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Evaluation of the SGS Harvest Year

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EXECUTIVE SUMMARY

A Harvest Year in 2001/2002 for the national Sustainable Grazing Systems (SGS) R&D Program, which had run for the previous 5 years, was a new concept in R&D implementation. The **Harvest Year** had the following **objectives**:

- To have mixed teams of producers and researchers working to rapidly analyse and interpret the results and experiences from SGS research sites.
- To develop proven products (best-bets, principles, benchmarks and practical tools) that producers can use with confidence to customise grazing systems that optimise profit and provide a sustainable future for their individual properties.
- To continue the activities of the 11 SGS regional committees to provide ongoing information and support to producers improving their grazing systems.
- To continue the delivery to producers of other SGS products such as PROGRAZE, National Farm Walk and Prograzier.
- To continue some elements of the SGS National Experiment.
- To dramatically speed up scientific publications from SGS, and the identification of issues for either local demonstration or for further research.
- Provide input to the planning of any programs or activities to follow SGS.

Hassall & Associates Pty Ltd were contracted in June 2002 by MLA to conduct an evaluation of the SGS Harvest Year. The **evaluation methodology** involved the following four activities:

- Personal consultation with a large proportion of the scientists, producers, consultants and others involved in the Harvest Year.
- Completion of a structured survey of Harvest Year participants.
- Completion of a benefit cost analysis; and
- Design and completion of a formal evaluation framework.

Broad conclusions from the evaluation were as follows:

- The Harvest Year has significantly reduced (by an estimated three years) the lag time usually encountered between completion of research data collection and the publication of scientific and extension reports arising from the research.
- The parallel development of scientific research publications and extension publications and producer tools has been partially successful, though the majority of scientific and extension products will emerge outside the planned 12 month period.

- The expenditure of $2.1 million in cash and $1.1 million in kind, on SGS Harvest Year activities, is predicted to generate additional returns with a present value of $9.3 million from the southern Australian meat industries over the next 25 years. These returns are additional to those generated from the core SGS program.

- The Harvest Year processes primarily involved:

  (a) Theme Teams, initiated during the core SGS program, distilling, analysing and publishing the scientific outcomes, and

  (b) Harvest Teams, initiated during the Harvest Year, identifying tools and products for extension and producer adoption.

  Due to the newness of the Harvest Year concept and resultant uncertainty about group processes and the relative responsibilities of Theme Teams and Harvest Teams, progress in production of both scientific and extension outputs has been slower than planned.

- The culture of producer led research and multi-disciplinary, systems based research which evolved under the SGS program has broken down somewhat in the Harvest Year, when producers have had a lesser role and focus and energy has been on publication development.

- There is concern about the lack of attention in the Harvest Year to the market and delivery mechanisms for SGS extension products and tools.

- There is concern about the apparent failure of SGS and Harvest Year learnings to influence the planning of the new Sustainable Grain and Grazing Systems R&D program under development by MLA and other partners.

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1. REVIEW METHODOLOGY

Hassall & Associates Pty Ltd was contracted by MLA in June 2002 to conduct an evaluation of the SGS Harvest Year. The Harvest Year nominally ran from July 2001 to June 2002, although many Harvest Year activities continued into the second half of 2002. The terms-of-reference for the evaluation contained three major requirements:

1. Consult with the participants in Harvest Year activities to determine their perceptions about the processes, the outputs and the effectiveness of the Harvest Year.

2. Develop a model and conduct a benefit : cost analysis of the Harvest Year.

3. Based on the outcomes of 1 and 2 above, answer the following key questions:

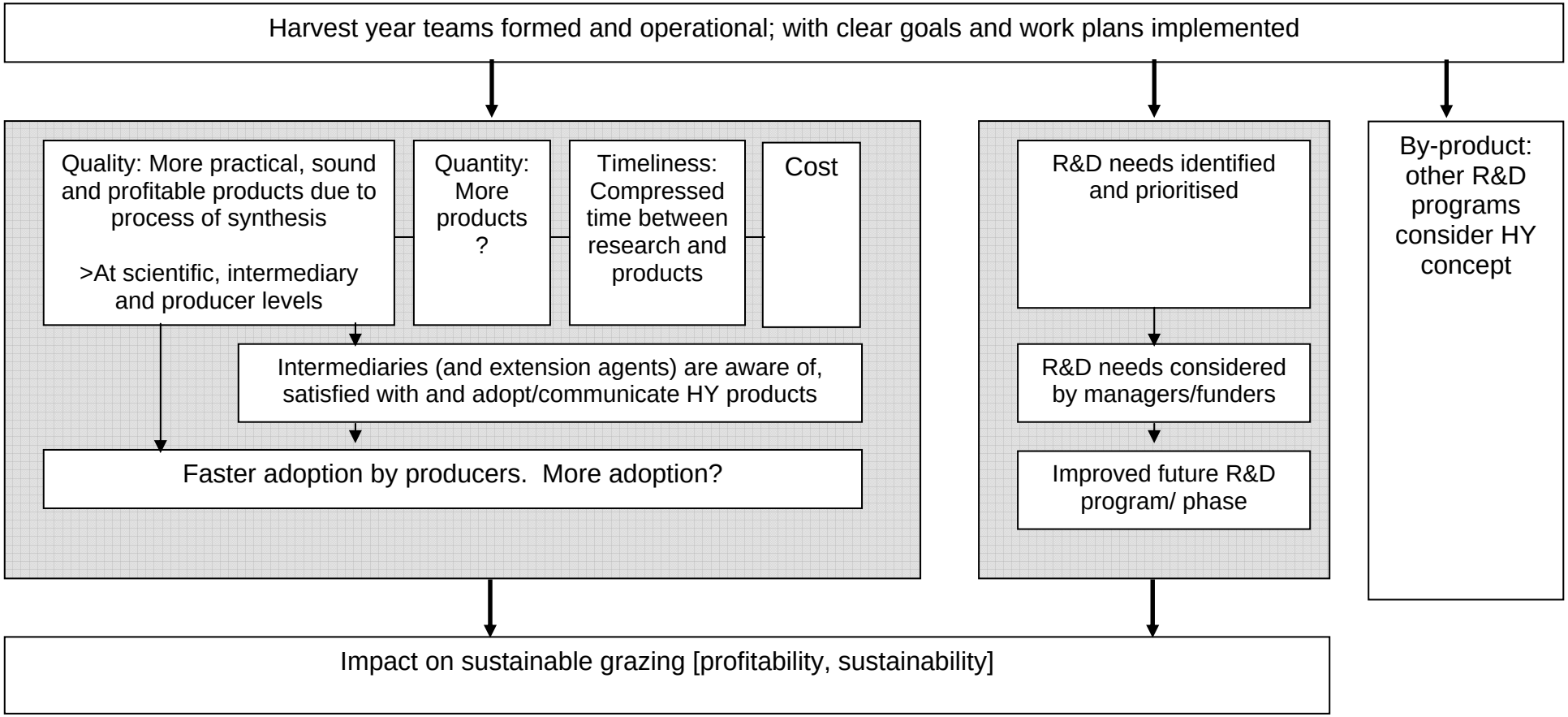
    - Did the Harvest Year speed up the development of products from the information collected over the 5 years of SGS? If so, how much time was saved, and what was the 'value' of the faster development and delivery?
    - What does the set of products from the Harvest Year mean in terms of more rapid producer engagement and adoption?
    - Has it been an advantage or a disadvantage to have multiple product development in parallel versus 'discrete' development and delivery of products?
    - How do the Harvest Year processes (Harvest Teams, Integration Team and Product Development Teams) compare with the traditional development approach?
    - How do the needs of project management differ in a Harvest Year compared with a more traditional approach?
    - Has the Harvest Year process influenced future development and delivery of products from research?
    - What are the overall conclusions from the review of the Harvest Year, and should a similar approach be recommended to other R, D & E programs and why?

Hassall & Associates' approach to the evaluation, following an initial meeting with the SGS Management Team, involved:

Developing an Evaluation Framework

Based on our experience in R&D program evaluation, and after consideration of background documentation, our evaluation specialist, Dr David McClintock, developed an evaluation framework based on the planned outcomes / outputs of the Harvest Year. Figure 1 presents our interpretation of these planned outcomes / outputs.

Figure 1: Hierarchy of Intended Outcomes for the SGS Harvest Year



NB: Implicit in the hierarchy is a sequence between product, audience, use and impact.

Consultation

Based on the evaluation framework and advice received from the SGS management team about the structures of the Harvest Year and the people involved in those structures, we designed a consultation protocol. The protocol had two elements – an open interview which we conducted with approximately 60 of the 75 direct participants in Harvest Year activities, and a structured survey which was completed by 51 of those participants.

The majority of the interviews were conducted in the homes, farms or offices of Harvest Year participants by two of our team, Helen Russ and Ian Rogan.

Results of the interviews and surveys were incorporated into a sortable database. Extracts of the survey responses are provided in Appendix 1.

The evaluation does not include input from producers or researchers outside the Harvest Year process, nor does it attempt to quantify the impact on the ground – as directed by the SGS Management Team.

Benefit Cost Analysis

Our agricultural economist Cheryl Kalisch reviewed available literature describing the base benefits to producers of SGS research outcomes and the previous ABARE study of likely adoption of SGS outputs by producers, before considering the results of our consultation phase to develop a series of assumptions about the actual and likely impact of the Harvest Year on:

- additional outputs (products) from SGS;
- improved quality of SGS outputs;
- earlier availability to producers of SGS outputs;
- increased "penetration" of the producer market for SGS outputs; and
- the efficiency of planning and conduct of future R&D programs.

A series of assumptions were developed about these impacts and, in the knowledge of cash and in kind costs of the Harvest Year, a model was developed and run to produce estimates of the net present value of the Harvest Year impacts over the next 25 years, the benefit : cost ratio and rate of return from the investment in the Harvest Year. Sensitivity and threshold analyses were conducted.

Apart from these activities, our team held two meetings with the SGS management team to report interim progress on the evaluation and to receive feedback. A representative of our team also attended and reported to a post SGS research planning workshop at North Sydney in September. Finally, our evaluation team presented the draft outcomes of the evaluation to, and received feedback from, a meeting of the SGS Steering Committee in Sydney in early November.

1. CONCLUSIONS – ANSWERING THE SEVEN KEY QUESTIONS

The summary of evaluation conclusions is presented in the form of answers to seven explicit questions outlined in the Terms of Reference for the evaluation.

1. Did the Harvest Year speed up development of products and information collected over the five years of SGS? If so, how much time was saved, and what was the value of the faster development and delivery?

There is unequivocal evidence that the Harvest Year will lead to a significant reduction in the normal time lag between conduct and completion of data collection in research and the analysis and publication of the outcomes of the research in scientific publications. Estimates from scientists participating in SGS and actual experience from the Temperate Pastures Sustainability Key Program, the precursor to SGS, indicates that scientific papers usually emerge four to seven years after completion of data collection. With the targeted publication of a significant number (up to 25) of scientific papers from SGS in a special edition of the Australian Journal of Experimental Agriculture (AJEA) in early to mid 2003, the time lag will have been reduced to between 1.5 and 2 years. Implicitly then, the Harvest Year has also accelerated the development of extension "products" that are packaged and presented in publications, field days and training courses. We estimate that the Harvest Year process will lead to these products being better targeted to the needs of producers and available to producers up to three years earlier. This builds on gains made during the SGS program, which inherently reduced the normal time lag between research and adoption by producers as a result of the strong involvement of producers in the conduct of the program.

