indicates that computers are not widely used by Australian farm businesses for supporting the process of farm management decision making (ABS, 2003). The major contributing factor is suggested to be the large proportion of older farmers who lack the skills in computer use and the time and motivation to overcome this skill gap. A more pragmatic approach to the use of computers by farmers is argued by Urquhart and Rowley (1999) who claim that many farmers find that the use of computers conflicts with their lifestyle. Farmers usually work in isolation during the day and value evening family time. The prospect of further solitary work at the computer may therefore not appeal to them. This argument again highlights the important role of farm women as the most common users of computers for farm data management processes.

As previously discussed, potential adopters of an innovation must first become aware of and learn about the innovation, and then persuaded as to the merits of the innovation before they decide to adopt. Achieving widespread awareness among the mixed farming population will be very difficult. Given that the producers most likely to adopt the MCoP tool as a stand-alone application are probably not already involved in facilitated producer groups or using farm consultants, these intermediaries are unlikely to be useful as a communication medium. This issue is further complicated by the fact that many of this target audience may not regularly use the internet, and even if they do, would not necessarily seek out information on the availability of such a tool.

Once producers become aware of the existence of the tool, the innovation-decision will be made through a cost-benefit analysis where the major obstacle is uncertainty (Rogers, 1995). People will adopt an innovation if they believe that it will, all things considered, enhance their utility. However producers must also perceive that the MCoP tool will yield some relative advantage over use of the tools or processes that it supersedes. The difficulty for producers will be in identifying with certainty the kind of benefits they can expect from use of the tool. This process can be facilitated via use of persuasive communication where possible, and more directly via articulation of the expected benefits from use of the tool within an information sheet provided in the actual program.

In consideration of costs, producers will determine the degree of investment in time and mental application for effective use of the tool, and will also consider issues such as perceived ease-of-use, compatibility of use with other general business management and decision making processes and adherence to social norms, which in a stand-alone context will generally involve the views of other family members. Again, the targeting of farm women in delivery of communication strategies may play a role in persuading male partners to adopt the MCoP tool. However the difficulty in specifically targeting farm women may limit the value of such a strategy.

It is suggested that there is an opportunity to create awareness of and reduce uncertainty surrounding use of the MCoP tool by using it as the data collection vehicle for use in MLA's Assessing the Impact of Southern Majority Market Programs Project. However the ease-of-use and usefulness of the tool would need to be significantly improved for it to be suitable for this purpose.

Feedback from producer interviews indicated strong support for the development of a stand-alone Farm Ready approved course in use of the MCoP. Such a course would be particularly valuable for those producers wishing to gain greater skill and understanding in using the outputs from the tool, and also for those producers who are not involved in a group but wish to use the tool in isolation. Rather than developing a new course, it would seem more appropriate to update the existing single enterprise CoP course to cater for the multi-enterprise tool instead.

The most obvious mode of delivery of the MCoP tool as a stand-alone application will be via the MLA website. This will not only enable widespread access to the tool, but will have the additional advantage of enabling for easy updates due to improvements made to the program or general debugging. It will also provide a medium for communication and marketing materials and also potentially for gaining feedback from users.

Several service providers and producers also suggested that the single enterprise tools be retained on the web as a 'stepping stone' toward use of the more involved MCoP tool. Users of the single enterprise tools may gradually progress to using the MCoP tool once they gain experience and confidence with the process. It is suggested that this will be particularly useful for producers accessing the MCoP tool via the web and utilising it without service provider support. For this approach to be effective the format and requirements for data entry, the methodology and the outputs will need to be consistent between the tools. At present the method utilised for calculating CoP in the single enterprise tools is slightly different to that utilised in the MCoP tool, so this in particular needs to be addressed.

Finding

Beyond creating awareness, the key to adoption of the MCoP tool for use by producers in isolation will involve reducing uncertainty regarding the potential costs and benefits of its use.

