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Environmental Management Systems for lamb and sheep meat production

Abstract

Australian agricultural industries are being confronted with the challenge of proving their “clean and green” status. Various quality assurance programs address the “clean” issues, but “green” credentials are largely unsubstantiated. Environmental Management Systems (EMS) provide a system to justify “green” claims and lead to improved environmental outcomes.

We have used two producer groups, aligned to either a domestic or export supply chain, to develop an EMS approach for the lamb and sheepmeat industry.

We recommend that the lamb and sheepmeat industry negotiate with the grains and wool industries to agree on a singular, 4 stage approach to EMS. The 4 stage EMS was compatible with the needs of an export and domestic supply chain, including the two producer groups. Many producers may initially find the process of EMS daunting, and need a simple entry point, as afforded by stage 1.

Both export and domestic supply chains can be used as motivators for the adoption of EMS principles and practices by their suppliers.

The 4 stage approach to EMS provides a means by which supply chain members of the Australian lamb and sheepmeat industry (as well as the broader community) are able to benefit from improved environmental performance and protected market access.

Executive Summary

Australian agricultural industries are being confronted with the challenge of proving their "clean and green" status. No longer is it enough to merely state our position; we must be able to document our production systems. Quality assurance programs such as Flockcare are addressing the "clean" issues, but the "green" credentials are largely unsubstantiated. Environmental Management Systems (EMS) provide a system to justify "green" claims and to provide protection of our natural resources for the benefit of the community and agricultural industries.

EMS provides a process for farmers to identify, manage and improve environmental impacts of farming systems. The environmental benefits depend upon the specific issues of the producer (often dependant on region) and range from issues such as salinity, acidity, water quality, soil decline and health of native vegetation/biodiversity.

A supply chain based approach was utilised for the development and implementation of EMS within the lamb and sheep meat industry. We worked with two producer groups, both with strong supply chain connections to either the domestic retailer Coles (the Western Group) or the export processor Castricum Brothers (the Central Group). Producer groups identified key environmental issues, and developed management strategies to address these issues. A framework for the adoption of EMS principles and practices within the Australian lamb and sheep meat industry was developed based on existing GRDC funded grains industry work, the MLA funded Gippsbeef project and the Australian EMS Framework.

We recommend a 4 stage approach to EMS. As well as providing an easy point of entry to EMS for producers with limited experience with the management of environmental issues, the staged approach provides a logical progression should producers elect to undertake a more rigorous level of EMS in the future. We also recommend that the lamb and sheep meat industry negotiate with the grains and wool industries to agree on a singular, 4 stage approach to EMS.

The Central Group was successful in undertaking a practical, stage 2 EMS program. This lower level approach to EMS was consistent with the needs of Castricum Brothers. The Western Group undertook a higher level of EMS and progressed through to stage 3. The stage 3 approach was driven by producer group members, and was in excess of the requirements of Coles.

Producer groups identified a lower level approach of awareness raising (consistent with a stage 1 approach) as being most suited to the majority of industry. The exception to this case is where there is a specific environmental risk to address, such as those potentially associated with the use of intensive finishing systems.

Producer members clearly identified the need for group learning when undertaking EMS, including a supportive group environment, a facilitated approach to learning and the use of monitoring tools to build an awareness and understanding of environmental issues. The established framework was tested by the two producer groups, with both groups testing stages 1 and 2 of the established framework, and one group testing the higher level, stage 3 approach.

Should the market dictate a need for environmentally assured lamb production systems, both Coles and Castricums have supply chain structures that enable them to become motivators for the adoption of EMS principles and practices by their suppliers. Their supply chains both have close

linkages with suppliers, with established communication pathways between supply chain members. In addition to the ability to act as a motivator, these well established linkages to their supplier base enables a high degree of traceability of product through the supply chain from on farm to the boning room.

To ensure benefits to the Australian lamb and sheep meats industry (in enhanced environmental outcomes and market protection) are realised quickly, there is a need to immediately build awareness of, and the address EMS principles and practices. At this stage many producers are not yet ready for EMS and require a period of awareness raising prior to undertaking any practice change. Additionally, many supply chains are not significantly developed to enable them to act as motivators for change in environmental management; this is especially true given the limited market signals for environmentally assured production systems.

The inclusion of a session on "Environmental management in the Australian lamb and sheep meat industries" within future PrimeTime forums would provide an excellent means of raising the general awareness of environmental management.

Undertaking an awareness campaign would benefit many members of the lamb supply chain, including producers and processors (in the first instance more likely to be export companies, with later benefits to domestic processors). There are also benefits to the wider community in general, from enhanced on farm environmental outcomes.

In our opinion the implementation of EMS principles and practices should be via a 4-pronged strategy.

1. Training of interested private consultants in EMS (stages 1 to 4) to service globally focussed, business oriented producers. Formalised training linked to recognised competency standards is desirable.
2. Servicing of more traditional farmers through public and private agencies, as well as partnerships with other industries. Training of extension staff is needed, particularly in the lower levels of EMS (stages 1 and 2), along with an understanding of stage 4.
3. Provision of training for interested, self selected producer groups and facilitators in stages 1 and 2 EMS.
4. Specific partnerships with catchment management bodies and state departments in regional zones that the lamb and sheep meat industry views as strategically important.

Due to the lack of market signals for EMS, ownership of the issue of environmental management ultimately comes back to the individual and supply chains on their own have a limited ability to drive adoption of EMS principles. The means by which individuals are encouraged to take on the ownership of these issues is many and diverse, and ranges from the feel good elements of improved environmental management through to complementary productivity and environmental gains.

There can be little doubt that an improvement in environmental management practices within the Australian lamb and sheep meat industry will be slow to eventuate, unless we are able to raise awareness at an on farm level of the positive and negative environmental issues associated with various farm management practices.

Contents

1 Background

Australian agricultural industries are being confronted with the challenge of proving their "clean and green" status. No longer is it enough to merely state our position; we must be able to document our production systems. Quality assurance programs such as Flockcare are addressing the "clean" issues, but the "green" credentials are largely unsubstantiated. Environmental Management Systems (EMS) provide a system to justify "green" claims and to provide protection of our natural resources for the benefit of the community and the agricultural industries.

EMS is a formalised, structured approach, which can help farmers assess, document and improve their environmental performance. An EMS is a management tool that helps to achieve continuous improvement through a "plan-do-check-review" cycle. It can help draw diverse management issues together under a common approach.

Other industries (grains, beef, cotton, processing tomatoes and viticulture) have taken the initiative and established key pilot groups to develop and trial EMS. Department of Primary Industries (DPI) staff have lead the development and implementation of EMS projects and have developed cross industry links in a DPI funded project. This has also enabled strong collaboration with project staff from the Grains Research and Development Corporation (GRDC) funded project "Preparing for EMS in the Australian grains industry".

A supply chain based approach was utilised for the development and implementation of EMS within the lamb industry. Both a domestic (Coles) and an export focused supply chain (Castricum Brothers) were selected to participate in the project. Selection of both companies was based on an expressed interest in environmental management, as well as the presence of a structured supply chain that included a known supplier network.

We implemented a 4 stage approach to EMS. This provided an integrated EMS/QA framework and met the needs of both the selected supply chains. The established model offered producers a range in the rigour to which EMS can be undertaken and is complementarity to EMS based projects in the grains industry.

The most successful overseas experience leading towards EMS has been Canada's Ontario Environmental Farm Plan, which is similar to our proposed stage 2 EMS. Over 40% of producers in the province participate in environmental farm planning. Reasons for success include that the scheme is led by farmers, is based on adult learning, is a partnership between farmers and agencies, is technically credible, is easy to follow and includes a financial incentive ($1,500 per farm). Some of the learning from this experience was incorporated into our project.

The same level of industry involvement may not have been possible using a formal EMS such as ISO 14001. The experience of various industry QA schemes highlights that a staged approach, to ultimately ISO level, encourages producers to enter into the program, and provides a means by which they can progress through the scheme at their own pace. There are however good reasons why ISO 14001 may not be suitable for lamb producers, including;

1) Likely lack of current and future price premiums for ISO produced agricultural produce.
2) ISO 14001 is a *process* based certification, the *outcome* is not certified (thus it is possible to have an environmentally unacceptable system according to community expectations.
3) Cost and fear of paperwork documenting claims.

The adoption of EMS principles and ultimately EMS will be maximised if the lamb industry is able to decide which level of EMS it is ready for, rather than targeting ISO 14001 in the first instance.

To maximise uptake of project findings and outcomes, a group learning environment that incorporated adult learning principles was utilised by the project.

2 Project Objectives

1. Identify 2 producer groups, each of which is working with either a domestic supply chain (Coles) or an export supply chain (Castricum Brothers) and demonstrate a capability to work across the supply chain to develop an appropriate EMS for the lamb industry.
2. Identify key environmental issues in the selected producer groups and 2 major supply chains.
3. Review existing EMS frameworks and delivery mechanisms for each producer group.
4. Refine and test a pilot EMS approach that:
   - meets supply chain needs, with both current and future domestic and international environmental trends in mind;
   - is practical for producers and processors;
   - meets the current and likely future expectations of domestic and international consumers;
   - builds on current GRDC and MLA EMS work, with opportunities provided for MLA to contribute to the process;
   - provides feedback on the usefulness of the MLA 0n-farm guide to EMS;
   - addresses the key environmental issues in the selected producer groups;
   - can be integrated within existing QA frameworks and the proposed 2 tier structure and/or operated independently as an EMS;
   - ensures the flexible marketing of lamb/sheep/mutton to the major supply chains;
   - is compatible with an EMS framework that caters for different levels of readiness and capability for lamb producers, some of whom will not be ready or willing to adopt a full EMS (tiered approach); and
   – provides recommendations on the best approach for adoption of EMS principles throughout the supply chain.