The benefit: cost analysis concludes that the net present value of the Harvest Year to the southern Australian meat industries is likely to be in the order of $6.1 million over 25 years, or $1.90 for every dollar invested in the Harvest Year. A rate of return on investment of approximately 2% is expected. Over half of the value expected to be generated by the Harvest Year is a result of earlier development of products.

2. What does the set of products from the Harvest Year mean in terms of more rapid producer engagement and adoption?

One of the major strengths of the core SGS program which is widely acknowledged by all participants (producers, scientists, consultants / advisers, managers), was the engagement of producers via direct participation of a small number of producers in R&D management and direction, a larger number being involved in producer forums, regional producer committees and associated research and demonstration sites, and a larger number still participating in farm walks and other functions associated with National Experiment and regional producer demonstration sites. It is our view that SGS has achieved and will continue to achieve a higher level of producer engagement and adoption of R&D outcomes than has been the case with many previous and contemporary rural R&D programs. The extent of this participation and the corresponding adoption profile arising from SGS is confirmed in the ABARE (2001)[1] report.

With respect to the Harvest Year, there is an expectation that the Harvest Year products will lead to further increments in producer adoption as a result of earlier availability of R&D results and an improvement in quality of some products as a result of Harvest Year processes. This is what "drives" the predicted positive benefit: cost outcome for the Harvest Year.

SGS Harvest Year participants scored the likely impact of the Harvest Year on on-ground action by producers as moderately positive, but many made qualifications to this score along the following lines:

[1] ABARE 2001 (Hooper, Riley and Lubulwa), Sustainable Grazing Systems (SGS) Survey.

- There was no plan or resourcing in the SGS Harvest Year for delivery of products.
- There was some concern expressed about a lack of significant market research prior to developing the products.
- There was a feeling of disengagement of some producers during the Harvest Year.

Although positive effects on the timing and numbers of producers adopting SGS R&D outcomes will be achieved as a result of Harvest Year activities, some opportunities have been missed. This is mainly the result of the primary focus being on product output, rather than on continuing or strengthening core SGS processes focussed on learning, collaboration and participation with regional producer groups, other producer groups and other extension and learning organisations.

3. Has it been an advantage or a disadvantage to have multiple product development in parallel versus discrete development and delivery of products?

This is essentially a question about the quality and relevance of products developed from an R&D program. In the case of SGS and the Harvest Year, the products achieved or under development are:

- Scientific papers, primarily written by members of the National Experiment Teams (Themes, Sites) as well as the modeller and database specialists. These papers report analyses and interpretation of within and across site National Experiment data and modelling outcomes.
- The SGS Triple Bottom Line final report.
- Five Theme Prograzier editions.
- Up to 25 “Tips and Tools” addressing practical actions on specific subjects related to Prograzier Themes and other issues.
- A “Technical Manual” with a number of chapters with detailed coverage of issues related to sustainable grazing such as pastures, grazing management, soil health, nutrients, animal production and management, biodiversity, business management, water cycles etc – targeted at advisers, consultants and the top 15% of producers.
- Harvest Team Final Reports.
- A Practice Change Model.
- Natural Resource Management training modules for delivery through the Edge Network (modules covering subjects such as biodiversity, soil health, saline lands, weeds, turning rainfall into dollars).
- Individual National Experiment theme reports.

- Individual National Experiment site reports.
- Regional Producer site reports.
- A national database of data, reports and other information from the National Experiment.
- Models of biophysical (environmental, pasture growth) and financial features of grazing systems.

Although a number of these products were under development prior to the Harvest Year, the vast majority of the activity has occurred during the Harvest Year period. There was an expectation that the Harvest Teams, in particular, would develop the extension or producer oriented products in parallel with the analysis and publication of within and across site research data and development of across site theme papers.

Our review of the Harvest Team final reports, our interviews and our participation in the Post SGS R&D planning meeting have all indicated major difficulties in achieving such parallel development of scientific and extension products. Those difficulties have included:

- Sites held back their data because of a range of issues including QA concerns, ownership concerns and lack of time. In addition, the concept of scientists working together on across site data analysis and interpretation was new for many, and progress was slow initially. Hence, Theme Teams did not really produce "scientific" outcomes, even in draft forms, until late in the Harvest Year. Harvest Teams did not have the benefit of these scientific outcomes when designing extension products.
- Lack of clear definition of objectives and processes for both Harvest Teams and Theme Teams.
- Concern by some participants, including some in SGS management, that the publication of hunches and preliminary recommendations which were unsupported by substantive scientific data analysis and peer review of interpretations and conclusions, may lead to unspecified legal implications if adopted by producers on face value.

Despite these difficulties, the model of parallel development of products is not completely rejected. The critical success factors for such a model include:

- Joint involvement (and joint responsibilities) of producers, scientists and consultants / advisers in the design, conduct, analysis and interpretation of experiments will increase the chance of successful, simultaneous or parallel development of both scientific and extension products from the research. SGS came closer than many R&D programs to achieving this, although the predominant separation of scientific Theme and Harvest Team functions during the Harvest Year may have actually worked against the good ground work established in SGS.

- Clear definition of, and commitment to, realistic objectives and processes and involvement of people skilled in group process for the "harvesting" and "processing" of scientific output into extension products.

- Creating an opportunity for experienced scientists to develop intuitive interpretations of their experiments and their data, with inputs by extension specialists and producers who are trusted by the scientists and vice versa.

We note some success by the Beef CRC in parallel development of scientific papers and extension products including the concurrent publication of a special edition of AJEA and a manual of extension messages targeted at advisers, consultants and top producers.

4. How do the Harvest Year processes (Harvest Teams, Integration Team and Product Development Teams), compare with the traditional developmental approach?

If primarily measured in terms of the speed of finalising and producing scientific publications, the Harvest Year processes have unequivocally been superior to the more traditional, linear research, development and extension model. Further, the creation by MLA of the time and "space" for scientists to reflect, analyse and publish their data without pressure from their agency to progress to new projects and new funding sources immediately on completion of data collection, was universally applauded.

While this clear timing outcome can be evaluated, in terms of likely impacts on reduced lag time to adoption by producers, this evaluation has highlighted less certainty about the adequacy of Harvest Year processes used in the extension of SGS in producing and delivering well targeted extension products. In summary, the concerns have been:

- Uncertainty that the producer needs (the market for the extension products) were adequately investigated.

- Missed opportunities during the Harvest Year to actively engage more producers, particularly via the regional producer committees and their peers and via other extension organisations and networks.

- Perceived minimal involvement in SGS Harvest Year by consultants and extension specialists with a track record in adoption of innovation by producers.

It has been made clear to our evaluation team by MLA and the program managers that the SGS Harvest Year was not about (or less about) delivery of products to producers, than about development of those products.

Our view, based on clear and consistent feedback from participants, is that this is a missed opportunity. The concern is amplified if the goodwill, the SGS "brand name" and the ready made producer network established under SGS, are allowed to wither through lack of ongoing support and investment in favour of a new program or programs with apparently (to many) little linkage to SGS.

By contrast, the concepts of close partnerships between researchers from different agencies and different states and between researchers and producers have been highly valued by

Harvest Year participants. The quality of products (both scientific and extension) will ultimately benefit from the models and processes of the Harvest Year.

There was confusion amongst Harvest Team participants about the relative roles of the Harvest Teams, Theme Teams and The Integration Team.

Apart from noting the importance of clearer definitions of objectives and processes for Teams in any future, similar approaches to a Harvest Year, a number of alternative "process" suggestions made by participants, warrant consideration:

- Form a broadly representative team (scientists, producers, and consultants) to brainstorm ideas and needs for papers and other products arising from an R&D program. This implies not separating responsibilities on a subject (trees, pastures, animals, water, nutrients etc) or discipline (science, extension) basis. Once this broad group has identified ideas and needs, specific individuals or groups should be contracted (and paid) to develop the products. Under this scenario the Harvest Team process could have been a shorter, more open and integrated process.

- Form specific groups (as per the current Harvest Teams) to develop ideas and needs and charge those groups with the task to fully develop and produce the products – not losing their ownership by taking their good ideas and suggestions and giving responsibility to others for development and implementation.

5. How do the needs of project management differ in a Harvest Year compared with a more traditional approach?

This Harvest Year has been a huge and complex series of tasks. Participants have been highly complimentary of the contributions by Warren Mason, Martin Andrew, Ian Simpson, Cameron Allan and others in leading, coaxing and bludgeoning participants into achieving the majority of the desired outcomes.

Many scientists have actually made positive comments about the strong leadership and tight deadlines, although there have been predictable responses about a lack of time and competing interests which have in some cases been perceived to have hindered "creative thinking" and quality of products.

The objectives, the range of desired outcomes and products have not been realistic within a one year timeframe. This is a key issue for project management, and in particular the incentives and performance monitoring processes put in place for the Harvest Year.

There appears to have not been a full recognition of the needs for group process and group leadership skills in some Theme and Harvest Teams.

While the SGS management team is acknowledged as having done an outstanding job with SGS and the Harvest Year, there is some indication that future initiatives of this type may be better served by allocating specialist responsibility for leadership of "harvest processes" (ie: separate to overall R&D program management) and the planning of those processes from a relatively earlier stage in the program – not at the end of data collection.

6. Has the Harvest Year process influenced future development and delivery of products from research?

The SGS model of close involvement of leading producers with scientists in the planning and conduct of R&D programs will / should influence future planning and delivery of research – it has been outstandingly successful.

Participating scientists have indicated a strong preference to continue to be involved in large, integrated research programs such as SGS. They have developed new capacity, new attitudes towards collaboration with other scientists and with producers – they see the outcomes and relevance of their research as being more positive as a result of the collaboration.

The Harvest Year processes have continued some of the culture of SGS referred to above, but in some ways that culture has been eroded through a perceived lessening of producer inputs and as a result of the "blowtorch" focus on getting products finalised.

Lessons learned from the SGS Harvest Year can be used to design a more integrated approach to communication and marketing of research outputs and products which we believe will be more effective than just focusing the Harvest Year on product development.

There were widespread expectations amongst Harvest Year participants that the Harvest Year activities would maintain broad collaboration, momentum and facilitate progression to a new, major R&D program expected to be called "Sustainable Grain and Grazing Systems (SGGS)". These expectations have not been met, to the frustration of many. The development of SGGS followed a different path, probably to include additional stakeholders (eg the grains industry and GRDC). Hence there was a reduced opportunity to link SGS and the new program through the Harvest Year.

A second issue about continuity and effectiveness of future grazing R&D product delivery is the need to continue to nurture the excellent producer networks established under SGS. While the focus of future research programs may change, the core business of MLA (and partner organisations in SGS) will be well served by not having to re-establish each time, a nation-wide, receptive and motivated group of producers who are keen to trial innovation.

7. What are the overall conclusions from the review of the Harvest Year, and should a similar approach be recommended to other R&D programs, and why?