Recommendation

In addition to the previous recommendations for development and delivery of appropriate communication and marketing strategies to inform and persuade producers, strategies to engage with and influence a range of producers with the purpose of reducing uncertainty may include involving a select number of producers in field testing use of the tool and seeking feedback from them, and use of the MCoP tool as the data collection vehicle for assessing impacts of the southern Market Majority Programs. The latter presents an opportunity to provide one-on-one support to a large number of producers who may then be more likely to adopt the MCoP tool and promote its use to others in their social context.

There may also be an opportunity for MLA to maintain contact with these producers as a source of ongoing feedback and potentially as a base group for collecting ongoing industry performance data. This would involve active communication with this group to identify the level of interest in firstly utilising the tool on an ongoing basis, and secondly the willingness of producers to provide their data to MLA.

Finding

The single enterprise MLA CoP tools could provide support for transitioning users into use of the more involved MCoP tool. However for such a process to be effective, the methodologies used to generate outputs for all tools would need to be consistent, and at present there are differences.

Recommendation

It is recommended that the single enterprise MLA CoP tools be retained and continue to be made available on the MLA website as a possible first step toward transitioning into use of the more involved MCoP tool for many producers. To facilitate the use of the single enterprise tools in this context the methodology for calculating CoP in the single enterprise tools must be aligned with that used in the MCoP tool.

Finding

For the MCoP tool to be widely adopted by producers it will need to be easily accessible. If the recommended changes to improve the ease of use and utility of the tool are implemented, then it will be suitable for delivery as a stand-alone application.

Recommendation

If the recommended changes to improve the ease-of-use and utility of the tool are implemented, the MCoP tool should be made available as a stand-alone application on the MLA website.

Finding

A stand-alone Farm Ready approved course for producers will provide an opportunity for producers who do not use consultants or are not involved in groups to gain training in appropriate use of the MCoP tool. This training could also benefit producers who use the tool with a service provider or in a group context.

Recommendation

MLA consider the development of a Farm Ready approved stand-alone training course for producers in using the MCoP tool, most likely to replace the existing single enterprise course.

Key Support Required for Sustainable Delivery of the MCoP Tool

The MCoP tool will require not only effective targeted delivery mechanisms for each social context, but also provision of ongoing support to gradually build demand along the typical S curve of adoption diffusion. Several opportunities for supporting the sustainable use of the MCoP tool by producers have already been previously discussed. These have included:

- Widespread communication from MLA to promote the existence of the tool and how to access it.
- Targeted marketing and persuasive communication from MLA regarding the intended purpose of the MCoP tool, how it should and shouldn't be utilised, how to best utilise the outputs, the expected benefits of utilising the tool in the ways identified, the methodology for generating final outputs and suggestions for 'where to next' in terms of further resources and services to access e.g. specific planning software and private consultants.
- Provision of an updated instructions file and increased and more useful instructions in the actual program file.
- Provision of service provider gratis train-the-train activities.
- Provision for ongoing evaluation and maintenance of the MCoP tool to ensure continued relevance and value for industry.
- Establishment of state based mentoring/coaching programs to support producer group facilitators in use of the tool.
- Providing an example case study farm on the web using the inputs and outputs from the tool.
- Utilising YouTube to provide a visual demonstration in using the tool and providing a link to the demonstration on the MLA website.
- Development of a Farm Ready approved stand-alone producer training course.
- Retaining and modifying the single enterprise tools in the web as and promoting their use as transition toward using the MCoP tool.

The degree to which MLA chooses to invest in ongoing support for use of the MCoP tool will depend upon the likely impact this support will have on adoption rates and the relative cost of providing that support. Several interviewees suggested that MLA has "done its job" in delivering the tool to industry, and whether people choose to use it or not is up to them. This position suggests that it is not the role of MLA to invest in ongoing support post delivery to enhance adoption rates. Other interviewees had the opposite view, stating that ongoing support was essential for effective delivery of the tool to producers. It is suggested that if long-term sustainable delivery and use of the tool by producers is the objective, then some level of post delivery support is required.

6.0 Summary of Recommendations

6.1 Ease of Use

Recommendation 1

The most effective means of rendering the tool less daunting and thereby increasing the perception of ease-of-use is to invest in the development of a user interface for the tool.