3 Method

The project was conducted in 3 phases, with phases 1 and 2 conducted concurrently and phase 3 following:

3.1 PHASE 1: Two existing lamb producer groups who had well developed links with either a domestic supply chain (Coles) or an export supply chain (Castricum Brothers) were selected to participate in this project

The Coles based group was based in western Victoria. Participants represented a broad cross section of the supply chain, and were initially identified and personally approached to take part in the project. This was a joint process between DPI staff member Nick Linden, and producer group member, Hamish McKinnon.

In the first instance, Western Group members had the objectives of the project outlined to them on a one to one basis by Nick Linden. To gain further insight into group expectations prior to the first group meeting, Kyra-Jane Huhn, Nick Linden and Anna Ridley met with Hamish McKinnon to discuss likely group expectations.

The second group consisted of twelve farms (nineteen individuals) supplying lambs to the export lamb processor, Castricum Brothers. Group members were based in the north east of Victoria and southern NSW (Central Group). In line with the wishes of Castricum Brothers, the Central Group consisted entirely of Castricum Brothers suppliers. Formation of the Central Group was a joint process between DPI staff member Kyra-Jane, and agricultural consultant, Laurie Thatcher. The use of Laurie Thatcher in group formation (who was already known to group members), was seen as an important means by which we could obtain some of the benefits associated with the dynamic of an already functioning group, in a relatively short period.

Group members were identified from the Casmark mailing list and short-listed as possible participants. Laurie Thatcher made initial contact with all producers to outline the objectives of the project and scope out producer interest.

The follow up from the initial phone contact to producers was made by Kyra-Jane through a letter providing details about the project, and an invitation to attend an information session. Presentations at the initial information session were made by Theo Castricum (market signals for EMS), Anna Ridley (the GRDC experience) and from Laurie Thatcher (the role of benchmarking while linking EMS to profitable lamb production). Presentations were kept short and sharp to stimulate interest in the project. The meeting concluded with an informal session where speakers interacted with participants. This session was seen as important as it enabled participants to clear up any queries they may have had in relation to the project, whilst not being as confronting as a more formal question and answer session.

In addition to both groups having well developed supply chain linkages, they were also selected on the basis of them having an interest in, and a positive attitude towards incorporating environmental issues into production systems. Groups initially identified the key environmental issues affecting the lamb industry. Major environmental issues identified were then collated and used as the basis for customising EMS to suit local requirements. Building in this local relevance was an important step in designing a program that had broad appeal to farmers.

Content of group meetings has primarily been determined in line with the information gained from producer self-assessments, based on meeting the areas of greatest need first. As a result later activities for both groups have been focused on self-assessment, impacts register and the development of action plans to address environmental impacts (Table 1). Kyra-Jane has also provided, where necessary, one to one follow up to ensure that the process was manageable.

We implemented a 4 stage approach to EMS. Stage 1 is the 'Beginners guide to environmental awareness', and is focused on self-assessment, stage 2 is the 'Environmental Farm Plan' which incorporates an impacts register and stage 3 is an 'Industry EMS', self or peer audited. The highest level within the staged approach is stage 4, which is based on full ISO 14001, and is externally audited.

This staged approach is entirely compatible with the ISO 14001, the internationally recognised form of EMS, as well as the framework of the Department of Agriculture, Fisheries and Forestry's *'Pathways to industry EMS'* Program.

Table 1. Program of meeting activities for Central and Western Groups.

Central Group			**Western Group**		
Meeting #	Activity	Stage	Meeting #	Activity	Stage
1	General introduction to EMS		1	General introduction to EMS.	
	Introduction to the self assessment questions	1	2	SAW	1
2	Review of SAW	1		Impacts review	2
	Introduction to water and soil monitoring tool *(completed as homework)*	2	3	Responsibilities and communications	3
3	Review of SAW	1		Skills and training	3
	Review water and soil monitoring tool	2		Incidents and non-conformance	3
	Testing the leakage tool *(completed as homework)*	2		EMS management review	3
	Presentation on salinity in the region, with local site visit.	2		Documents and records	3
4	Review questions from the leakage tool	2		Self Audit	3
	EMS policy	2	4	Peer audit	3
	Start the environmental impacts register *(completed as homework)*	2	5	External audit against standard *(Scheduled to occur in October 2005)*	3
5	Review the environmental impacts register *(impacts register completed as homework)*	2			
	Legislation summaries and legal requirements	2			
6	Review the environmental impacts register and environmental policy	2			
	Introduction to action planning *(completed as homework)*	2			
7	Review of action planning	2			
	The importance of monitoring, and incorporation of monitoring into action plans	2			
	Benchmarking to improve farm profitability				
8	Document control	2			
	Record keeping	2			
	Introduction to self audit	2			
9	Self audit of stage 2	2			
	EMS review	2			
	Acid soil tool	2			
10	Final lunch meeting				
	Evaluation				

3.2 PHASE 2: Work with domestic and export processors Coles and Castricums to identify their current and future requirements regarding 'clean and green' products

Nick Linden and Anna Ridley had face to face meetings with Theo Castricum (Castricum Brothers) and Andrew Hay (Coles) to discuss their needs, requirements and motivation for involvement in this project.

The approach with Coles and Castricum Brothers was through discussion to determine their current understanding of EMS, current methods to substantiate 'green' production systems and to provide a general overview of what EMS entails, including how EMS differs from QA and the benefits of the management systems approach.

Processors requirements for EMS (beyond the supply chains directly involved in the project) were assessed by the use of a survey (see Appendix 1). Where possible the survey was conducted face to face with plant QA or marketing staff, though in some cases the survey was undertaken over the phone. Surveyed processors incorporated a mix of export (TopCut and Australian Lamb Company) and domestic processors (Penny and Lang, Vodusecks and Hardwicks). As well as being selected to represent a mix of domestic and export, processors were also selected to represent different supply chain structures.

The survey was designed to determine the environmental management requirements of processors at three levels, 1) of themselves, 2) of their suppliers and 3) of their customers. It incorporated checklists as well as open-ended questions. A five point Likert scale (1= not important, to 5 = extremely important) was used to assess:

- the importance of "environmentally friendly" as a product attribute to consumers;
- the importance of 5 different product attributes to the processor; and
- the processors assessment of the importance of 5 different product attributes to consumers, both now and in the future.

An assessment of the international and domestic pressures relating to the substantiation of environmentally assured production systems was made by interacting with the supply chain partners and investigating market research. This information was used to determine if the implementation of an EMS by processors is seen as warranted.

3.3 PHASE 3: Requirements from the two producer groups and major supply chains developed into a consistent EMS framework that satisfies both producer and processor needs for EMS

Stage 1 and 2 packages were developed in conjunction with both the Central and Western Groups. This material was refined from and added to existing grains industry packages. Producer feedback was used to customise these packages to group requirements.

To ensure that the 4 stage EMS package meet the requirements of both the producer groups and the supply chains, feedback from producer and processor participants was collected (survey for producers, discussion with processors), with resultant recommendations included in the developed framework. Similar surveys have also been used to review the use of the self-assessment process (and supporting documents) and monitoring tools (see Appendix 1). These surveys and subsequent producer feedback were essential to the development of a producer accepted EMS model.

3.3.1 Stage 1 – Beginners guide to environmental awareness

The two supply chain groups completed an environmental self-assessment for their businesses, against the following units of farm management;

1. Land capability & property planning	6. Livestock & pasture	11. Landscape & biodiversity
2. Business & financial planning	7. Weeds & pest management	12. Waste & pollution
3. Human resources	8. Chemical management	13. Energy management
4. Soil management	9. Water management	14. Greenhouse & air quality
5. Cropping	10. Legislation and catchment priorities	15. Climate & weather

The self-assessment was conducted via the use of a workbook, the Self-Assessment Workbook (SAW). With the Central Group, an initial work area of the workbook, Livestock and pastures (section 8) was worked through in the group environment, with open discussions of various issues as they arose. Participants then completed the rest of the units on their own (4 weeks was allocated to this task). Kyra-Jane offered either over the phone or at home assistance to any group members that wanted help to complete the self-assessment sheets.

This was a very different approach to that used by the Western Group, who undertook all areas of self-assessment in the one group session. As a result, after they had been introduced to the concept of self-assessment, they undertook all fifteen units of self-assessment in the one meeting. Whilst providing a long day of theory based activities, undertaking all the self-assessment sections in one session enabled Kyra-Jane to provide direct one to one assistance to all participants as it was required. Further more, the group was able to work together to address regionally specific issues.

Feedback was collected on how the self-assessment process could be improved and the workbook was modified to incorporate recommended changes. This resulted in a package that can be utilised by producers who have had little exposure to environmental management and enables them to make some quick assessments of their own risks and capabilities. The SAW was tested with a BestWool producer group that had previously not been exposed to EMS principles or practices.