The formal outcomes sought in the Harvest Year have been largely addressed in responses to the previous six questions. During the course of consultation, it became clear to us what the various participants and stakeholders wanted from the Harvest Year. It is our perception that:

a) MLA wanted:

- to produce specific products and tools.
- to achieve a logical conclusion to SGS.
- to stimulate on ground action / change.
- to clarify future R&D needs.
- to gain recognition.
- to ensure levy payers perceive value for money.

b) Livestock producers wanted:	-	access to information from research sites.
	-	to finish SGS; tie up loose ends.
	-	to get access to products sooner than most research programs.
	-	to continue the mode of grazier participation in R&D.
c) Scientists wanted:	-	recognition.
	-	a step up to involvement in future, major MLA programs.
	-	time to analyse and write up without the pressure of chasing further funding.
	-	more time to collect data.
d) Partner organisations wanted:	-	recognition.
	-	resources for their key staff.

Against this unofficial set of Harvest Year objectives, the Harvest Year has been overwhelmingly successful.

Our benefit: cost analysis, most importantly, indicates that the cash investment by MLA and the cash and in-kind investment of partner organisations (total value $3.2 million) is likely to lead to returns with a present value of $9.3 million over the next 25 years. This estimate does not include benefits to future MLA research programs or the potential for other R&D Corporations and research providers to learn from the SGS Harvest Year. The realisation of such benefits has the potential to further increase the returns. The return on investment we have calculated is primarily derived from the Harvest Year extending and speeding up adoption of SGS program outcomes by livestock producers. Around 70% of this benefit is expected to come from additional adoption of SGS program outcomes occurring three years earlier and by up to 5% more producers as a result of Harvest Year activities. Sensitivity analyses of a range of adoption and timing assumptions indicate a high probability of a positive net return from the Harvest Year investment. We strongly recommend to MLA that the future impacts and extent of adoption of SGS outcomes by livestock producers be investigated in three to five years time.

Apart from the formally recognised, tangible products of the Harvest Year, the Harvest Team reports contain a rich source of ideas for future research and demonstration activities. They also list many hunches and best bets for more sustainable grazing management – these represent fertile ground for innovative, early adopter producers who may wish to progress to the exploration and trialing stage of the SGS Practice Change Model, so MLA should not assume that these hunches and best bets are simply fodder for agency research needs analyses.

Our major criticism (and that of Harvest Year participants) is the apparent disjunction between product development and product communication and delivery. We have a strong concern about assumptions that large elements of SGS Harvest Year outcomes will be effectively picked up and delivered through The Edge Network. We fear for a loss of momentum and opportunity for delivery through existing regional producer committees and their networks.

Is the Harvest Year concept relevant to other R&D programs? Its objectives and principles are relevant to almost every conceivable rural R&D program. Its methodology may not be appropriate to transpose. A one year extension on the end of a three or five year R&D program will not always, perhaps rarely, be appropriate. Our preferred model in most cases will be a four or six year program where harvesting, processing and "planting" activities are embedded in the program.

The culture, principles and overall team approach achieved by the SGS program, provides a model which many R&D funders and agencies would do well to emulate.

2. RECOMMENDATIONS

At the direction of the SGS management team, our recommendations are provided in the form of "issues requiring consideration for any future Harvest Year type initiative".

Planning

While the creation of "time and space" for reflection, analysis and publication at the end of a data collection research phase is strongly supported, this should not always be "tacked" on at the end of a three or five year R&D program.

Options include:

- Planning and resourcing product development, perhaps involving dedicated extension specialists, throughout the conduct of the R&D;
- An end-of-program Harvest Year (as per SGS); and
- A beginning-of-the-next-program phase, in which the learnings, publications and other products of the previous program are resourced and developed prior to commencement of new R&D.

Process

Regardless of the option taken, close attention to development of objectives and processes for those responsible for "harvesting" is required. Many scientists come from a culture of working in relative isolation, on reductionist approaches to solving questions about components of biological systems. The integrated, holistic, systems approach attempted by SGS is beneficial but this approach requires the explicit inclusion of process and group skills which are not always present in mainstream scientific personnel in R&D agencies.

Producer involvement brought great value to SGS. Reduced producer involvement in the Harvest Year process was to the possible detriment of the quality, relevance and chances of adoption of the products produced. Processes to keep producer involvement as a focus are recommended.

Delivery of R&D outcomes

Our major criticism of the SGS Harvest Year is that the focus was, quite deliberately, on product development. The delivery and uptake of these products (and the innovations arising from SGS R&D) by producers, has received less attention within the Harvest Year, to

the concern of many producers and extension specialists. Maximising the economic returns from a Harvest Year investment will be most sensitive to the speed and extent of adoption by producers.

Future planners of Harvest Year type initiatives should consider the following issues related to delivery of R&D outcomes:

- More market research about what producers want;
- Resourcing producer groups to take responsibility for R&D output delivery; and
- Engaging more extension specialists in the harvest phase.

With respect to producer adoption of SGS R&D outcomes, MLA should seriously consider an evaluation of practice change by producers in three to five years hence.

3. CONSULTATION RESULTS - A REFLECTION ON SGS HARVEST YEAR BY PARTICIPANTS

3.1 Introduction

Meat and Livestock Australia (MLA) broke new ground in June 2001 as they embarked on an initiative to conclude the innovative 5 year program, Sustainable Grazing Systems (SGS) with a year of data collation, analysis, publication and product development. This concluding year was poetically named the Harvest Year. In mid 2002 Hassall and Associates was asked to evaluate the success of the Harvest Year.

To gain maximum depth in the evaluation, the Hassall team interviewed researchers, producers and agency staff who had participated in the Harvest Year. Sixty Harvest Year participants were interviewed individually in an open interview style followed by a structured survey designed to provide a more quantified impression of the Harvest Year. The impressions shared during these interviews and the conclusions from the survey are the foundation of this report.

This chapter of the report will use the reflections gathered during the interviewing process to discuss the success and failings of the Harvest Year. This chapter starts with what MLA wanted from the Harvest Year, and collates perspectives of participants as to whether it has been achieved. Further, the results of this consultation have been extended to question the thinking behind the initiative and the foundation principles likely to contribute to the success of a program of this kind – this material is presented in Appendix 1. A full summary of the survey results are presented in Appendix 2.

It was evident early in the interview process that the SGS program and Harvest Year, were markedly different to many other R&D programs the participants have experienced. Harvest Year participants wanted to give more. *People have been inspired to work at a higher level than we sometimes give in general work…. People feel more expectation, try to do better, therefore I do better.* M331[2]. *People wanted to make it work* M375. During the interview process the Hassalls team was repeatedly touched by the commitment, courage and heart displayed by members of the program.

[2] The following are used to denote the response source throughout this component of the review report : M = SGS Management, P = producer, S = scientist and C = consultant. The number shown refers to a specific response, locatable in our database.

The Vision

The vision for SGS was sustainable and viable grazing systems across Australia's temperate, high rainfall zone. SGS worked with producers, researchers and extension agents to change the way we interact with our landscapes. Harvest Year was a product development phase designed to ensure that MLA had a series of tangible products within a reasonable timeframe which would demonstrate the achievements of SGS.

While the vision for SGS was to improve grazing management across Australia's temperate, high rainfall zone, it became something more. Observations from interviews with participants were that:

- Multiple sites generated an air of courage and excitement.
- Multi- disciplinary teams generated intensity and the possibility for personal gain and awakening.
- A market driven approach fostered integrity and maintained its focus.
- Excellence from one individual fostered greater effort in another.
- Integration, short timeframes, national interaction, risk taking and high expectations generated a culture of '*being onto something'* M, vitality, courage and success.

In a paper by Warren Mason, SGS Coordinator, dated 1 November 2000, the vision for Harvest Year was stated as: "*Producers working with researchers to interpret the results and experiences from SGS, and to drive out the value from the investment in SGS. That is, speeding up the development of the tools producers need in order to be able to customise profitable and sustainable grazing systems for their individual properties*".

The environment that "cradled the beast":

SGS and subsequently the Harvest Year, was pictured as having landed in an environment that is traditionally conservative and structured - agricultural research and extension.

The Harvest Year culture was a mixture of paradigms - "fully endorsed SGS members" who had been involved since the beginning, new consultants and scientists brought on board specifically to address a particular task and agency people with organisational charters. Some members rested on values akin to the traditional research and development model where researchers conduct experiments, write up results and extension officers work with producers. This culture can be described as having clear boundaries, professional hierarchies, structured and recognised systems of practice. It rests on specialisation and scientific discovery. The focus is on facts and knowledge. Others had embraced the culture of SGS, including multi-disciplinary collaborative team work, process orientated planning, producer driven and the concept of valuing hunches.

At the beginning of the Harvest Year there appears to have been limited "community sharing" of the overall vision, the drive behind the need for a Harvest Year, or principles of SGS. New participants were expected to 'come on board' without formal initiation. *They were pleased*

that I came on board so early…. Ian acknowledged that it would take me a while to come on board (understand the culture) C.183.

The combined culture was complex and at times clashed. The new model of empathy and collaboration was incompatible with the traditional model of structure and competition. Often members spoke about the 'new people' having different expectations and work practice. *With the Harvest Teams, the group expanded to include some who had no history with SGS. They'd say 'where's the data'* P 231. *People within SGS should have been appointed in the Harvest Team, they'd have been more motivated, it was tragic,(they were) falling back on scientific papers, they had no producer input.* P.243.

Consultation also revealed a feeling that some representatives from other organisations had different agendas. *People involved in this project; where do their allegiance lie? I'd rather have a situation where people are right in or right out. If they are not happy, let them go*. P.242

Harvest Year landed in an environment where agency staff and researchers are often running between different programs and agendas. Funding cycles mean that researchers generally do not get time to write up research results, one research project follows another in quick succession. Researchers are generally working on several projects at once, with directives from their management/ministers often cutting across project timeframes. In the Harvest Year, researchers were supported to take the time to collate, analyse and draw conclusions from their data.

Producers traditionally have not been included in the research process - in the Harvest Year, producers were members of Harvest Teams.

It was this unique environment where Harvest Year became an experiment. The following comment outlines the lack of structure, excitement and faith in the people that was the fertile ground for the germination and growth of the Harvest Year. *It was a big gamble. It was exciting, we were taking risks. In the early part there weren't a lot of strengths, you had to have faith in the process and the people. I knew they could make it happen and make a success of it.* M344.

3.2 What was wanted from Harvest Year

What MLA wanted:

In discussions with MLA management the drive for the Harvest Year was to:

- Harvest products
- Gain recognition for MLA within the industry
- Ensure MLA levy payers were receiving value for money.

Secondary aims were to:

- Conclude the program
- Increase learning
- Stimulate action on the ground (landscape change).
- Contribute to planning for subsequent R&D programs.

The drive behind Harvest Year was the desire to make sure SGS was successful. *Management realised that the outcomes of previous programs weren't worth crowing about … managers wanted something to crow about.* P 275. *I knew there was a lot of information sitting in SGS. Harvest Year was focusing on products, outputs, outcomes. I wanted to be able to line up products for producers (and say this is what we have achieved)* M355.

What the Harvest Year participants wanted:

The drivers for Harvest Year varied according to organisational agendas, personal life goals, desires for completion and a recognition that some learning was still to be gained.

Producers wanted access to the information: *Farmers said – there is heaps of data sitting in filing cabinets and they wanted access to that information.* P275.