Recommendation 2

The structure of the MCoP tool needs to be reviewed and improved to increase the ease of the data entry process and the viewing of outputs by users. In particular it is recommended that all data

required for enterprise livestock reconciliation be inputted on the one page and the balances also presented on the same page. This would involve removing the optional sales and purchases per head sheets from the tool and incorporating this information into the livestock reconciliation sheet.

Recommendation 3

The large number of fairly minor, mainly labeling and formatting issues, identified during the interview process need to be corrected. In addition it is recommended that the tool be reviewed to identify and correct any other minor formatting/labeling issues not already identified by interviewees.

Recommendation 4

If MLA wishes to target the MCoP tool at the majority of producers, and more specifically red meat as opposed to wool producers, it is recommended that the calculation of wool inventory on sheep's back be excluded from the program.

Calculation of livestock inventory is much more important, thus while the process can be made simpler (Recommendation 2) it cannot be excluded entirely from the calculations.

Recommendation 5

Key recommendations for improving the instructions provided for use of the tool include:

- As part of the process of developing a user interface for the MCoP tool, provide the user with HELP buttons throughout the tool to present relevant sections of the instructions document embedded within the program for viewing.
- Undertake a review process of the instructions document to correct any grammatical errors and improve the general readability of the document.
- Provide screenshots throughout the instructions file to increase its usefulness for users.
- Review the content of comment boxes to eliminate confusing and inadequate instructions. This should be undertaken in tandem with the process of providing HELP instructions throughout the file to ensure double up of instructions is minimised.

Recommendation 6

The following recommendations are provided for addressing the issue of redundancy of effort in data entry:

- The data input format for the single enterprise CoP tools be aligned directly with that for the MCoP tool to minimise redundancy of effort issues for producers who progress from using the single enterprise tools to the MCoP tool.
- Investigate opportunities for linking inputs/outputs to any other DSS tools provided by MLA.
- Attempts to link input processes with other software programs and accounting packages certainly has potential to increase ease-of-use of many software programs used by producers, including the MCoP tool, however given the time and money that would be required to achieve this objective it is considered to be beyond the scope of this project.

6.2 Usefulness

Recommendation 7

Primary recommendations for rendering the MCoP suitable for potential applications include:

- Correct calculation errors for all potential applications.
- Provide CoP and profit outputs on a per hectare basis.
- Include provision for five years worth of data entry along with the capacity to graph trend data.
- Alter the method used to calculate CoP for sheep and cropping enterprises to exclude the use of income as a means for splitting costs between product outputs.
- Include gross margin and production outputs.

Recommendation 8

Secondary recommendations for enhancing the suitability of the MCoP tool for potential applications include:

- Provision made in the tool for conducting scenario analyses.

6.3 User Involvement in Ongoing Tool Development

Recommendation 9

It is recommended that MLA investigate strategies and opportunities for obtaining ongoing feedback from users of the MCoP tool to ensure that any issues, particularly debugging, are dealt with swiftly and the tool continues to meet the needs of industry users. This may involve providing an email address on the tool for users to provide feedback to MLA, and/or a short questionnaire/survey for producers using the tool in groups. At a higher level, it may also involve conducting surveys or focus groups with users to obtain more detailed feedback on a less frequent basis.

6.4 Communication and Marketing

Recommendation 10

It is recommended that a formal communication and marketing strategy be developed that will involve:

- Use of mass communication channels to create awareness of the existence of the MCoP tool by advertising its availability on the MLA website and via state government departments and private consultants through existing farmer networks such as the Majority Markets, Grain n Graze, BetterBeef, and Evergraze. There may also be an opportunity to place announcements in agricultural newspapers, and industry newsletters such as those produced by Evergraze.
- Identification and targeting of a broad range of opinion leaders including innovative and successful leaders, in addition to some of the less innovative and more skeptical producers. Opinion leaders will also include a broad range of service providers who have the opportunity and capacity to influence potential users of the tool.
- Identifying and targeting change agents who may not necessarily be direct users of the tool, but who may influence direct users of the tool. For example, these may include service providers from the agribusiness, banking and accounting sectors. This strategy is likely to involve a combination of directly approaching managers of major organisations, and engaging in communication with industry organisations such as the Australian Bankers Association.