3.3.2 Stage 2 – Environmental Farm Plan (EFP)

The first stage of the EFP is to develop an EMS policy for the producers' enterprise. This policy includes a written farm vision, goal setting and a statement of facts (scope) in relation to the business (including physical measures such as hectares grazed and stock numbers). The EMS policy becomes an audited component of the ISO process.

The major undertaking within the EFP was to undertake an impacts register, by which the environmental impacts of a management practice, as well as the likely risk of these impacts occurring were assessed. To ensure consistency, the management areas assessed in the EFP are as per those addressed in the SAW.

To calculate a risk score for a management activity, the *Likelihood* of an impact was multiplied by the *severity* of the impact number (Table 2). If an impact is likely to occur frequently, it scores a likelihood score of 5, however, the severity of the impact may be minor and receive a severity score of 1. Therefore the risk score of this impact is 5 x 1 = 5.

Table 2.Likelihood and severity scores, for calculation of risk scores in impacts register.

LIKELIHOOD OF MPACT	Score
Frequent (25 times/yr)	5
Probable (5 times/yr)	4
Occasional (once/yr)	3
Not likely (once in 5 yrs)	2
Hardly ever (once in 25 yrs)	1

SEVERITY OF IMPACT	Score
Illegal	25
Critical impact	4
Severe impact	3
Moderate impact	2
Minor impact	1

Priority areas from all management units were ranked according to their legal obligation and risk scores. High risk areas were ranked after legal obligations, which have to be acted upon. Management areas that scored over 10 were identified as high risk areas.

Activities were prioritised within management areas, and then further prioritised into objectives and targets (the later stages of the impacts review).

After the impacts register was completed and priority management areas identified, action plans were developed to identify specific management practices that would address the identified legal obligations or high risk management areas.

Aside from the legal responsibilities, there is flexibility to address various management issues, and the capacity to implement management changes was also considered. For example, if two activities were assessed as scores 15 and 12 respectively, but the producer was in an immediate position to respond to the risk with a score of 12, it may be addressed first.

3.3.3 Stage 3 – Industry EMS and Stage 4 – ISO 14001

Only the Western Group progressed to a stage 3 EMS, neither of the groups achieved stage 4 ISO 14001 accreditation.

The package that the Western Group used to complete a stage 3 EMS was developed by Kyra-Jane Huhn in collaboration with the Gippsbeef project officer, Julie Williams, who reviewed and collated

both the MLA funded Gippsbeef and the Australian EMS Framework documents into one consistent framework. The Western Group then contributed feedback to the refinement of the stage 3 "Industry EMS" package.

This provided the template against which participants undertook their; operational control, emergency response, responsibilities and communication, skills and training, incidents and non conformance, documents and records, EMS management review, and finally the self audit followed by the peer audit. For more details of individual segments, see the attached framework.

Western Group members did not undertake environmental monitoring tools post the SAW, but progressed straight to the impacts register, followed by the development of action plans. This process enabled the Western Group to achieve their desired outcome of completing a stage 3 EMS. The development of action plans enabled Western Group members to not only identify their environmental risk, but also to make management changes that address the areas of greatest need.

Up until the final stages, which is based on an audit process, earlier components of stages 3 and 4 are all based on a written/documentation process. The components of a stage 4 EMS are as per stage 3, but include an independent 3rd party audit.

To further evaluate how a stage 3 EMS would fit within their businesses, with particular interest in the development of the EMS for their intensive lamb finishing operations, the Western Group undertook a producer tour. The tour facilitated the exchange of information beyond that of work sheets and theory. The tour incorporated farm visits to two Gippsbeef member properties that have been audited against the ISO certification.

4 Results and Discussion

4.1 Phase 1 – Two existing lamb producer groups who already have well developed links with Coles or Castricums will be selected to participate in this project

An assessment of producer needs and expectations from their involvement with the project was gained from the initial contact with members of both groups. The outcomes from the first contact with representatives of the Western Group was that some group members would strongly consider aiming for an ISO 14001 level EMS while others may be more interested in a lower level approach to EMS. Central Group members expressed a desire to develop a more simplified approach to EMS and target a stage 2 program.

The core members of the Western Group consisted of Hamish McKinnon (lamb breeder and finisher), Charlie McKinnon (lamb breeder and finisher) and Eddie Morgan (lamb breeder and finisher). Other supply chain members, including Scott McIntyre (terminal seed stock breeder) and John Keiller (maternal seed stock breeder), were involved in a number of group activities, but did not progress to the point of developing their own EMS. Both undertook a self-assessment of their environmental risks. John progressed further, undertaking an impacts register that included the development of an action plan based on management tasks that addressed identified environmental risks.

The general principles of EMS as they related to this project, were outlined to both groups. Previous GRDC EMS pilot work was used as a basis to highlight the importance of integrating adult learning principles to EMS implementation. Essential steps of this approach include; self-assessment, on-going environmental monitoring, setting of actions and continuous improvement. In addition to the principles of EMS, the on-farm benefits of EMS were also outlined to farmers.

The Central Group consisted of twelve farms (nineteen individuals) supplying lambs to the export lamb processor, Castricum Brothers. Producer group members included both 1st and 2nd cross lamb breeders as well as a terminal seed stock producer.

The first on farm meeting for the Central Group provided an opportunity for Graham Clifton, a producer member of the GRDC funded EMS project (also a Castricums lamb supplier) to talk with the Central Group members of his experiences and recommendations. A snapshot of the messages that Graham provided included:

- Try and involve as many family members as possible, sons and daughters represent the future of farming.
- Key benefit has been the interaction that comes from visiting other group members farms.
- Need to keep in mind that in developing something that hopefully will be picked up and used by others, it needs to be something that they are happy to pick up and embrace.

4.2 Phase 2 – Work with domestic and export processors Coles and Castricums to identify their current and future requirements regarding 'clean and green' products

Theo Castricum (Castricum Brothers) was very supportive of the project, which is in line with the finding that current market signals for this work appear to be stronger from an export than domestic perspective. Theo Castricum's thoughts were that EMS should fit in/add on to the QA processes already in place.

Whilst Andrew Hay (Coles) was happy for Coles suppliers to be engaged in the project, he was less enthusiastic about the need for the project than Theo. Andrews understanding of domestic market signals was that there is currently no demand from the domestic market for environmentally assured production systems. The driver for the Coles supply chain to be involved in this project, and hence look towards the adoption of EMS principles and practices, came from the producer members of the supply chain, as opposed to the processor or retailer members. This was evident in that retailer support for the project was enhanced upon finding out that there were producers of significant numbers of lambs wanting to participate in the project.

While Coles were supportive of the project, they were very wary of being seen to be enforcing EMS on suppliers, at the risk that their suppliers may market lambs elsewhere. This is a common issue in the lamb industry where suppliers change at will to other markets, particularly saleyards, in a time of rising and high prices.

As per discussions with producer group members, the general principles of EMS were outlined to the processor and retailer representatives of the two supply chains. Again, previous GRDC EMS pilot work was used as a basis to highlight the importance of integrating adult learning principles including; self-assessment, on-going monitoring, setting of actions and continuous improvement into the project.

Export processors placed a higher level of importance on environmental management schemes for their customers than domestic processors. However, both export and domestic processors indicated that their existing environmental management schemes are adequate for their needs.

Castricums do not believe that at this stage there is a need for their plant to be taken through an EMS process.

Andrew Hay was quite candid that he was unsure of how retail consumers would respond to an "environmentally assured" product. While the importance of EMS was questioned, QA remains an important consideration for Coles (although supply does not *have* to be from producers with a third party audited QA scheme). CRF at Colac, who provide a contract kill for Coles, is accredited by the United States Department of Agriculture (USDA) and European Union (EU). As such they insist on vendor declarations, resulting in vendor declarations being received for 80% of lambs processed at Colac (in mid 2004 vendor declarations were received for 40-50% of lambs processed at Gundagai who also provide a contract kill for Coles).

Coles have not expressed any interest in having an EMS certification for the processing facilities (including CRF – Colac, slaughter and preparatory boning and SRS – Somerville; further boning and packaging) that they use.

Further to the supply chains directly involved in this project, additional processors were surveyed to ascertain industry requirements for environmental management schemes. Surveyed processors have incorporated a mix of domestic and export processors, and have included; TopCut, Australian Lamb Company, Penny and Lang, Vodusecks and Hardwicks.

The survey was conducted using face to face meetings with either plant QA or marketing staff. In two cases the survey was undertaken over the phone. The Victorian lamb processors surveyed were estimated to account for 58% of the weekly throughput of lambs in Victorian abattoirs.

Processors have not expressed a need to undertake an EMS program outside of the existing environmental management regulations that they are required to adhere to. Existing environmental management schemes are subjected to a 3rd party audit and are administered through the Environmental Protection Authority and various water authorities (including Melbourne Water and regional equivalents).

Only one case was identified where a regulatory agency had offered incentives to the processor if they had an environmental management plan in place. Of the processors who where not offered incentives from the regulatory agencies, only one indicated that this would be a suitable incentive to the development of an environmental management plan.

The two export processors, who placed the greatest importance on environmentally friendly product attributes to their customers, identified that different markets placed different levels of emphasis on such attributes. To this end, markets in Europe, North America and Japan were identified as placing the greatest level of importance on environmental credentials of a product. The exporters described these markets as being both educated and affluent.