Some wanted to **finish the job**: *The key driver was that we'd done a good job, and I wanted to make sure that (we finished it)* P.16. *To me, Harvest Year gave a sense of closure.* P.38. *Harvest Year was like the icing on the cake, it would be a good cake without it, but with Harvest Year it was better* M324. *Use the results to make a difference to land management on farm and see useful products come out.* S.197

Some suggested Harvest Year would identify areas of research for the **next program**. *Harvest Year was supposed to provide the opportunity for better planning for the next research and development program* S.52. *Getting results (from Harvest Year) to help design the new project (was a good idea)* S.197.

A strong desire was for **products**, or actual output. *My expectations were that Harvest Year would tie up loose ends, finish experiments, analyse data and write up papers. I thought all the work could be drawn together.* P.3. *Producers wanted a Harvest Year to avoid the gap (between when research is completed and when it is released).* P.1. *SGS needed to publish the results*. S.11.

Others wanted to use the year to collect more data. *Some sites had only been going for three years so Harvest Year gave extra time to collect more data*. P.1

Harvest Year as an opportunity for **recognition**. *Harvest Year was a big innovation, it gave the ability to crow and to be more proud and identify what we have done.* P 277.

Some saw **benefits** for themselves **personally**. *I couldn't afford to say no. I knew it would lead on to other things. It's a valuable organisation to be involved with*. C.191. *I thought it was a good opportunity to get involved because there were so many good animal and pasture researchers involved, it would be a good experience* S.78.

Some got involved for **environmental or ethical reasons**: *I got involved because of the long term effect on our property;* P 75. *I'm motivated by the net benefit to Australia. I wanted to capture the benefit and maximise the findings.* S. 266. *Morally I feel good that I am working on a project that moves towards sustainability* C.287.

Researchers highlighted that the opportunity to write up projects without the pressure of chasing further funding was attractive. *What a privilege that would be – we all know the panic writing up, finishing and the inefficiencies of the system. More time should go into thinking, distilling. We do too much doing.* P 265. *Harvest Year has been great. Where else am I going*

to get someone to pay me for a year to write up my work? S.113. *I thought we'd be able to get a few papers out.* S. 80.

Others were horrified that the results wouldn't be written up as part of the project. *I assumed that researchers would write up their results. The concept that we needed a HY was ridiculous, why wouldn't they do it anyway.* P.15

What partner organisations wanted:

Partner organisations, Departments of Agriculture, Universities, CSIRO, wanted resources and time for their staff to finalise data collection, conduct analyses and write up results. They valued the opportunity for their researchers to do so without having to progress immediately to writing funding proposals for new projects. Partner organisations also wanted recognition for the intellectual property they brought to SGS and for their investment by key people in the program.

Competition between agendas, particularly organisational cultures was often discussed during the interviews.

The desire for organisational recognition was highlighted as a producer explained the resolution of a government stand off over logo placement. *We told them we'd be back in 10 minutes and expected a solution – they were ashamed to think that their egos had taken up so much time*. P.181.

3.3 Was Harvest Year a success?

Did it meet expectations?

3.3.1 Products: Speed, quality

If the goal of Harvest Year was to develop products, then the answer is; 'No'. The time frame for Harvest Year was for completion by June 30th 2002. At the time of this evaluation, it is now over four months after the Harvest Year's nominal end and the only 'products' that have been released are the theme Prograziers, some Tips and Tools and drafts of the Theme papers. However, Harvest Year has generated the output of products in greater quantity in less time than would otherwise have been. While 2-3 years is longer than the original desired timeframe, it is much less than 5-20 years as often quoted during the interviews. *I'm feeling comfortable (with the results) we got the program through, there was quicker development of products, I can point to useful stuff.* M312.

The results of the structured survey confirm this achievement.

When asked to rate the impact Harvest Year had on the **speed** of product development (1 = extremely negative impact, 5 = no impact and 10 = extremely positive impact) the average response was 8, with the range between 7 and 9 (one outlier at 3) indicating that generally participants felt that Harvest Year had speeded up product development.

Products such as the national database, the theme Prograziers, the Social and Adoption practice change model, the biodiversity theme and the pastures model would not have been developed without a Harvest Year. Other products such as the special edition of the Australian Journal of Experimental Agriculture, the final report, the technical manual and the

Tips and Tools may have been produced eventually. *The success of the program is the body of work coming out together. If we report it in several journals over 5 years, it's not a body of work.* S. 9.

It appears that participants feel the quality of program outputs is both better and also has been, in some ways, compromised by the Harvest Year. Participants highlighted that the intensity of collaboration, the cross agency and national collaboration, the peer review of data, sharing data – all stimulated ideas, lifted the useability of results and integrated more complexity in research findings. *It's only now that the site papers are finished – before we did the cross site analysis we didn't see that pH was a major factor in productivity. It didn't come out until the cross site analysis.* S.305. The national database was one product that was not only improved through the Harvest Year, but without Harvest Year it would not have been completed and QA'd.

When survey respondents were asked to rate the effect Harvest Year had on the **quality** of work, the results were more varied with an average of 7 and a range between 3 and 9.

The quality was compromised in that people were forced to produce results in the timeframe. Many discussed the **loss of information**, particularly producer hunches. *I was afraid that the assumptions from the farms would be lost, the detail people wanted to leave out the hunches. My feeling was that we knew the hunches were right, and therefore we should follow them* P.126. *I don't think we've got everything out of it that we should have. I suspect there has been a level of burnout. The level of diligence may not have been there* P.167.

In the race to develop products, some product development was attempted before the data analysis results were released. As a result the Tips and Tools have so far largely been written on data that did not come out of SGS, and the production of the technical manual had to be stalled to prevent conflicting results from being released. The concept of **parallel product development** was not effective as long as the scientific papers had not been released. *Tips and Tools were light on data, they have a limited shelf life - some are already discredited. The quality of the technical manual was poor due to little or no links with the scientific analysis and publication process. As someone on the Harvest Team, I knew there was a lot of data in the cabinet but I was pressured to find products and messages without the data being analysed* S.412.

3.3.2 Value for money

Did the Harvest Year give producers who contribute to MLA, value for money ? Individually several producers involved discussed the value of being involved both for themselves personally and for their farm. *I was proud to be asked to be on it. It was someone investing in my intellectual capital* P.9. *It was a good year emotionally and for personal development to be involved in, … I've been exposed to a lot more of Australia – places have opened my mind. It's hard to measure. Seeing so many different ways people were using the principles and how they were applying them.* P.135. Some mentioned that it was important that they now 'move aside' and give others an opportunity to learn through the Grain and Graze program. *The new program has to move outside the circle we now have…. The model is very successful but it needs new people* P.146.

The cost of transporting large numbers of people around Australia was questioned. *There has been some criticism of SGS that it was a waste of money and unnecessary…. I genuinely believe that it was not true* P.49. Some felt that the rigour provided by the Harvest

Year meant research results were better and therefore gave producers better value. *It's a better way for producers to get a return on their dollars invested (in MLA). (There was) pressure on researchers to be a lot more tuned in about what they do, more focused.* S.109. *What if we didn't spend $2million and 18months of time ? We'd have finalised site and theme reports, SGS regional committees would have wound up and we wouldn't have three more editions of Prograzier, the SGS final report, training course or the special edition.* M.349. *Without a Harvest Year people would have faded away. There would have been no time to look at the data in a meaningful way. Without Harvest Year, SGS would have been another big project with big ideas that stumbled over in the end.* S.8.

While many suggested that there was not enough time, some suggested less time and less people would have been more cost effective. *I'm intensely proud of SGS and the products from the Harvest Year but we could have done it in three months. The approach was a bit luxurious* M359. *Would you get a better outcome with three or four people to review all the activities… I look at the incredible cost of this process, the outcomes would probably be similar.* S.210. *It could have been done cheaper (100 people went to Albany, it could have been done with half that number)* P.402. *The budget for travel was incredibly worthwhile* S.276.

3.3.3 Recognition / identity

The core driver here is recognition and therefore identity for individuals and the organisations involved, including MLA. Organisations have a need (as do individuals) for recognition, growth, interaction and support. MLA managers wanted to have something to show the world, to be recognised, to strengthen an identity of supporting sustainable meat and livestock production. As quoted before, m*anagement realised that the previous outcomes weren't worth crowing about … managers wanted something to crow about*. S.275

One of the driving forces behind the Harvest Year was to conclude and prove that SGS had been a success. *Harvest Year was the gathering of data to show the world. We thought we were onto a good idea and wanted to prove it was a success…… I wanted to be able to point to things and say look at that …. It gives meaning in our lives.* M.321

Members raised the issue of the public perception of SGS particularly during Harvest Year. Some expressed a need for an advertising arm to the Harvest Year with people trained to write user friendly material, newspaper articles and producer information. Others suggested that the type of publicity and recognition was important. *I didn't want to get it in the rural press because of the knockers. 'The Land' was not what it was all about. If you can demonstrate it in a positive way, people will follow. You don't need that sort of publicity, It's too blatant. SGS is producers talking to producers and researchers. It's on the ground, that is why it was successful …. Newspapers have no credibility.* P20.

3.3.4 Learning - individual, organisational

In most interviews, people discussed the learning outcomes from being involved in SGS. In Harvest Year however, there was not great inspiration and learning for producers. While some discussed the benefits of meeting and collaborating with quality people, during Harvest Year there appears to have been no major or universal insights or inspiration.

For researchers the learning was in the analysis, collaboration and output of information. This was a natural outcome from this phase of the program resting largely on the traditional structure of publishing research papers.

Organisational learning from the Harvest Year appears to have been primarily limited to the acceptance of the concept of Harvest Year. It did not matter whether Harvest Year was a success because the concept has taken root. Already another Harvest Year has been introduced in Victoria and in another MLA program. *It's an idea that has taken root, therefore people want to make it a success, the management team were determined* M 328. Many people discussed how it was the most natural and appropriate progression.

3.3.5 Action on the ground

With Harvest Year focused on product development, its impact on the grass roots was difficult to measure. Many members felt that there would/should be an impact, but many recognised that it was too early to tell. The results from the survey reflect this. **Producers** were asked to rate the impact the Harvest Year had on or will have on, 'on-ground action by producers'. The average of responses was 6 (just above no impact) with the range being between 3 and 8. *I believe that the whole of SGS had a high positive impact on producers but the Harvest Year had practically little additional impact.* P.460.

Overall, survey respondents were asked to rate (between 1 and 10) the impact Harvest Year had on producers and/or action on the ground. The results were generally positive, ranging between 6 and 8, (better than no impact) however many ratings were qualified with statements like, it is too early to tell.

There is unease that there were a whole lot of producers 'out there' who had never had any impact or any desire to move towards the SGS principles*. I hadn't heard much (about SGS before getting involved) even though I am in the industry. I had the feeling that I was in a vacuum* C.182. *Producers will determine whether it was a success or not, at present we don't know. The producers we work with say yes, but what do other producers say?* S.6. *I believe that the whole of SGS had a highly positive impact on producers but Harvest Year (practically) had little additional impact* S.475.