Recommendation 11

The formal communication and marketing plan for the MCoP tool should involve the development and subsequent utilisation of effective persuasive communication strategies to influence perceptions among potential users regarding the benefits of adoption of the MCoP tool. Some examples of persuasive communication strategies may include:

- Clearly articulate in both the instructions file and the tool itself, the identified target user audience for the tool, the purposes for which it can be used, the likely benefits that can be gained from use, the limitations of the tool (what it can't do or be used for) what support is available and how to access it, and where to go/what to do to take the next step in terms of farm business analysis e.g. seek assistance from a consultant or use more advanced planning and analysis software such as Agrigater/Phoenix.
- Use of producer stories as marketing material. This would involve engaging some users of the MCoP tool to identify how they have used the tool, why they have used it, and what benefits they gained from using it. This information could be presented on the web, and/or in newsletter articles and other publications distributed to the potential target audience.
- Hold regional producer awareness workshops to target a broad range of opinion leaders, where not only is information imparted, but persuasive argument is used to reduce uncertainty regarding the likely costs and benefits of adoption.
- Development of a flier to mark the launch of the MCoP tool that could be provided to both producers and service providers. The flier would need to outline the purpose of the tool in terms of who it is for and what it does, in addition to what benefits the user can expect to gain from adoption. It should also ideally contain some producer 'stories' about positive user experiences.

Recommendation 12

The process of how the outputs are calculated should be clearly explained and communicated in a section of the MCoP tool. With the addition of a user interface this could easily be achieved by providing a button labeled calculation methodology or something similar. In addition, it is recommended that an overview of the process for calculating the outputs from the tool are provided as part of any producer/service provider training and extension programs. This is likely to involve the use of case study data to illustrate the usability and utility of the tool.

6.5 Delivery of the MCoP Tool to Producers

6.5.1 Delivery via Service Provider Facilitated Producer Groups

Recommendation 13

MLA can act to enhance the skills and knowledge of group facilitators in use of the MCoP tool by providing gratis train-the-trainer activities. MLA could also assist with establishment of state based mentoring and coaching programs for group facilitators using the MCoP tool with producer groups.

Recommendation 14

The initial focus for delivery of the MCoP tool to producer groups should involve its use as a learning aide rather than as a vehicle for farm benchmarking activities. This could involve use of the tool to evaluate various management strategies utilising case study or research data, and for generating discussion around various production based subjects being explored by groups. Over time it would be expected that group members would become more confident in using the tool and interest in inputting their own data may increase.

Recommendation 15

Investigate opportunities for involving more husband and wife teams in extension and training activities for the MCoP tool. This may involve more targeted marketing and communication strategies, consideration of timing and location of activities, and securing funding for the provision of child minding services during training and extension activities.

6.5.2 Delivery to Producers with One-on-One Support from Service Providers

Recommendation 16

Recommendations for delivery of the MCoP tool to service providers for use in providing one-on-one management advice to producers include:

- Implement strategies to increase the demand for the MCoP tool from producers. These will include recommendations provided previously for improving the ease-of-use and utility of the tool for producers. It will also include use of appropriate modes of deployment and communication, and provision of appropriate post adoption support.
- There may be benefits in attempting to gain consensus in the methodology for calculating CoP, however given that agricultural consultants recognise the limited value this measure has for clients they would be unlikely to use it anyway, thus consensus remains purely academic. It is therefore suggested that due to the large cost and time requirements for attempting to gain such consensus, the arguably low probability of success and the perceived low value of the measure by service providers, that the net benefits from such a course of action cannot be justified.
- Target appropriate service providers for involvement in gratis train-the-trainer activities in use of the MCoP tool. Post training, service providers may have greater motivation for use of the tool with clients to generate a return on investment on the time taken to undertake the training activity.