Should the market dictate a need for environmentally assured lamb production systems, both Coles and Castricums have supply chain structures that would enable them to act as motivators for the

adoption of EMS principles and practices by their suppliers. Their supply chains both have close linkages with suppliers, with established communication pathways between supply chain members (Figures 1 & 2). In addition to the ability to act as a motivator, these well established linkages to their supplier base enables a high degree of traceability of product through the supply chain from on farm to the boning room.

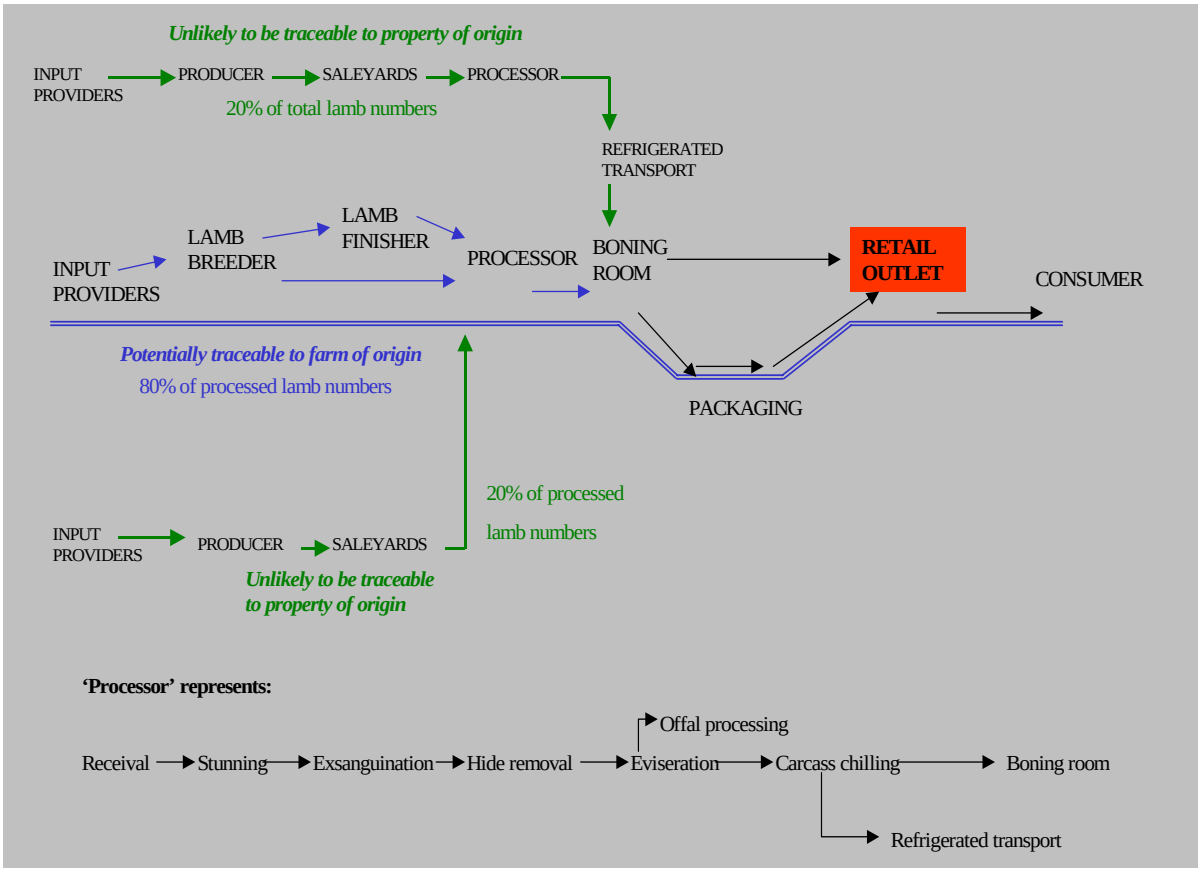

Figure 1. Lamb supply map for domestic lamb retailer, Coles.

This ability to trace product through the supply chain is an essential part of substantiating claims made about the production systems used by any one segment of the supply chain. Without this ability it would be impossible to differentiate lamb products from environmentally assured production systems, versus lamb products from unassessed production systems in the market place.

This degree of traceability ensures consumer confidence in the claims being made about the produces they purchase, and is inherent to the commercial value of a supply chain. And in turn becomes a point of differentiation from one supply chain to another.

Currently, there are several lamb supply chains operating in Victoria (and nationally) that do not have a high degree of connection back to individual suppliers at an on farm level (Figure 3).

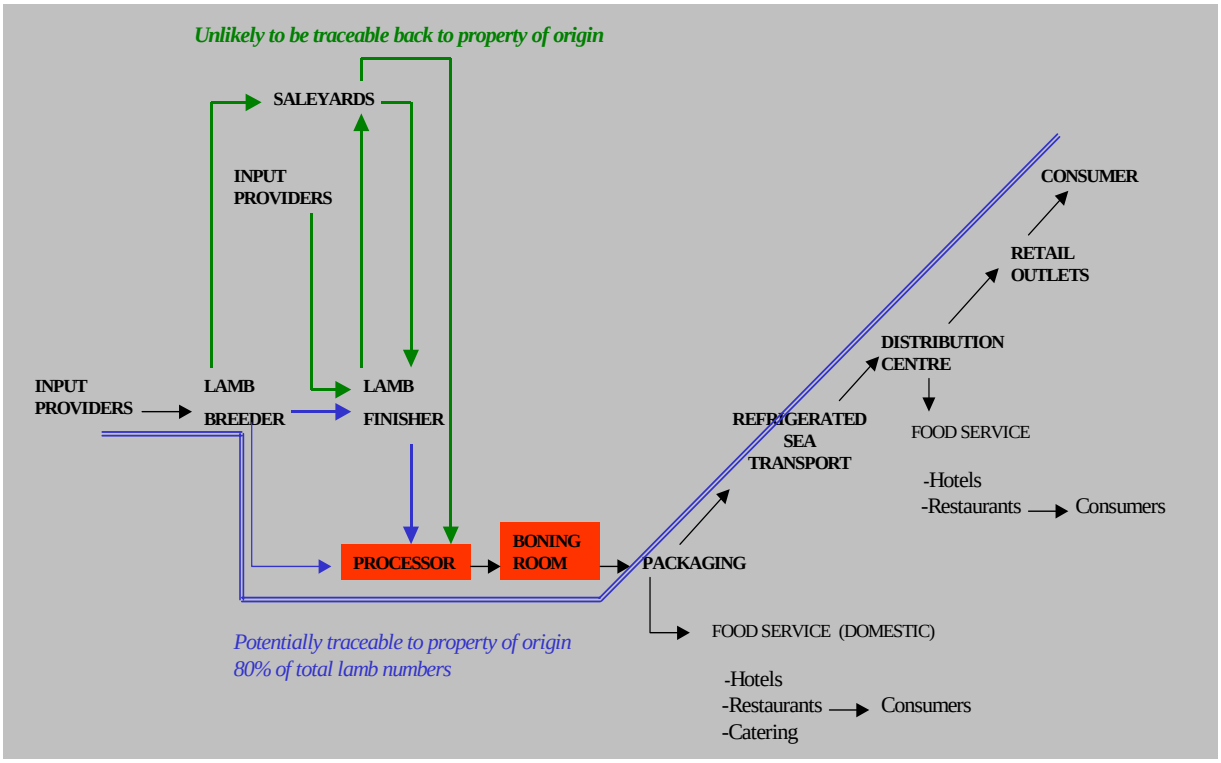

Figure 2. Lamb supply map for export lamb processor, Castricum Brothers.

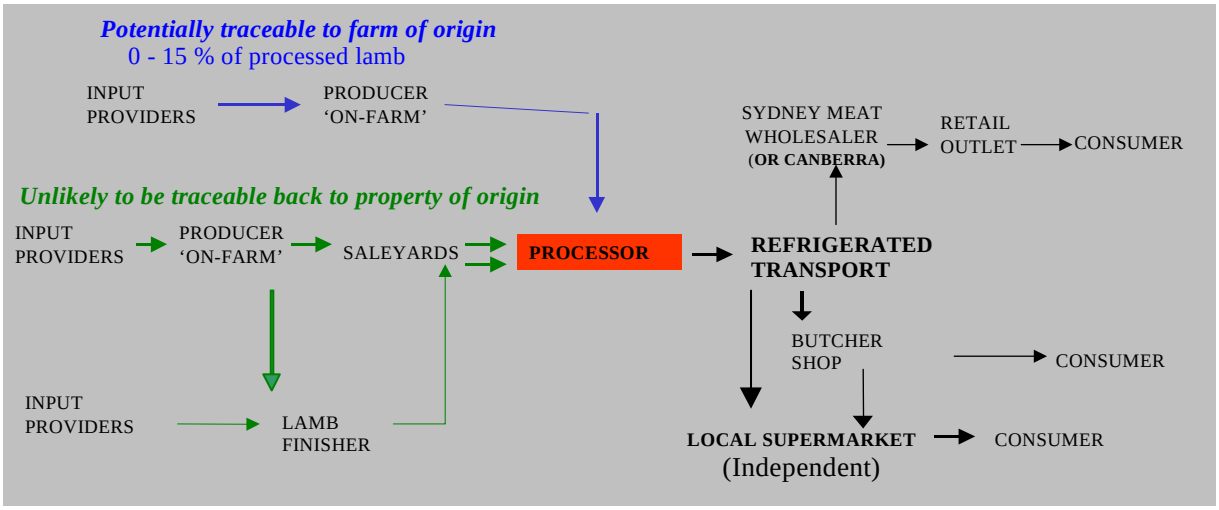

Figure 3. Representative lamb supply map of other surveyed domestic lamb processors.