3.3.6 Growth or stagnation for the body of knowledge

By forcing researchers to look, analyse and integrate their data with other sites, the quality of facts and knowledge has increased. The focus on the database was an example. There is widespread concern that SGS knowledge held by producers has been lost. In the race to produce products, shock waves reverberated throughout the Harvest Year 'halls' as the fear of litigation forced an abandonment of some of the principles. All of a sudden no-one wanted to publish the hunches because they weren't proven. *The legal implications of people publishing unqualified research in the Tips and Tools was raised* S.422. This has been identified as a tremendous loss. It meant that people within Harvest Year believed that the principles were only valid inside SGS and outside, the traditional research and development model was still dominant. *Warren didn't trust the model in the end. He lost faith in the idea*. P.77.

Many producers and some researchers complained that the Harvest Year was not innovative enough, *I was prepared to go backward to go forward* P.220 Many producers were frustrated because *we were dragging them (agency staff) along* P.225 *They still feel*

threatened, …. It's still a departmental problem, old school treating the symptoms, farmers are getting smarter than the educators and they are being left behind P.224. *Researchers wondered if they could have gone further scientifically, challenged things more, it was a fantastic opportunity to delve into things and investigate* S.90.

3.3.7 The impact on future research and development

The greatest impact on future research and development is the adoption of the concept of a Harvest Year. SGS participants suggested that the concept was important but the process would need to be tailored to the particular research program. There was universal agreement that the practice of stopping data collection and taking time to collate, analyse and distil data should be a component in any R&D program.

Harvest Year has also brought a freedom to the research and development model. As members discussed ideas for further developments in the model it became clear that future programs may no longer be restricted to the classic style of research. In the survey, members suggested that Harvest Year had provided a model for speeding up research output. It demonstrated the need for time for data analysis as well as data collection and the importance of producer involvement in research and development. The Practice Change Model was suggested as a tool for future programs.

If Harvest Year has had an impact on the delivery of products it would be to highlight the need for collaborative extension programs including producers and other deliverers - that research needs to have an extension component as part of its original brief.

Some members expected Harvest Year to identify gaps in research and open pathways for the next program. *I expected the HY to elucidate future research and development needs. It failed dismally because the broader focus and involvement with other organisations (in planning Grain and Graze) has distracted us* M385. In the survey some suggested that the quick release of the AJEA special edition will provide clear directions for future projects.

In the survey, participants suggested that Harvest Year had no apparent impact on the planning of Grain and Graze and that this was a 'missed opportunity'.

3.4 Successes and Failures

Who or what was responsible for the success of Harvest Year?:

The success: According to the survey responses the people, principles or activities that contributed to the success of Harvest Year were:

- Producer involvement,
- Warren Mason,
- Ian Simpson,
- Martin Andrew,
- Cam Nicholson,
- Greg Lodge,
- The meeting in Albany;
- That MLA looked after people;
- The fact that management allowed it to evolve and change

The limitations: In the survey the elements that were the greatest limiting factors to the success of the Harvest Year were outlined as follows:

- The loss of momentum,
- The lack of time,
- Lack of direction,
- The lack of focus and process for the Harvest Teams,
- Lack of connection to implementation, (no target audience),
- Lack of commitment in the early phases,
- Lack of clarity on data sharing,
- Lack of planning between harvest and theme teams and
- The lack of facilitation

These criteria for success or limits to success can be defined by analysing the **people**, **principles** and the **structure** that held the program. These will be discussed in detail.

The internal structure:

There were views that the internal structures of the Harvest Year could have been improved. *Harvest Year would have been better with a more transparent structure. When we arrived, no-one knew what we were doing. They said you're here to decide that. A little less open ended would have been good.* S123.

The time frame:

Many discussed the limited time. Some felt that it was positive *It was good because we had to work so hard, it's a white Anglo Saxon work ethic*M323. Others highlighted that MLA had given them time to write up projects (which was unusual). *Did it work ? Yes, it gave people time …without it we knew the data wouldn't have got out.* S 114. Others suggested that the lack of time limited results. *I'm not convinced that the theme papers made full use of the available data because of the pressure of time*.S489. *There may be substance in the statement that the rigour of data analysis has been less than some people would have liked because of the pressure to get things out in a big hurry.* M.405

Harvest Teams and the Theme Teams, were the foundation stones of the Harvest Year. There was both criticism and support for this structuring of activities. *The Harvest Team model worked well* P.13. However, there was a lot of confusion between the roles of the Harvest Teams and that of the Theme Teams. *Why did we have Harvest Teams and Theme Teams* S.95. Some suggested that breaking into teams reduced integration.

The integration team:

The perception of the success of the integration team varied. There was ambiguity around its place in the model and therefore different expectations of its role. *The integration team wasn't integrative, it was autocratic. We needed the integration team to stop the conflict, (not create it).* S 208. *Towards the end, the integration team dictated what they wanted and didn't want. If they had've done that in the beginning we'd have done a lot better.* P254. *The integration team sat above, made the decisions, we thought it was important to go in a certain direction and they squashed it.* S.198. Some suggested their role was integration not management. *Next time we should make sure the integration team is less of a management*

team. P.245. In the race to produce products the structure designed to integrate the material was criticised for dictating what products would be developed. Harvest Team members expressed a clear sense of injustice and resentment as a result. *Producers, researchers and Ag facilitator put their heads together and could have developed a tool (stocking rates)… it could have been a module or Prograzier edition….when you are given a job and then they (the integration team) don't like what you come up with… Desmond tried to get them to look at it… expediency became more important than doing it properly and listening to what the team wanted.* P.254. *The integration team wanted Mickey Mouse outcomes, simplistic packages. In our view it wasn't simplistic. It got that way that we pulled out. I didn't want my name put to something I wasn't happy with.* S 198. While the structure was designed to ensure integration, time constraints and different agendas had greater impact. *The integration team lost faith in the model in the end* P.242.

Some members of the Integration Team were frustrated by the flow of events. *The integration team should have been together more often. We spent too much time looking at what we didn't get. The process was to have the Harvest Teams put up a range of ideas, our role was to accept or reject those ideas.* P.170.

In the survey, when respondents were asked to rate (between 1-10) if the Harvest Teams provided adequate integration, the results were extremely varied. The average was 6 (just above no impact) with the range varying from between 2 (very negative impact) to 10 (extremely positive impact).

Regional committees:

Our brief did not extend to evaluating the regional committees. It is important to note that many SGS participants felt that there was potential in these committees and associated producer sites that was not fully utilised. *A lot of emphasis was put into the producer sites but it was not followed up. It's gone limp at the end. I'm not sure how many trials they did but I am yet to see any written results from that* S.303.

Parallel Development of products:

There were problems with parallel development of products. Research results had not been analysed or drawn when others were attempting to develop extension products. *The Theme Teams analysis has only just gone into publication so how could the Harvest Teams use the outcomes?* P.294. *There was pressure to produce before the results were out, the results of the journal papers may need to be changed. The timing was out of wack … it's a great concept but there was not enough time put into the outcomes and delivery.* P.298. *Maybe the Harvest Teams should have happened after the theme papers were written* Sc.490.

Access to data and data sharing:

The participants interviewed gave the impression that the sharing of data and information relied on individuals rather than a systematic and recognised system. Data and information on current events was shared on a 'needs to know' basis. Some who were interviewed were critical of the fact that they were not aware of current events. Others suggested that they could not get hold of information when it was required. *In the Harvest Teams there did not seem to be a mechanism for getting access to the data. We had to rely on reports but couldn't get access to data from the other sites.* S.490.

Definition of roles:

There was ambiguity over the selection of individuals for the teams and the roles they took. *A weakness was the egos of different groups and scientists jockeying for the theme leader roles. I don't understand how they were chosen.* S.465.

Involving busy people:

The model where researchers and producers came together for workshops was both positive and negative. Some suggested that the dynamic discussion generated when people were together were highlights between times of inaction. As producers and researcher returned to their 'home' environments Harvest Year activities were replaced by more urgent 'home' agendas. *When Harvest Team people went away from their agency and met, they were enthused, but back in their agency they often found it difficult to do things differently.* M396. *With Harvest Year it was difficult to know what one's time commitment was. A weakness was that lower than 50% commitment of people to the Harvest Year has restricted the capacity of the teams.* S471. *While we were together in a room it was vibrant – we'd make decisions then we'd go home and things would go flat*. P41.

Lack of extension expertise:

There was criticism that the structure did not include sufficient extension people to ensure products were appropriate. *They had scientists and farmers involved but not many extension specialists. I wonder if there was enough attention in the Harvest Year to the involvement of extension skills. This may be a reason that the scientific products came through well and the extension products not so well.* Sc424. Further to this, some expressed this concern as the desire for an advertising arm. *Someone trained in product development should have done that (design the products). …. We should have had the advertising agency – someone who knows about gimmicks.* P252.

There is a major concern that there is no **vehicle for extension** and that the products will not be taken up because they have been developed in isolation and that published results will not be read. *Adoption is the important issue. It's no good having information if it's not adopted . It's a process, gathering it, putting it into a form that is useable and using it – adoption. Unless you get it to its adoption phase it is useless.* P.72. There is a real fear that the products will have little impact. *I'm sceptical that people will read it (Prograzier or other information) from past experience I wonder if anyone will take any notice at the end of the day.* P.161. Participants felt that the products would be good but highlighted the fact that extension officers do not do literature searches before they begin their work (as do researchers), and there is no formal vehicle for extension.

Others discussed the need for **collaboration in extension**. It was felt that extension officers in partner organisations should have been more involved in the product development phase so that extension would be a natural process that flowed out of Harvest Year.

Target market:

Many interview participants suggested that the lack of a target market was a concern**.** *There was too much emphasis on the hell bent production of tools for the sake of them without sufficient attention to identifying needs. Did MLA do any market research on the needs and current practices? It would be better to identify the target audience. Was a target audience*

well defined for the Harvest Year products ? C.415. *How do you get a demand pull in a supply driven process*. M.

Milestones:

While Harvest Year challenged thinking, some milestones were not well managed. It appears that Harvest Year lacked some of the structure required to ensure activities were executed smoothly. *We've run over our milestones, we aren't getting paid (now). (There should have been) stricter milestones and focus on maximum benefit for the bucks.*S.270. The first half of the year was unstructured. Participants found difficulty finding direction. Without salary dependant milestones, some allowed the year to drift. *People said they were using it(the database) but they obviously weren't (because they phoned to ask for instructions)* S100. Some felt more accountability was needed. *At the end of the day it's a contract, increasingly for the modern research provider if you don't fulfil your contract you wont get another. There is a serious flaw in the Harvest Year model. (It needed) accountability.* S.96.

Standard procedures:

The lack of research protocols was an issue. *Warren said we should use the model but it was too late already….we should have had standard procedures, standard approaches, standard protocols. Even though it was supposed to be, it didn't happen* S.102.

The issue of **data sharing** had no standard procedures and required an intense debate. Throughout the program it created tension and massive change as data sharing was demanded. *Sharing data, copyright, there are unresolved problems. Who owns it, who gets credit, who has access and who gets paid? In the past they don't give out their data. It's a threat that their data may be ripped off them. Australia ought to have benefit from the data. It's big picture stuff. In a public funded body the data reside with the author, but, the intellectual (capital) should be used.* S269.

Organisational partnerships:

The support from partner organisations was incredibly important for the program. While the relationships were at times difficult, agencies contributed in-kind support, research expertise and advice to the program.