6.5.3 Direct Delivery to Producers for Use Without Service Provider Support

Recommendation 17

In addition to the previous recommendations for development and delivery of appropriate communication and marketing strategies to inform and persuade producers, strategies to engage with and influence a range of producers with the purpose of reducing uncertainty may include involving a select number of producers in field testing use of the tool and seeking feedback from them, and use of the MCoP tool as the data collection vehicle for assessing impacts of the southern Market Majority Programs. The latter presents an opportunity to provide one-on-one support to a large number of producers who may then be more likely to adopt the MCoP tool and promote its use to others in their social context.

There may also be an opportunity for MLA to maintain contact with these producers as a source of ongoing feedback and potentially as a base group for collecting ongoing industry performance data. This would involve active communication with this group to identify the level of interest in firstly utilising the tool on an ongoing basis, and secondly the willingness of producers to provide their data to MLA.

Recommendation 18

It is recommended that the single enterprise MLA CoP tools be retained and continue to be made available on the MLA website as a possible first step toward transitioning into use of the more

involved MCoP tool for many producers. To facilitate the use of the single enterprise tools in this context the methodology for calculating CoP in the single enterprise tools must be aligned with that used in the MCoP tool.

Recommendation 19

If the recommended changes to improve the ease-of-use and utility of the tool are implemented, the MCoP tool should be made available as a stand-alone application on the MLA website.

Recommendation 20

MLA consider the development of a Farm Ready approved stand-alone training course for producers in using the MCoP tool, most likely to replace the existing single enterprise CoP course.

7.0 Conclusion

The positive relationship between managerial ability and farm performance has been well established. Some argue that it is in fact the most important determinant of farm performance. For example, Gruen (1948) contended that managerial efficiency was probably the most important factor in explaining variations in farm income, and concluded that:

> *"Farms are not of uniform size or quality and each one has its own problems. Efficient farm management may perhaps be best described as the ability to recognise these problems and tackle them successfully".*

Use of agricultural decision support systems has long been proposed as a means for assisting farm managers to identify areas for improvement and evaluate the likely success of various management options. Feedback from the survey conducted for this study revealed a broad range of desired potential applications for the MCoP decision support tool. However an analysis of the characteristics of the tool, in particular its perceived ease-of-use and usefulness, revealed that the tool is currently unsuitable for most of these applications. A series of key recommendations are provided for altering the tool to render it suitable for each of the desired purposes identified. The most notable of these were to invest in a user interface for the tool to increase ease of use, and to provide CoP and enterprise profit outputs on a per hectare basis to increase functionality.

In addition to characteristics of the tool, the study identified user involvement in ongoing tool development, communication and marketing strategies, social contexts for delivery and provision of appropriate post delivery support as the key success factors for maximising potential adoption of the tool by producers.

In considering social contexts for delivery, it was concluded that farmers are more likely to use the MCoP tool through intermediaries than by direct use. Given the expected limited interest from private consultants in using the tool with clients and the predicted limited interest from producers in accessing the tool via other service providers, such accountants and agribusiness providers, it appears that delivery via groups presents the greatest opportunity for adoption of the MCoP tool by producers.

Regardless of the social context for delivery, it is suggested that potential adoption rates will be enhanced by implementing communication and marketing strategies that create widespread awareness of the existence of the tool and how to access it, and reduce the degree of uncertainty felt by potential users regarding the expected costs and benefits of adoption. Post adoption, it is suggested that appropriate use of the tool will be facilitated by the provision of various support

mechanisms, including train-the-trainer activities for service providers, development of a stand-alone training course for producers, and provision of case study examples and visual demonstrations in use of the tool on the MLA website.

Decisions regarding the level of investment by MLA in implementing the recommendations provided in this report will depend upon the relative costs and benefits of each recommendation, and MLA's criteria for success in regards to delivery of the MCoP tool to industry. For example, if success is measured by adoption rate and use of the tool, a large proportion of the recommendations are likely to be adopted, however if success is simply provision of a CoP tool to industry then fewer of the recommendations are likely to be implemented. It is suggested that when considering which recommendations to adopt that the costs of non-implementation are also considered, particularly with regard to potential goodwill for MLA and the quality of the data provided to users. Consideration of the relative importance of perceived ease of use and usability on influencing adoption will also be relevant.

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