While these (generally domestic) processors are able to transfer market signals back to their suppliers in the form a price differential, they are largely unable to substantiate to their customers claims of the production system employed by their suppliers.

This discord in traceability is driven by the supply chain structure when the majority of lambs are not purchased directly from the producer (with or without a stock agent) on either a per head or over the hooks basis (Figure 3).

4.3 Phase 3 – Requirements from the two producer groups and major supply chains developed into a consistent EMS framework that satisfies both producer and processor needs for EMS

The 4 stage approach to EMS provides a progression from a simplified entry point to the rigour of an ISO certified system, and meets the needs of both of the selected supply chains (Table 3). The established model offered producers a range in the rigour to which EMS can be undertaken and is complementarity to EMS projects in the grains industry.

Table 3. Staged approach to EMS

Stage	Aims	Components
Stage 1. Beginner's Guide to EMS	- Provide farmer with basic introduction to major environmental sustainability issues and EMS	- Self-assessment Workbook - 'Beginner's Guide to EMS'
Stage 2. Environmental Farm Plan	- Introduce farmers to basic 'plan-do-check-review' cycle, legal obligations, and basic record keeping and monitoring.	- Self-assessment - Environmental review - Legal obligations - Action planning - Record keeping - Farm monitoring - Self-audit
Stage 3. Industry EMS	- Take farmers through a full EMS process, compatible with ISO14001	- All stages of full EMS (see Figure 1) without 3rd party audit.
Stage 4. EMS certified to ISO14001	- To be certified to ISO14001 by independent 3rd party audit process.	- As in stage 3 but with independent 3rd party audit.

4.3.1 Stage 1 – Beginners guide to environmental awareness

85% of Central Group participants completed their self-assessments between the introduction to self-assessment session and the following group meeting. Completed self-assessments were brought to the next group meeting and provided a means for reviewing material that had been addressed at the previous group meeting.

Three members of the Central Group requested some form of direct assistance with the completion of the SAW. Most of these group members had missed one of the previous sessions and viewed the time for some one to one assistance as a chance to get up to speed with the project objectives and expectations.

Of the 15 management units assessed in the SAW, the greatest percentage of group members (25%) identified the Legislation and catchment priorities unit as being the most difficult to complete. To address this issue, all group members were provided with simplified summaries of relevant legislation that were developed collaboratively by Victorian DPI, Victorian Catchment Management Authorities and the Gippsland Natural EMS project.

The most commonly cited reason for the difficulty associated with completing the Legislation and catchment priorities section was that group members had never monitored that part of their farm management before (68%).

None of the following sections; Land capability and property planning, Weeds and pests, Cropping, Chemicals and Livestock and pasture were identified as being the most difficult section to complete.

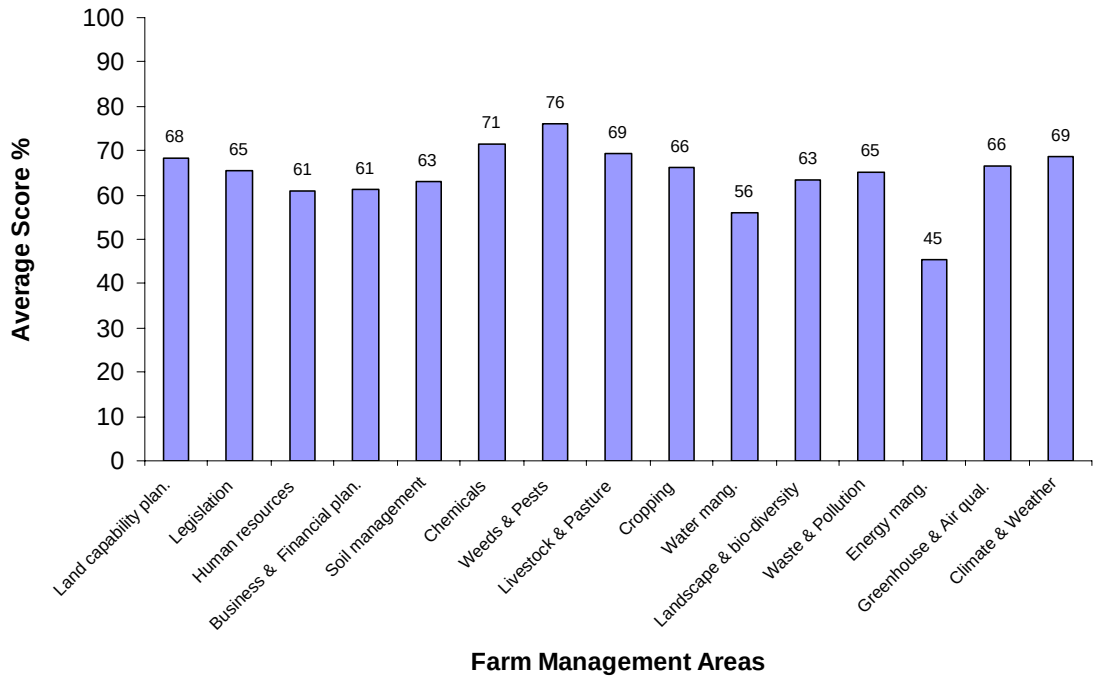

Figure 4. Self-assessment rankings for the Central Group.

The Central Group ranked their skills in weeds and pests (section 7) as their greatest strength (76 points out of 100), with chemicals (section 8) being their second strongest management area (71 points) (Figure 4). Alternatively, they ranked energy management (section 13) as their least knowledgeable area (45 points), with water management receiving the second lowest ranking (56 points).

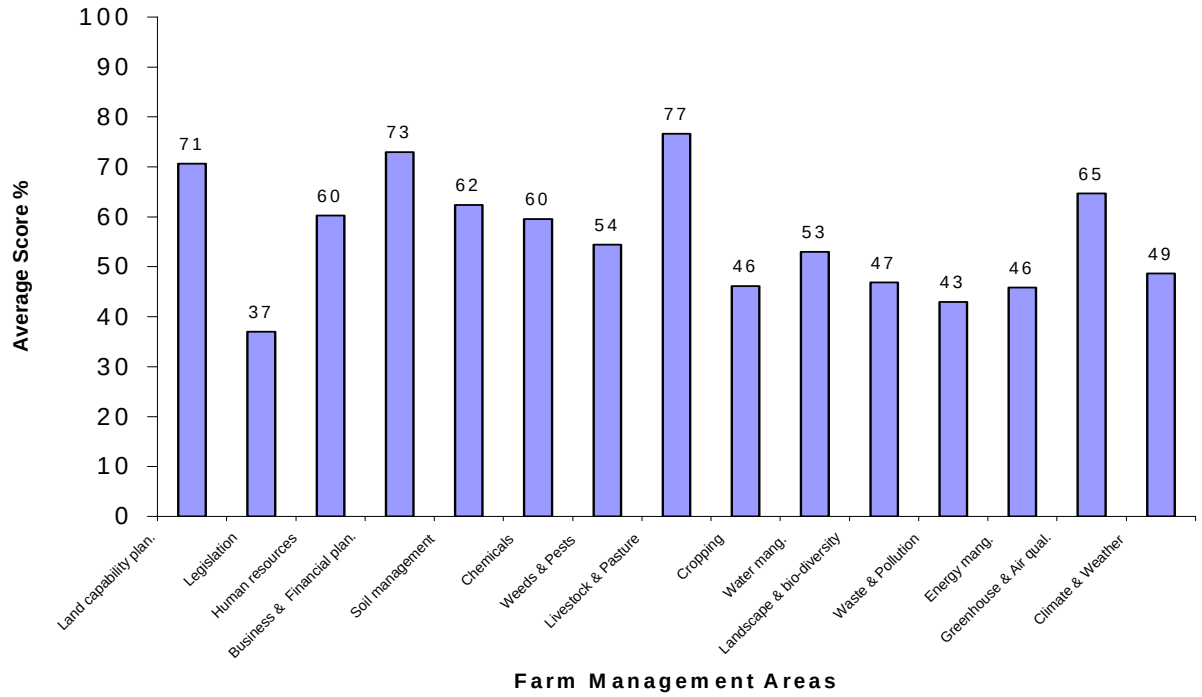

Figure 5. Self-assessment rankings for the Western Group

The Western Group identified their skills in Livestock and pastures (section 6) and Business and financial planning (section 2) as being their strongest management areas, with scores of 77 and 73 respectively (Figure 5). Their lowest ranked management units included Legislation and catchment priorities (section 10) and Waste and pollution (section 12), with scores of 37 and 43 respectively.

93% of group members who completed the SAW felt that it gave them an increased awareness of the environmental issues in their own farms.