There does not appear to have been clear guidelines for the input of partner organisations. Most people involved in the Harvest Year were committed to a variety of other programs. There was some concern that the lack of 'complete' commitment may have damaged the program. *Some key operators should have (could have) committed more time.* S473.

Contracts and partners:

The lack of clear guidelines between organisations affected the beginning of the Harvest Year. Researchers were reticent to begin work when contracts between agencies and MLA were not clear. *Difficulties in the formal negotiations between NSW Ag and MLA delayed the signing of the contract until April 2002. There was disagreement over IP – difficulties over turf protection.* S.472.

3.5 Sustainable Grain and Grazing Systems

Criticism of the new program was a repeated theme through the interviews.

That Grain and Graze **didn't embrace the learning from** SGS was a disappointment: *The new program has gone back to the old paradigm, we may end up with a multi-functional team who can't agree on anything. Faction fighting and nothing happens.* P.21. *Grain and Graze didn't use scientists from SGS. Managers didn't do the right thing, they were overly focused on making it a collaborative program (and ignored the learning from SGS)* M.358. *There is disappointment that there is no input into the new program. It's gone backwards rather than forward. The new organisations involved mean you have to go with the lowest common denominator.* C65.

The loss of the principle of **being producer driven** is a concern**:** *The next program - if it maintains producers control, it will be good. In Tamworth in January 02, Grain and Graze planners didn't consider the Harvest Year. Since we've had a meeting with Ben to sort it out. We threatened to go public, academics pushing their own barrow. Researchers don't like producers having a say over what they do, it's our money* P.222.

The size and focus of the new program:

The new program is gearing towards the whole farm and has become the whole of Australia with all the big bodies involved. It's too big. I worry that you don't have to have all the bodies involved. They all have hidden agendas and therefore lose focus (producer integrity) P.219.

Links between SGS and Grain and Graze have been limited. *Some of the producer groups are probably getting pissed off because of their lack of involvement in the planning of the next project.* Sc.484. *Now MLA has a vacuum. (Regrettably) we weren't able to provide that continuity between Harvest Year and Grain and Graze, so now we have a gap.* M353.

3.6 Opportunities for the future

3.6.1 A product development phase focused on learning

If the vision is sustainable grazing systems across Australia, then the question for the future is, how to make that happen most effectively?

There is a loss of faith in the new program (Grain and Graze) and a suspicion that the learning from SGS and Harvest Year will be lost. This was expressed in the backlash from the Tamworth experience (a planning meeting for Grain and Graze). The lack of evidence that it was producer driven and that it would take into account the learning from SGS was a major cause of contention. Some of the SGS team interviewed were disgusted that Grain and Graze did not integrate their findings. *There is disappointment, we've had no input into the new program, It's gone backward rather than forward. New bodies mean you have to go with the lowest common denominator… it's incredibly frustrating now, there is an expectation that our learning would be used in the future. With the new program they (are not using) the Social and Adoption Model, the products are not being used* C.65.

We would argue that the only way to change the external landscape (change grazing management systems) is to change the internal landscape (consciousness). As discussed in the practice change model, developed by the Social and Adoption Team, to be attracted to a

new method, farmers need to be motivated. To be attracted to something new, they need to be involved. There were many quotes in the interviews suggesting that the material that has been developed will not be read or utilised. Programs like SGS can be viewed as an opportunity to learn. *Invest in building skills not in changing practice* S 398. If the focus went from being products driven to learning driven, the measurement of its success would vary greatly. The structures and principles that drive the program could revolutionise research and development. Success would be measured by the change in thinking. *Teaching them to think, create environments for them to learn* P.28. A producer suggested a model. *The future ? There is hand holding required for people to change the way they manage their production systems. Get people around a table, discussion, capture their imaginations, put the model forward, keep it simple. They won't read a 3000 page document. Use it as a tool, get discussion happening, be selective in what is pulled out. Targeting the right people who have influence, energy and good communication skills, people who are passionate (is the beginning).* P162.

A scientist summed up the feelings of many who were interviewed. *This process depends on land holders going back and being able to communicate this themselves. If producers act as extension people then it might work.* S365.

3.6.2 Learning platform

Several producers shared that they were moving on from SGS. *It's been a big job with challenges. It's taken up a fair bit of my time. I've got changing priorities now. One of the reasons I am going off is that I have gone a bit stale. I'm battling to know where the next frontier is, where the next breakthrough (learning) is.* P.39. A program like SGS provides a learning platform for producers. *I'll give it up after the farm walk. Give someone else a go. It's not because I'm disillusioned, but will give someone else a go. There are a few around here who would have a greater impact (than me)* P.255. Perhaps MLA could view its place in the grazing industry as a class room for producers. New producers come in, take the learning and eventually graduate to leave room for others to follow.

With more focus on the higher vision – sustainable grazing systems, and less on product output, there may have been different harvesting mechanisms put in place that would have generated greater organisational learning. There was limited interaction with other organisations in the Harvest Year. With a Harvest Year focused on learning, collaboration and participation, perhaps collaborative extension programs could have been devised with other producers and learning organisations.

3.6.3 Extending the products

The apparent lack of a '**market**' for the products was seen as a major flaw in the program. *All the SGS material will be wasted if there is not a commitment to delivery.* P400. *Next time, we know the Harvest concept works, we have got to identify the market; what's the brief?* P.139. Members questioned the impact of Prograze and that raised concerns that MLA would not use 'existing pathways' as its primary extension mechanism*.. If the Edge Network is the main delivery mechanism then it needs a major revamp.* P.400. Members stressed that **collaborative partnerships** should be the vehicle for extension of the products and knowledge. *I wonder how much people will use it… The learning needs to go into interactive programs. It should be integrated with other (existing) programs, Beef Check, Target 10, and Prograze. Weave it into (programs) where people are already interacting. Get the key message out through existing programs. It's a whole job in itself to extend it.* P.33.

Identifying the target market. *MLA must be leaders while making it available to the masses* M.384.

3.6.4 A closing conference party

People are looking for closure on SGS and Harvest Year. Some suggested a party, others a field day while some suggested a closing conference party. From people interviewed it appears that the Harvest Year has 'gone limp' at the end. Many people expressed frustration that they are unaware of current activities and timeframes. Producers are not sure what to do with their sites, and the empathy and feeling of being valued is 'seeping into cracked ground'. *There is an emptiness due to lack of completion* S.97. *Maybe it's withdrawal symptoms, I'm feeling a bit marginalised at the moment. There has been no closure of SGS, we need it, we have to finish* P.177. *We need some kind of celebration, we worked hard, a hand over a materials, recognition. It took a lot of energy.* P.155. A suggestion was to hear what people found in a fun environment. *Now we need to bring all the participants together so scientists can tell farmers what they have discovered….. leading farmers share their experience (best hunch).* S.85. A combination between a conference, a field day (at one of the sites) and a party was suggested. Give a series of people 3 minutes each to present their most extraordinary finding or outcome. *There were some real champions in some of the regional producer committees, these people need to be honoured* P.390.

3.6.5 Measuring the impact

Several member expressed the need to find out what on-ground impacts SGS and Harvest Year have in the long term. Some suggested a survey be conducted within a year , *Perhaps we could do a survey of producers in 12 months asking have they picked up any information in the last 12 months?* P.141. Others suggested that a survey of producers (outside SGS) be taken now and repeated in 5 years to measure the uptake of the ideas. *I find it disappointing that we cannot do a better evaluation of the impact of HY on the people who participated, measuring the impact in dollars and on the environment. I don't like cost benefit analysis. Possibly a survey now and again in 5 years.* M.354.

3.6.6 Planting year

Perhaps the greatest impact from Harvest Year could be a 'planting year'. A year when producers, researchers and consultants work together to extend the learning. Rather than being another program, take the top 1% of producers (from within and outside SGS) and use them as models to implement and extend the learning.

3.6.7 Future research topics

Whole farm:

Many participants discussed the need to develop research at the whole farm level. *We need to apply the principles at the whole farm level.* P.45. *We've gone from white peg, to paddock and now we need to go to whole farm research.* P.29. Others wanted to move to the catchment scale. In the survey some suggested more investigation of the interactions between different systems, highlighting that we need further investigation of across theme integration (between water and pastures).

Water cycle:

The conclusion and analysis of SGS brought insights into the water cycle. Researchers are primed and ready to extend the SGS findings with analysis of water movements in grazing systems. *I'm keen to do more work at Carcoar. I see it as a tragic loss if the site is lost. We need to better understand the water cycle and the interaction with pastures and plants.*S.474.

Longer term research*:*

Next time we should look at the long term ramifications of practices – superphosphate/lime for example. Integrated systems and the effects on animals, stress, biodiversity and shelter belts. P.386.

3.6.8 Structuring future programs

Members stressed that the Harvest Year concept is a good concept but it should be utilised with judgement. *Harvest Year does tend to set a precedent, I don't want every 5 year project to have a Harvest Year. I don't want MLA to fall in love with the concept. It's got to be something that is thought through properly*. S.360.

The next program:

The model is very successful but it needs new people, farmers who haven't been involved. Do a study asking people who are not involved, why aren't they. Use good farmers (who aren't involved) find out what they are doing and run field days (on their properties). Keep it relevant, practical, keep it grounded. P.146. *I'm not sure if progressing to another huge program is the right way to go. People are looking for integration of technology and sustainability.* C445.

The practice change model:

There was tremendous support for the Practice Change Model developed by the Social and Adoption Team. Members suggested that this should be used as a basis for planning future research programs. *For the future ? Tick off any proposed program against the elements, trialling, whole farm practice change and motivation.* C59.

Clear timeframes and milestones that are outcome dependant are important, particularly for a program like Harvest Year where people are mostly working in insolation, with intense meetings occasionally.

Structures and protocols:

For research sites where cross site analysis is required, clear agreed scientific protocols need to be put in place in the design phase. *We should have standard procedures, standard approaches and standard protocols* S 102.

Teams:

Participants considered that the Harvest and Theme concepts were worthwhile, however more coordination, appropriate integration, data sharing and well staged data release program would ensure the concepts worked. *The theme papers were not a raging success in*

our estimation, although it was a good concept. We've learned a lot and it can work but it needs more coordination. It needs a ***scientific coordinator*** *with the overall responsibility to keep abreast with the scientific themes. We had team leaders and site leaders but we needed a coordinator for the whole science area during the Harvest Year.* C.289. A highlight of Harvest Year was the teams, despite the difficulties. *If there is anything to come out it is the concept of the team. Harvest Year has to survive and the team concept has to survive.* S 82.

Utilising volunteers:

For a project like Harvest Year it must be remembered that people become inspired and full of energy and ideas during meetings, only to return home and not have time to read and comment on a 3 page fax. Producers particularly have the demands of their property to attend to. This means that the facilitation and project management people must be highly skilled and recognise the needs of participants (particularly volunteers). Some facilitators discussed the time wasted with volunteers, a suggestion that – *every post must be a winner* C55– when meeting with volunteers. Well planned, well run and well concluded meetings to ensure that the process gains maximum benefit from their involvement.

More risqué:

There were often responses that indicated that the program could have gone further, taken greater risks, stretched the envelope more. Producers complained at having to 'bring researchers up to speed' to wait and that researchers weren't bold enough in their questions. While the program was said to take risks, and that MLA had courage, it appears to have whet the appetite for greater advancement.