> *"The SAW highlighted management areas which I had not given much thought, and therefore priority, in the past. Also made me realise I need to put more of my planning on paper."*
>
> *"I considered myself to be environmentally aware, but there is a huge gap in my knowledge."*

4.3.2 Stage 2 – Environmental Farm Plan (EFP)

The Central Group committed to the concept of EMS but expressed a strong desire to keep the project in a very "user friendly" lower level approach. A snapshot of comments from Central Group members includes:

> *"I am really looking for an umbrella under which all these other programs can be tied together" This same producer has expressed a strong desire to investigate software packages that incorporate environmental, production and financial monitoring.*
>
> *"We really need to keep the process simple, look what has happened to Flockcare"*
>
> Conversely
>
> *"We need to get it right the first time, look what has happened once they tried to water down Flockcare".*

It is interesting to note that several of the Central Group members had undertaken Flockcare accreditation, yet only two had maintained it. Generally producers had let their accreditation lapse as Flockcare was not seen as providing any guaranteed market advantage to accredited producers, whilst it was costly and time consuming.

Most of the Central Group members (90%) wanted to complete the EMS program up to a stage 2 level that did not include a peer or third party audit process. This was in contrast to the Western Group that had 60% of participants wanting stage 3, 20% stage 2 and 20% stage 1.

> "*I feel stage 2 gives us a good grounding of EMS, without the added bookwork of stage 3. We need monitoring tools to back up the program, add interest and stretch out thinking."*
>
> *"It's great to be aware of EMS on our own property and go to stage 2, but until there is money in it there is no incentive to take it further."*

While the majority of Central Group members wanted to undertake a stage 2 EMS, when asked at what stage the majority of lamb producers would like to complete, most felt it would be stage 1, with only 40% indicating stage 2. No group members identified stage 3 or 4 as being most appropriate to the majority of lamb producers due to the lack of market drivers. Response included;

> *"Too much to do 3 or 4."*
> *"If you are lucky (if people get to stage 2). Most people are lazy and don't care."*
> *"It will be hard to get people motivated."*

The stage 2 document "Environmental Farm Plan", comprises of an introduction to EMS, SAW, environmental review (impacts register, legal requirements, consideration of catchment priorities), action planning, farm monitoring, self audit and review and improvement.

After undertaking the SAW, the groups worked through the development of an "impacts register", the first stage of the environmental review. Again, feedback was collected from the development of the impacts register, with subsequent modifications and improvements made to the documentation.

90% of participants found the instructions on how to use the impacts register easy to follow, with all participants having a clear understanding of why it was necessary to complete the impacts register. Instructions that were provided with the impacts register were found to be useful and easy to follow by the majority (90%) of the Central Group.

Group members who had difficulty in completing the impacts register were able to work through the process once they received further explanation or direct assistance. Suggestions from the group were used to develop an improved version of the impacts register. Additionally all Central Group members felt that the impacts register was a useful exercise, and had direct application to the EMS process. Producers agreed that the impacts register was important for the following reasons;

> *"To work out which areas of my farm need improvement or attention."*
> *"To understand legal and community responsibilities and improve farm management practice, particularly where my risk is high."*

To address producer concerns associated with the degree of paperwork involved in the EMS process both the SAW and the Impacts register have been simplified from ISO14001 requirements. The simplified versions of the SAW and the impacts register use language consistent with ISO14001 to ensure compatibility to the later stages of EMS.

> Least enjoyable part of the EMS process
> *"Paperwork."*
> *"Just the homework, not too bad really!"*
> *"Paperwork, there is a lot but I can see why it is necessary."*

In addition to an increased awareness of environmental issues, producers have placed a great deal of importance on the interactions that they have had with other producers through the project.

> Most enjoyable part of the process
> *"People interaction, learning from others, discovering together."*
> *"The interaction with the fellow participants and the leaders."*
> *"The social aspects. Learning that our farm is generally headed in the right direction."*

Producer group members identified a number of benefits for landholders undertaking an EMS. These included both improvements in environmental awareness and performance, as well as considerable social benefits. To the extent that, while market drivers were identified by producers as being a highly desirable, 82% of Central Group participants would have still considered going through the EMS process with no market advantage.

4.3.3 Stage 3 – Industry EMS and Stage 4 – ISO 14001

The two producer groups had very different requirements from the EMS process, and only the Western Group undertook a stage 3 EMS. The Western Group had a strong motivation to undertake a higher stage EMS due to possible negative perceptions related to intensive finishing systems for lambs. This was a similar motivation as seen in the cotton industry, who report that their major reason for implementing EMS is to maintain a "social license to farm" from the broad community.

The majority (four out of five) of the Western Group participants are highly skilled in record keeping and have been operating QA programs for many years. All had a strong appreciation of the importance of environmental management for farm sustainability, but a small core group see environmental management as having direct and significant implication to their medium term financial sustainability (from a market access viewpoint).

Since it was a small group it was possible to cater to the different needs of individual group members. Scott McIntyre undertook a stage 1 approach, John Keiller completed stage 2, with the core group, Hamish and Charlie McKinnon and Eddie Morgan progressing through stage 3, 3rd party audit. It is interesting to note that these participants were very keen to progress through to an ISO level of certification (stage 4). Ultimately the barrier that prevented the attainment of stage 4 was cost, as audit and certification costs in the first year were quoted at $7,000, with a further $4,500 each year to maintain certification.

Ultimately stage 3 had more appeal than ISO 14001 (stage 4) for the Western Group. Having reached stage 3, the producers have a compatible program that could easily be progressed to full certification (stage 4) should the cost benefit position change in the future.

ISO certification provides an internationally recognised level of certification, and it is acknowledged that for some businesses it will form an important part of their EMS. To this end, the preceding stages should be aligned to, and compatible with the ISO program.

4.3.4 Delivery methods of EMS

An assessment of the suitability of different methods of delivery highlighted a preference for the integration of EMS activities into farm walks over a twelve month period (64% support). A smaller percentage (36%) indicated a preference for a more condensed format, with four sessions being run over one month. No producers supported a self learning process without facilitation, or having EMS training provided through a TAFE institution. As these various comments show, various approaches to delivery of EMS may be required;

> How do you believe that EMS should be delivered?
> *"4 sessions over 2 months/3 months. A year is perhaps too long."*
> *"The way we did it was good and enjoyable, but took up too much time."*
> *"Maybe 4 lessons over 2 months, one day a week could be too much."*
> *"Must have a facilitator. There needs to be a stream-lined computer based EMS for owner/operator farmers. May also include farmers who employ 1 or 2 people, or a number of casuals only."*
> *"More one on one interaction such as the individual farm visits by the facilitator. The visit to our farm was very helpful."*

As highlighted by the different approaches undertaken by the central and Western Groups, we recognise that different producers and producer groups will have different requirements for how they develop an EMS for their own enterprises. To this end we recommend that there are a number of delivery options developed to raise the awareness of environmental management issues in the lamb and sheep meat industries.

To ensure maximum effectiveness in raising awareness of these issues within the whole industry these delivery strategies need to address the requirements of a number of agricultural service providers. These include; agricultural consultants, education providers, public and private agencies, self motivated producer groups and facilitators as well as catchment management bodies in strategically important regions.

5 Success in Achieving Objectives

5.1 Identify 2 producer groups, each which is working with Coles and Castricums, that can work across the supply chain to develop an appropriate EMS for the lamb industry

Two producer groups were formed as part of the project. The groups, despite differences in size, both had good group dynamics and worked within established adult learning frameworks.

The Central Group was successful in undertaking a practical, stage 2 EMS program. While this group believed that the stage 2 approach was suitable for themselves, they clearly identified that the broader industry would be more suited to a stage 1 program. This simpler approach to EMS was consistent with the needs of Castricum Brothers.

The Western Group successfully undertook a more detailed level of EMS and achieved stage 3. A cost benefit analysis based on current market signals plus high audit fees have at this stage

precluded the attainment of a stage 4 EMS, this may change as costs and returns change over time. Western Group members had specific motivators relating to environmental risk management of intensive finishing systems for undertaking an EMS. Therefore the EMS was developed for a specific enterprise of their farm business, rather than the whole farm. Whilst for these producers a stage 3 EMS was appropriate, this was not the case for supply chain members who did not have to address the issues associated with an intensive finishing facility.

This higher level of EMS was well in excess of the requirements of Coles who see no need for an audited EMS.

5.2 Identify key environmental issues in the selected producer groups and 2 major supply chains

The two supply chain groups identified their key environmental issues. This was completed by undertaking an environmental self-assessment of their businesses.

Both groups identified the following management areas as being weaknesses, and hence potential environmental issues (in the lower half of all management sections); Waste and pollution (section 12.), Landscape and biodiversity (section 11), Water management (section 9), Energy management (section 13) and Legislation and catchment priorities (section 10).

Market signals for environmental credentials are stronger in the export than the domestic market. On a Likert scale, with a score of 1 being unimportant and a score of 5 being extremely important domestic processors scored “environmentally friendly’ product attributes as being not important to their customers while export processors ranked the importance of “environmentally friendly” product attributes at a level just below moderate.

Despite the difference in ranking both groups recognised that the importance of “environmentally friendly” product attributes will increase over the next ten years.