Continuity with producers:

That we lost contact with the producers was regrettable, but it was planned as well. SGS was never going to go on and on. We need to reset, replan, revitalise. If we had continued with farmers it would have been difficult to stop. Research and development projects have to have a finishing point otherwise they become institutions. We lost out because we lost contact, but we are going to start new activities and re-engage with producers. M.352.

3.6.9 Future products

Producer to producer:

Unless you have producers to producers, this stuff doesn't get out P 223. Producer involvement is essential. Involve your market. Participants suggested the possibility of the **hunches** being published in a '**producer to producer' publication** or creating a dynamic activity where they could be shared. Further to this, producers wanted to share ideas for **simple on-farm measuring tools**. *In the Social and Adoption team we identified ideas for certain tools and products …. Simple indicators and benchmarks (that farmers can use)* C.58.

Products for government:

In a large number of interviews, SGS Harvest Year was contrasted to the Native Vegetation Management Committees. Producers strongly believe that the findings from SGS should be

introduced into these committees. *MLA should be writing a BMP for grazing management principles for the Native Vegetation Conservation Act….. the learning hasn't come through in vegetation committees. Legislators should take up what we've learned.* P.131. Some suggested the development of an 'outcomes for policy' package for government.

Diagnostic kit for farmers:

Several people interviewed discussed their disappointment that the diagnostic kit for natural resource management on farm was lost. Some suggested an interactive web site where producers can log on, respond to a series of questions and gain feedback on the level of environmental quality on their property. This was also expressed in the survey as guidelines, or decision support tools for grazing management.

Information technology:

Producers suggested a web site where an individual can research the information and findings from the SGS program. An extension of this was a CD with a farmer friendly summary of the modelling outcomes where a producer could enter data from their own property. Videos about SGS and Harvest Year were also suggested.

Written material:

Suggestions included, small brochures describing the lessons at each experimental site, a theme Prograzier focusing on each SGS region, highlighting locally relevant systems.

Advanced Prograze:

*I want to go on whetting my appetite. An **advanced Prograze**, perhaps only focusing on the top 20% of producers* P.380.

3.7 Conclusion

This chapter is a reflection of the views and feelings of those who participated in the Harvest Year. It outlines broad themes and ideas raised by participants and attempts to evaluate how the program could have been improved. The evaluation does not include input from producers or researchers outside the Harvest Year process, nor does it attempt to quantify the impact on the ground. It highlights some of the thoughts, feelings and reflections from the people involved.

The success of Harvest Year was in the collaboration, relationships, the integrated data analysis and the national scale and the speed of product development.

The management team had an understanding of people dynamics, of process and project development. Intuitively or consciously they provided a space that recognised human needs and desires. The model stimulated, challenged and excited individuals in their consciousness, their heart, their will and it gave them a sense of place. The model supported the life journeys of individuals so they supported the program. People wanted to be involved.

Harvest Year failed to produce products within the one year timeframe, however Harvest Year speeded up the release of products and improved their quality. While the

appropriateness of the name 'Harvest' Year was debated, the concept has taken root and the principles behind the model have been planted in the research and extension environment.

While the focus for the Harvest Year was product development, a limiting factor was that many participants and probably most importantly, the program leaders, lost site of the national vision of SGS – Sustainable Grazing Systems, across Australia.

The following points summarise the key messages from the consultation:

- **Strengths:**
  (i) The quality, commitment, skill, heart and vision of the people involved.
  (ii) The culture of courage and sincerity

- **Weaknesses:**
  (i) The lack of structure in the initial phases
  (ii) The lack of salary dependant milestones,
  (iii) The lack of clear protocols for research.
  (iv) That it ran over time.
  (v) That there was no clearly identified target market

- **Threats:**
  (i) That there is no vehicle for extension.
  (ii) That the products will not be read, utilised or extended.

- **Missed opportunities:**
  (i) The loss of the producer hunches.
  (ii) The lost opportunity for learning and landscape change on the ground.

- **Success:**
  (i) The speed of production and quality of the products.
  (ii) Opening up a new model for agricultural research and extension.
  (iii) Landing a research culture with collaborative, producer driven and holistic principles

- **Action required:**
  (i) Data sharing discussion and development of protocols.
  (ii) Formal closure of program and notification to all participants

- **Opportunities:**
  (i) Taking the Practice Change Model and the principles to design a new program.

4. ECONOMIC EVALUATION

This chapter outlines the economic evaluation undertaken as part of the evaluation of MLA's SGS Harvest Year. Results of this economic evaluation have been used in the formal program evaluation framework in section 7 and to provide an insight to specific sections of the original evaluation terms of reference. Data and estimates obtained from the consultation program, together with ABARE (2001) survey data and appropriate precedents, have been used in the completion of this evaluation.

4.1 Costs and Benefits

Costs

Costs associated with the SGS Harvest Year included cash costs met by MLA and in-kind contributions by partner organisations.

The budgeted cash cost of the Harvest Year was $2.1 million. As at October 2002, this budget is expected to be spent over a 1.5 - 2 year period, with completion of some projects as late as March/April 2003. The Harvest Year cash costs reported include the costs associated with extending the operation of some existing SGS activities (eg. Prograzier production & distribution) by one year, but does not include the cost of regional committee activities throughout the year. The regional committee activities are expected to have continued in the absence of the Harvest Year. The benefits considered in this evaluation relate to all costs included.

During consultation, in-kind contributions were found to be a significant contributor to the Harvest Year. In a number of cases it was found that scientists and others contributed a proportion of their time to Harvest Year outcomes, while their salaries continued to be paid by their existing employer. In-kind contribution of other resources, including facilities, was not found to be significant. In-kind time contribution in excess of $1.1 million has been estimated for this analysis. This estimate is based on 25 program scientists/managers contributing on average between 35 and 40 percent of their time to Harvest Year outcomes without direct Harvest Year remuneration.

A possibility that a Harvest Year approach may compromise output quality, and therefore be a cost, was identified but not substantiated during consultation. While preliminary expectations were that quality may be reduced, consultation revealed that quality was in fact enhanced.

Total costs of $3.2 million have been attributed to the Harvest Year. This comprises $2.1 million cash costs and $1.1 million in-kind contributions. The quantum of the in-kind contributions has been assessed as part of the threshold analysis.

Benefits

As noted in Figure 1: Hierarchy of Intended Outcomes for the SGS Harvest Year (Chapter 2), the potential benefits of the Harvest Year can be broadly classified as:

- earlier adoption;
- higher quality outcomes;
- higher adoption rates; and

- improved future R&D programs/phases.

These benefits are potentially manifest in both basic outcomes (pure research requiring further development) and applied research outputs (those ready for extension and use on farm).

Given the Harvest Year was undertaken as a result of the program proper, the benefits identified are intrinsically related to SGS outcomes. For instance:

1. additional outcomes would have flowed from the SGS program long after it ceased, however with the Harvest Year, it has been found that:

   (a) they have been delivered in an earlier timeframe, leading to **earlier adoption** on farm; and

   (b) these outcomes are expected to be of **higher quality**/more useful/more widely usable.

2. through the Harvest Year, existing outcomes of SGS have been provided in a form, which is expected to lead to:

   (a) **more adoption** of the existing outcomes; and
   (b) **faster adoption** of the existing outcomes.

3. lessons learnt and understanding of what future R&D programs should address and how, which otherwise would not be revealed in a time frame which allows for the information to be contributed to the planning of improved future R&D programs/phases.

The assessment of each of the benefits for the Harvest Year requires consideration of the economic base case to show what would have happened to each of the SGS outcomes in the absence of the Harvest Year. That is, the benefits that would have been realised in the absence of the Harvest Year must be isolated from those directly attributable to the SGS program. The marginal difference between the realisation of benefits with and without the Harvest Year is the chief concern in this analysis.

Each of the benefits of the Harvest Year is described below, together with the basis for the key estimates used in the quantitative analysis. Key estimates and assumptions are based on the consultation undertaken as part of the wider evaluation.

Additional outputs available earlier leading to earlier adoption (1a)

The outputs of a research program are rarely all realised within the time frame of a research program. Particularly in the case of basic research, useful research outputs may not be realised for some years. As the attention of scientists are necessarily drawn to new research programs and alternative priorities, the time to analyse data, review reports and derive the full ‘knowledge’ benefit from the research undertaken diminishes. It is not uncommon for researchers and scientists to deliver findings from research conducted in programs which finished seven or more years earlier.

Wider consultation as part of the Harvest Year evaluation confirmed such delays with average delivery of subsequent outputs estimated to be between three and five years. Consensus from consultation indicated that this lag is reduced by the Harvest Year, by an average of 3 years. Primarily, the additional outcomes are 'basic' or non-developed research outcomes, such that an appropriate development period is required before outcomes are expected to become on farm options. Nevertheless, the net impact of the Harvest Year is delivery of on farm options 3 years earlier.

Additional outcomes are of higher quality/more useful/more widely useable (1b)

Concurrent with delivery of outputs 3 years earlier, is the opportunity for delivery of higher quality outcomes. This occurs because the Harvest Year teams can synthesise across different research papers, and derive lessons for sustainable gazing. Consultation confirmed that outcomes would be of higher quality, as well as delivered earlier, as a result of the Harvest Year. While there was uncertainty regarding the extent to the quality impact, it was generally agreed that the quality of outcomes would not exceed a 20% marginal benefit (ie, the benefits delivered through the Harvest Year process would be 20% better than in the absence on the Harvest Year).

Existing SGS outcomes are adopted by a higher number of primary producers (2a)

The Harvest Year not only delivered more from the existing research base, but also provided for the development of additional materials for the extension of research already developed in SGS proper (and indeed already adopted by 'existing' SGS adopters). Through time it would be expected that additional primary producers would adopt SGS outcomes as their benefits are demonstrated on the farms of existing adopters. Based on the adoption and participation profile reported by ABARE (2001) and indications in the wider consultation, it is expected that an additional, though small, group of the high rainfall zone primary producers would adopt already proven SGS outcomes as a result of the Harvest Year outputs. This additional group is estimated to be less than five percent of those with the potential to be exposed to SGS outputs.

Existing SGS outcomes are adopted earlier by additional primary producers (2b)

As well as a higher number of additional primary producers adopting SGS outcomes, there is an earlier delivery of the extension materials, and thus the earlier opportunity for on farm adoption by the additional producers. The reduced delivery time for extension materials was generally agreed in consultation to be consistent with the reduced delivery time for additional SGS outcomes, ie. 3 years.

Future R&D programs benefit from lessons learnt in a previous program (3)

The benefit to future R&D programs and phases is on two levels:

- future high rainfall grazing R&D programs are better defined and therefore more efficient and responsive to identified needs; and
- R&D programs, not only those in the grazing sector or even Australian agriculture, will supply additional benefits in the same way that an extended SGS program has, due to the adoption of the Harvest Year 'way of doing research'.

Wider consultation revealed that immediate benefits to imminent high rainfall grazing research programs are generally not expected. Specific consultation with SGS and MLA management however, indicated high expectations for the benefits of what has been learnt in the Harvest Year process and what this can contribute to the 'way of doing research'.

Conversely, there could be a loss of future R&D benefits given the one year delay to 'other R&D' that might have been conducted. We consider a 'net benefit' to future R&D that takes into account the interaction between the positive and negative impacts on future R&D.