5.3 Review existing EMS frameworks and delivery mechanisms for each producer group

Existing EMS frameworks were reviewed and added to. This included the results from three previous grains industry projects, the Mingenew Irwin DAFF funded project (WA), and the previously MLA funded GippsBeef project. The resultant 4 stage approach to EMS is specific to the needs of a lamb/sheep meat industry, yet compatible with the grains, meat and wool industries.

Producer groups identified the need to raise awareness (consistent with a stage 1 approach) as being most suited to the majority of industry. The exception to this is where there are specific environmental risks to address such as those potentially associated with the use of intensive finishing systems.

Producer members clearly identified the need for group learning when undertaking EMS, with a facilitated approach and the use of monitoring tools to build an awareness and understanding of environmental issues.

5.4 Refine and test a pilot EMS approach that:

5.4.1 Meets supply chain needs, with both current and future domestic and international environmental trends in mind;

5.4.2 Is practical for producers and processors;

And

5.4.3 Meets the current and likely future expectations of domestic and international consumers;

The requirements and capabilities of different supply chains for EMS vary dramatically. The Central Group undertook a stage 2 EMS which addressed producer and supply chain needs. While the Western Group, driven by producer members, undertook a stage 3 EMS. Andrew Hay (from Coles) had not identified a need for an EMS for Coles lamb suppliers.

The development of a staged approach to the EMS program was essential to meeting the needs of different supply chain members.

The implementation of a staged approach to EMS provided an ideal framework to increase producer awareness of the issues associated with environmental management prior to the issue becoming either a trade impediment or a marketing advantage. Raising awareness through the widespread implementation of a less onerous program (stages 1 and 2) enables industry to rapidly respond to the need to implement a more rigorous approach, if and when it should be required.

The EMS process within the stages were user friendly and readily adopted by producers with varied experience with environmental management.

When related to product attributes such as price, food safety and animal welfare, the current consumer demand for environmentally assured lamb and sheep meat is low. However, all processors who have discussed the importance of environmentally assured production systems have identified that such programs will become more important over the next ten years.

The staged approach addresses current and future market and environmental needs. It enables a progression where an understanding of environmental management and issues is built, together with an assessment of environmental risks as well as the construction of action plans is developed to address these risks. Ultimately there is a range of audit options from self, peer to external third party.

5.4.4 Builds on current GRDC and MLA EMS work, with opportunities provided for MLA to contribute to the process;

And

5.4.5 Provides feedback on the usefulness of the MLA 0n-farm guide to EMS;

Current grains industry packages were evaluated and improved. Project team members had close working relationships with various industry based project teams, including grains and various Catchment Management Authorities. This enabled a ready flow of information between teams, and resulted in the continual improvement of project outcomes.

The stage 2 document "Environmental Farm Plan" that was based on previous GRDC, DAFF and MLA funded Gippsbeef work was tested by producer group members. This feedback was then used to further build on the existing EMS packages.

The stage 4 document (full ISO 14001 EMS) includes all the sections in the stage 2 "Environmental Farm Plan" plus additional sections adapted from the GippsBeef EMS workbook and the Australian EMS Framework. In this project, with only the Western Group investigating stages 3 and 4 of EMS, improvements to the stage 3 and 4 document have been based on Western Group feedback only.

5.4.6 Addresses the key environmental issues in the selected producer groups;

The SAW was used to identify the major environmental issues for both producer groups. Environmental monitoring tools were used to address specific areas of interest and of greatest risk, and included water management, soil health, soil fertility, soil structure and acid soils for the Central Group. Water and soil management were identified as being the 2nd and 5th weakest areas of knowledge by the Central Group.

Group members developed action plans that outlined management strategies to address weaknesses in environmental performance, after using the management tools. Importantly 83% of Central Group participants made on-farm management changes as a result of participating in the EMS project.

As part of the development of a stage 3 EMS Western Group members developed action plans, enabling them to not only identify their environmental risk but to make management changes that address the areas of greatest need.

5.4.7 Can be integrated within existing QA frameworks and the proposed 2 tier structure and/or operated independently as an EMS;

This project worked closely with the GRDC funded project (Preparing for EMS in the Australian grains industry) to systematically address the issues associated with aligning various industry QA and EMS schemes.

The basic philosophy of QA programs and EMS is fundamentally different. Where QA schemes are based on meeting a specified standard regarding food safety, EMS is based on continuous improvement.

If undertaking a stage 1 or 2 EMS no external auditing is required unless the farmer wishes, whereas auditing would be a requirement in Flockcare. EMS at stages 3 and 4 can include an audited QA process such as FlockCare, CattleCare or Graincare.

QA and EMS can stand alone at any level, although EMS at stage 3 and 4 does incorporate most elements of QA (Figure 6).

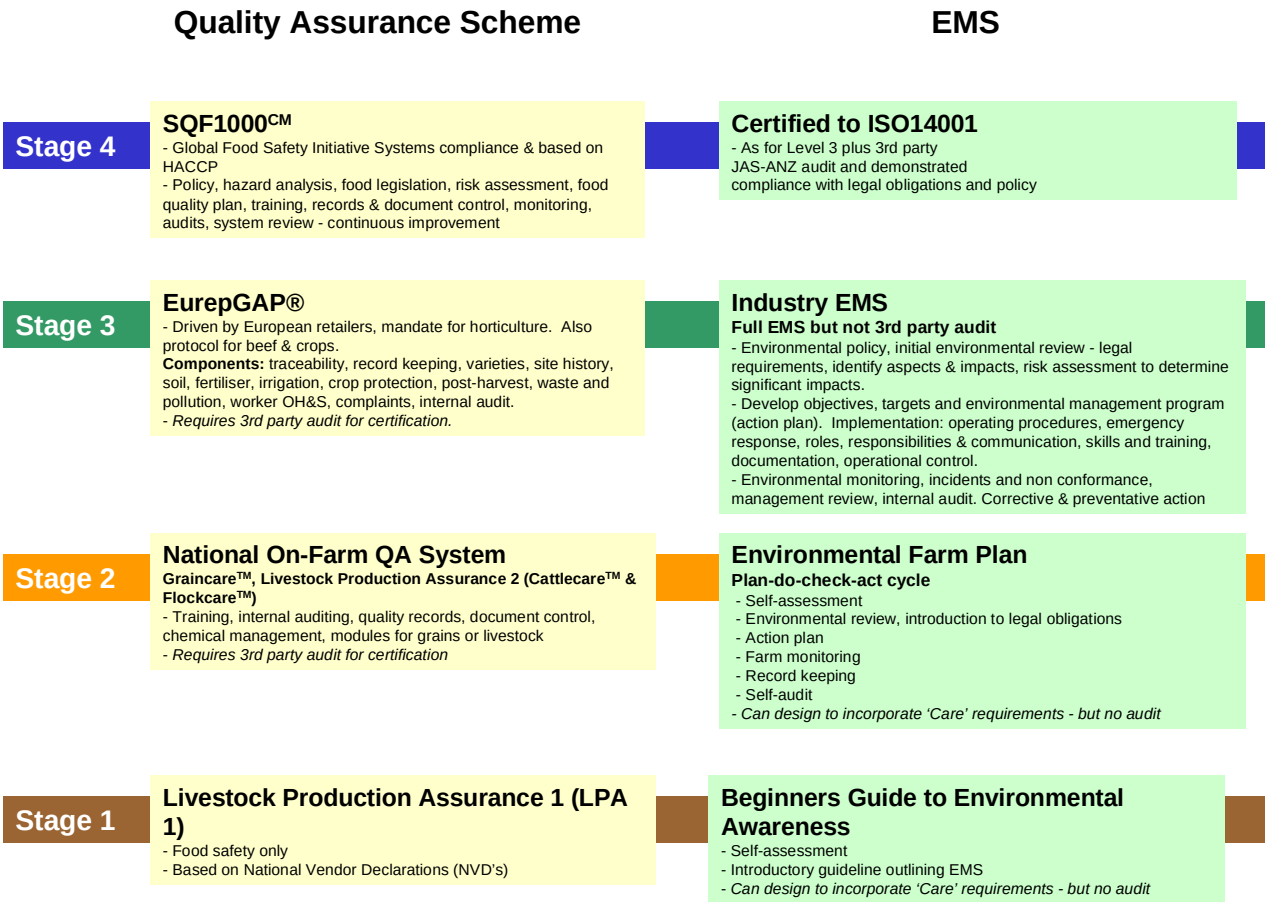

Figure 6. Proposed Staged Approach to QA and EMS.

5.4.8 Ensures the flexible marketing of lamb/sheep/mutton to the major supply chains;

Currently there are no restrictions on marketing options available to producers who have undertaken EMS to any level within the 4 stage framework (from self-assessment through to ISO 14001).

In the context of substantiation of product claims (be it an environmentally assured production system or any other credence value) consideration needs to be given to traceability of the product through the supply chain. While traceability systems on their own are therefore not a requirement of developing an EMS, they are required for product substantiation within the supply chain delivering to critical consumers.

5.4.9 Is compatible with an EMS framework that caters for different levels of readiness and capability for lamb producers, some of whom will not be ready or willing to adopt a full EMS (staged approach); and

The staged approach provided a means by which supply chain members were able to achieve the level of EMS that they believe is most appropriate to their business.

Both Coles and Castricum Brothers have supply chain structures that enable them to act as motivators for the adoption of EMS principles and practices by their suppliers. Additionally these supply chains also have sufficient levels of traceability to substantiate claims made in the market place about the production systems used to produce their lamb. Many other domestic supply chains do not have this capability.

Castricum Brothers, and export based processors in general, have more willingness to see EMS principles and practices adopted within their supply chains than domestic processors. Where there is motivation for the adoption of EMS principles and practices within domestic supply chains it has come from motivated producers.

5.4.10 Provides recommendations on the best approach for adoption of EMS principles throughout the supply chain.

See section 7 of this report.

6 Impact on Meat and Livestock Industry – now & in five years time

6.1 Now

- The lamb and sheep meat industries have a set of recommendations that provide a progression towards the implementation of EMS within industry. With the grains, meat and wool industries all receiving DAFF Pathways funding to implement EMS it is imperative that a singular approach is developed that removes individual industry schemes and duplication.

- There is a group of lamb and sheep meat producers who are aware of the principles and practices associated with EMS, and also view themselves as having developed a package for the rest of industry.

> *"We need to feel comfortable to take stage 1 to our fellow lamb producers in lamb and landcare groups so that more sheep farmers become aware of their impacts."*

- Have a documented practical approach that has been successful in lifting awareness of environmental issues, achieving practice change, and delivering improved environmental outcomes. All against an environment of poorly developed market signals for EMS.

- In many segments, there remains a largely adversarial industry with producers easily changing marketing arrangements. This ready transfer of allegiance enables producers to easily avoid the undesirable tedium of various industry programs that show no financial benefit, despite often-articulated potential industry benefits.

6.2 In five years time

- There is likely to have been minimal impact if producer awareness of environmental issues has not been raised through the use of group learning opportunities.

- Groups that have been exposed to the principles and practices of EMS will be able to address key environmental issues, as well as any heightened market requirement for environmental monitoring.

- Hopefully a national, across industry approach to EMS that has been informed by this piece of applied research.

- Less small farms and more large scale agribusiness operations that are likely to align themselves with processors, and ultimately the consumer. This can open more reliable opportunities for implementation of EMS within the lamb supply chain.

7 Conclusions and Recommendations

7.1 EMS that are developed for the lamb and sheep meat industry, through MLA and state and federal agencies, needs to be compatible with various industry programs (both EMS and other), while also embracing a national approach

We recommend that the lamb and sheep meat industry negotiate with the grains and wool industry to agree on a singular, 4 stage approach to EMS.

Many of the integral elements of EMS have cross industry application. To reduce the risk of duplication of materials between various industry based programs there is a need for program development and implementation to be undertaken in consultation with other industry bodies.

The established EMS approach needs to be compatible with other industry programs (such as QA). It is the opinion of this research team (and project members) that whilst compatibility between EMS and QA is essential, inextricably binding schemes together is not.

7.2 That the implementation of EMS principles and practices within the Australian lamb and sheep meat industry be based on a staged approach

There is a need to immediately address EMS principles and practices within the Australian lamb and sheep meats industry. There are already trade barriers being implemented to prevent importation of goods, often these are not substantiated but require considerable action to overturn (eg disease threats). Ultimately Australia's primary marketing claim of 'clean and green' will similarly be challenged.

Producers thrust into EMS will find it daunting, indeed many will know nothing about it; all require a developing awareness of the potential issues before they undertake any practice change. Additionally, many supply chains do not have strong enough allegiances to enable them to act as motivators for change in environmental management; this is especially true given the limited market signals for environmentally assured production systems.

At the farm level we recommend a 4 stage approach to EMS. The use of a staged approach to EMS enables a "soft" introduction point for producers to undertake environmental management. This is seen to be vitally important as there is still a great deal of confusion and suspicion from lamb and sheep meat producers over what environmental management and EMS specifically entails, and why it is necessary. The staged approach then provides a logical progression, should producers elect to undertake a more rigorous level of EMS.

7.3 That the delivery method for EMS to the Australian lamb and sheep meat industry be based on a period of awareness raising and a four pronged strategy

Many producers are not yet ready for EMS, and in general the industry require a period of awareness raising prior to individuals implementing any practice change. We believe that the inclusion of a session on "Environmental management in the Australian lamb and sheep meat

industries" within future PrimeTime forums would provide an excellent means of achieving greater awareness of environmental management and its necessary implementation.

To further raise awareness of environmental management issues, other activities such as the provision of an abridged-self assessment that focuses on one particular management unit (such as soil or water management) could also be undertaken by producers. Such an activity could be provided to producers as part of PrimeTime forums (in break out areas) or at other appropriate industry activities.

In our opinion the implementation of EMS principles and practices should be via a 4-pronged strategy.

1. Training of interested private consultants in EMS (stages 1 to 4) to service globally focussed, business oriented producers. Formalised training linked to recognised competency standards is desirable.
2. Servicing of more traditional farmers through public and private agencies, as well as partnerships with other industries. Training of extension staff is needed, particularly in the lower levels of EMS (stages 1 and 2), along with an understanding of stage 4.
3. Provision of training for interested, self-selected producer groups and facilitators in stages 1 and 2 EMS.
4. Specific partnerships with catchment management bodies and state departments in regional zones that the lamb and sheepmeat industry views as strategically important.

7.4 That environmental monitoring (through the use of monitoring tools) form a key component of the integration of EMS principles and practices within the Australian lamb and sheep meat industry

> *"Monitoring tools are an essential and relevant part of this EMS. SAW certainly raised my awareness of strengths and weaknesses, but the monitoring tools show me how to improve."* Producer group member.

The use of environmental monitoring tools is essential to the wide spread adoption of EMS principles and practices within the Australian lamb industry. These tools have been developed in a GRDC and DAFF funded project, and have been tested within this project. All of these tools can be accessed on the DPI website and can be used as part of an EMS or as a stand alone activity.

Whilst it is recognised that it would be difficult to develop an "environmental index" based on environmental monitoring, it is maintained that such a system (whereby different environmental targets were established for different regions) would be very helpful to measure broad based change.

Environmental monitoring tools enable the establishment of environmental benchmarks for producer properties, and form the basis for assessing the impact of management changes and improvements in environmental performance.

This tangible quantification of environmental issues was most useful in establishing a link between issues traditionally viewed from a productivity basis (such as using lucerne to finish lambs out of season) and sound environmental management (the role of lucerne in minimising deep drainage and nutrient loss from farm). Establishing (and clarifying) this link between sound environmental management and productivity issues was a valuable tool in making the EMS process appeal to a wider target audience. This has provided a very effective means for discussing EMS principles with a producer group that may have had limited involvement with environmental based programs.

7.5 Industry EMS programs should not be tied to mandatory programs administered by either Government or industry

At this early stage of industry adopting EMS principles and practices, there needs to be significant effort in building interest and awareness of EMS, rather than being seen to enforce an often misunderstood and hence perceived as potentially threatening program.

It is tempting to believe that linking EMS to Livestock Production Assurance (LPA1) will provide a ready market to success (since the LPA program is currently operating in the order of 80% compliance). However, we believe that doing so does not ensure that there will be true improvements in environmental management. Furthermore, there is a risk of being seen to make EMS a legislative requirement.

In these early stages of adoption of EMS principles and practices we believe it makes more sense to target producers who are interested and willing to adopt, rather that attach it to a program that would be seen to be making all producers adopt the principles of EMS.

That said, it is recognised that linking EMS to a program such as LPA1 may be appropriate in the future when interested producers have had the opportunity to take up EMS principles and practices.

7.6 Different supply chain structures will influence their ability to act as drivers of environmental outcomes, and as such relevant market segments will need to be supported in taking ownership of and implementing principles and practices associated with EMS

In a case where there is a clear market advantage for EMS (or any credence value for that matter), the supply chain has an essential role to play. This role goes beyond communicating consumer and customer requirements and includes assuring that the claims associated with the product can be substantiated.

Where market signals are less well developed for a credence value, as is currently the case with EMS, ownership of the issue ultimately comes back to the individual. The means by which individuals are encouraged to accept ownership of these issues are many and diverse and range from the feel good elements of improved environmental management through to complementary productivity and environmental gains.

Since there is with minimal market demand for EMS, supply chains on their own have a limited ability to drive adoption of EMS principles. Additionally, with the current shortage of lamb supply there has in some processing segments been a reluctance to be seen to be driving adoption of EMS

for fear of frightening and ultimately losing suppliers due to a perceived imposition of environmental management requirements.

In the advent of market signals developing for environmentally assured production systems for lamb and sheep meat, the supply chains that are best positioned to act as a driver of changes in environmental management are those with the strongest connection back to their suppliers. Such a connection may be more than direct price signals and goes hand in hand with traceability systems. Such a system predicates that there is a working relationship between suppliers and processors.

This heightens the need for interested producers to be assisted through the process and recognises that undertaking EMS principles and practices is not the sort of undertaking that producers are able to pick up and complete on their own.

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9 Appendices

1.1 Appendix 1 Documents and forms available upon request.

Reference: 1 Pre-project survey of producer group members.

Reference: 2 Survey of lamb processors (external to supply chains directly involved in the project).

Reference: 3 Producer feedback on self assessment questions.

Reference: 4 Producer feedback on impacts register.

Reference: 5 EMS Stages questionnaire.

Reference: 6 Final evaluation – Lamb EMS pilot project.

Reference: 7 Letter of support from lamb exporter, Castricum Brothers.

1.2 Appendix 2