The quantification of this benefit was not explicitly undertaken due to uncertainty regarding whether a positive impact might actually be realised and the extent to which it might be realised, on both levels.

4.2 Indicators of Benefit

The value of each Harvest Year benefit component are considered separately and then aggregated.

Though specific assumptions change with each benefit component a number of global assumptions are consistent throughout the analysis (Table 1). The analysis has been undertaken on a standardised base benefit of $1.00/ha, from the SGS program proper. The results of the analysis can therefore be interpreted as the benefits over and above the $1.00/ha base benefit understood to have been delivered by SGS proper. There is a large range of estimates with regard to benefits delivered by SGS proper, and these are examined in the threshold analysis later in this report.

Table 1: Additional global assumptions

Total producers in HRZ (no.)	25,500	Average number reported by ABARE in 5 years to 2000
Producers to have already obtained SGS proper benefits (no.)	8,000	ABARE/MLA Triple Bottom Line Report (2002)
Additional producers to potentially benefit from adoption of *existing* SGS outcomes (possible no.)	8,000	Assumed that long run number of additional producers which might be able to adopt the R&D outcomes from which producers were already benefiting at the end of SGS, would not exceed the number already benefiting. In consideration of the total number of producers in the HRZ, this implies that, irrespective of adoption, SGS outcomes will 'possibly be' adopted by around 60% of the total population (ie: 16,000 out of total of 25,500)
Average HRZ farm size (ha)	1,116	Average hectares reported by ABARE in 5 years to 2000. Average property crops less than 5% per annum.
Additional benefit expected from *new* outcomes (%)	30% of base	Assumed by H&A. Consultation indicated that expectation of additional benefits would be reasonable, though expectations are that it would not approach the base benefit (ie: another $1.00/ha benefit would not flow from the research program).
Post Harvest Year output development period	7 years	Average research cycle adopted by GRDC in their ex post and *ex ante* evaluations (Hassall & Associates, 2002). 7 years is assumed both with

		and without Harvest Year benefit streams, and is the period following production of a basic research outcome, until on farm adoption could begin.
On farm adoption Profile	7 years to peak adoption	Based on average livestock cycle, and assumes a straight line adoption profile over 7 years. This recognises that only after an adoption period, will full benefits be realised on farm.

Specific assumptions that relate to certain benefits are detailed in the sections below along with analysis results.

4.2.1 Results of each Benefit Component

Additional outputs available earlier leading to earlier adoption (1a)

The present value of additional outputs being available earlier is $1.8 million over 25 years. This result, a product of the benefits obtained over and above what would have happened in the absence of the Harvest Year, is shown in Figure 2. The assumptions that drive the results are listed in Table 2.

Figure 2: Benefits of earlier outputs leading to earlier adoption

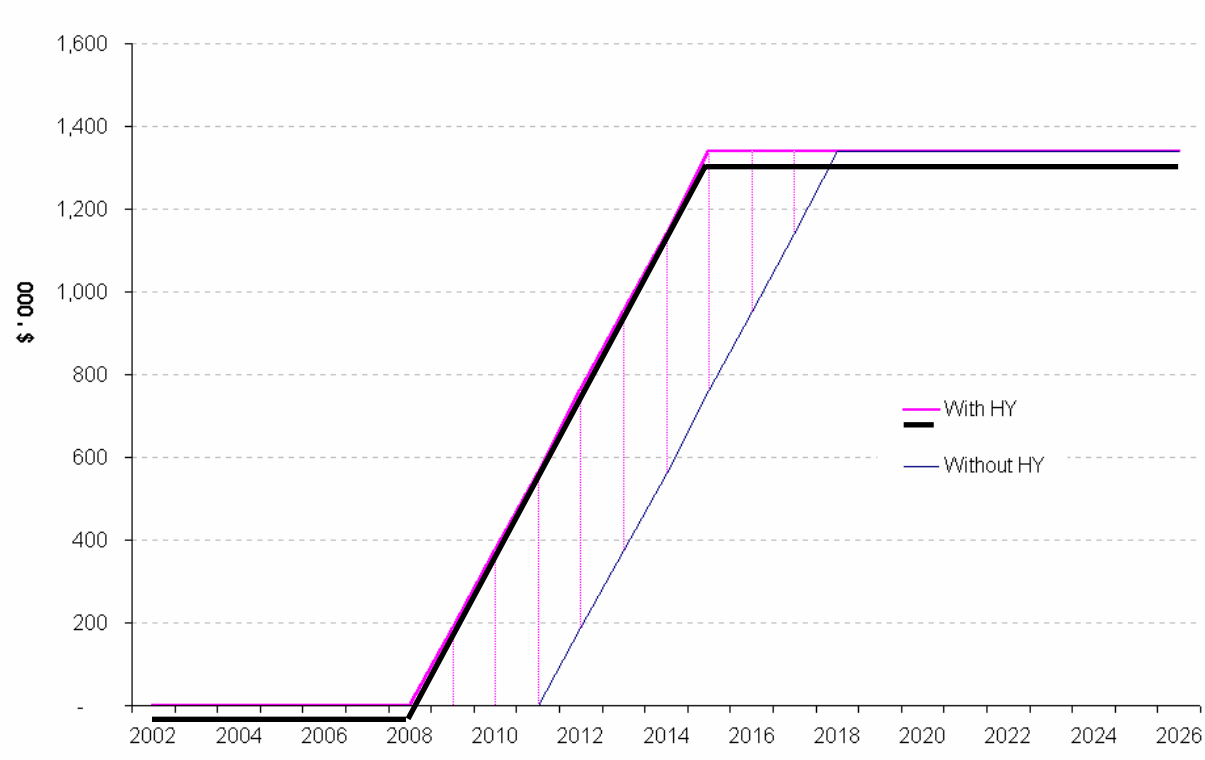


Table 2: Assumptions relevant to earlier adoption of additional outputs

Earlier adoption	3 years	Consultation revealed research outputs to be delivered after 1.5 years, as opposed to an average of 4.5 years without the Harvest Year.
New research outcomes…	primarily basic research outcomes	Pers comm., Warren Mason, September 2002, and therefore a development period is required prior to on farm adoption (ie: a lag of 7 years until benefits are obtained by producers).
Adoption by…	50% of existing SGS beneficiaries	Assumed that not more than 50% of those to have already adopted existing SGS outcomes would be likely to adopt those additional SGS outcomes whose delivery will be brought forward by the Harvest Year.

Additional outcomes are of higher quality/more useful/more widely useable (1b)

The present value of higher quality outputs being made available is $1.3 million over 25 years. This result, a product of the benefits obtained over and above what would have happened in the absence of the Harvest Year, is shown in Figure 3. The assumptions that drive the results are listed in Table 3.

Figure 3: Benefits of additional outcomes being of high quality

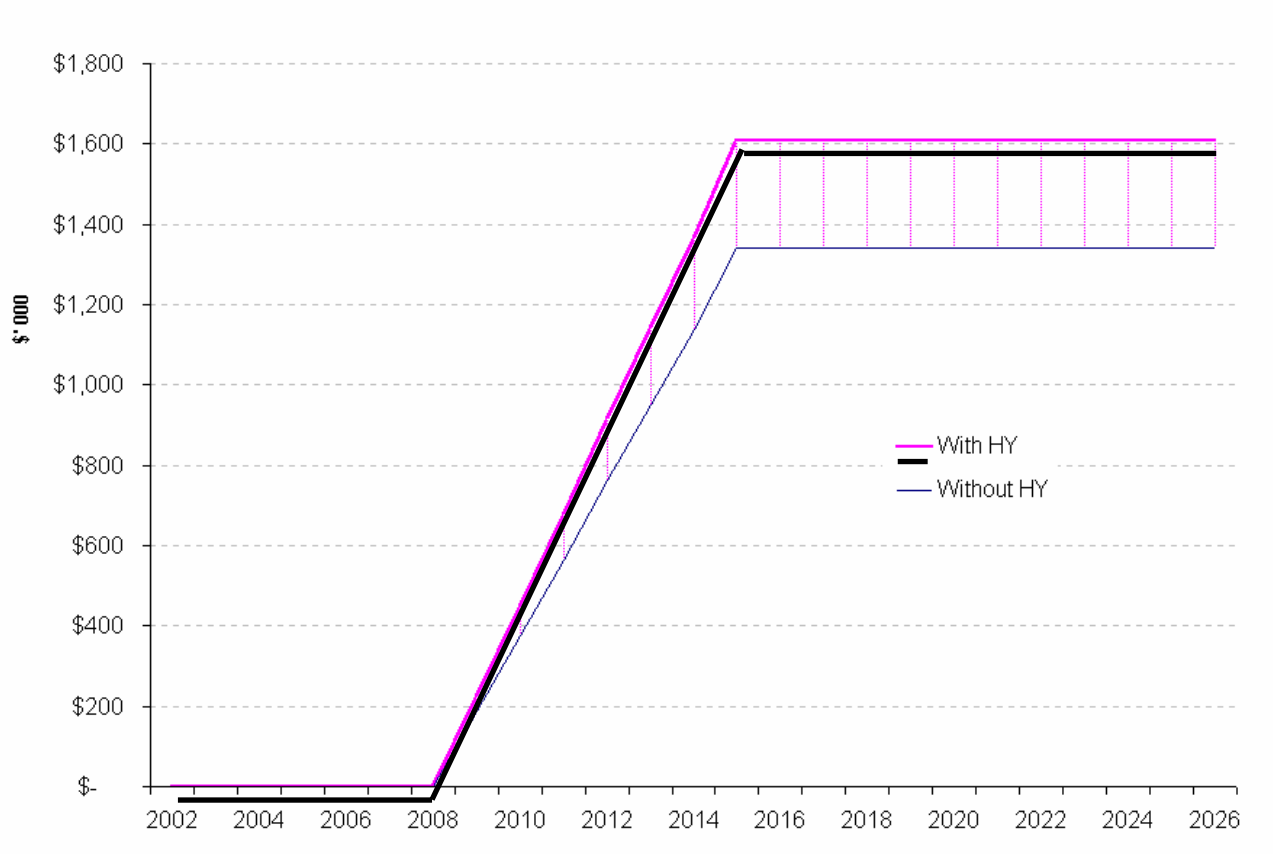


Table 3: Assumptions relevant to delivery of higher quality outputs

Higher Quality	20%	Expectations, based on consultation, are for the additional SGS outputs to be 20% 'better' due to the Harvest Year.
New research outcomes…	primarily basic research outcomes	Pers comm., Warren Mason, September 2002, and therefore a development period is required prior to on farm adoption (ie: a lag of 7 years until benefits are obtained).
Adoption by…	50% of existing SGS beneficiaries	Assumed that not more than 50% of those to have already adopted existing SGS outcomes would be likely to adopt those additional SGS outcomes whose delivery will be brought forward by the Harvest Year.

Existing SGS outcomes are adopted 3 years earlier by additional primary producers (2a)

The present value of higher quality outputs being made available earlier is $3.8 million over 25 years. This result, a product of the benefits obtained over and above what would have happened in the absence of the Harvest Year, is shown in Figure 4. The assumptions that drive the results are listed in Table 4.

Figure 4: Benefits of earlier, additional adoption

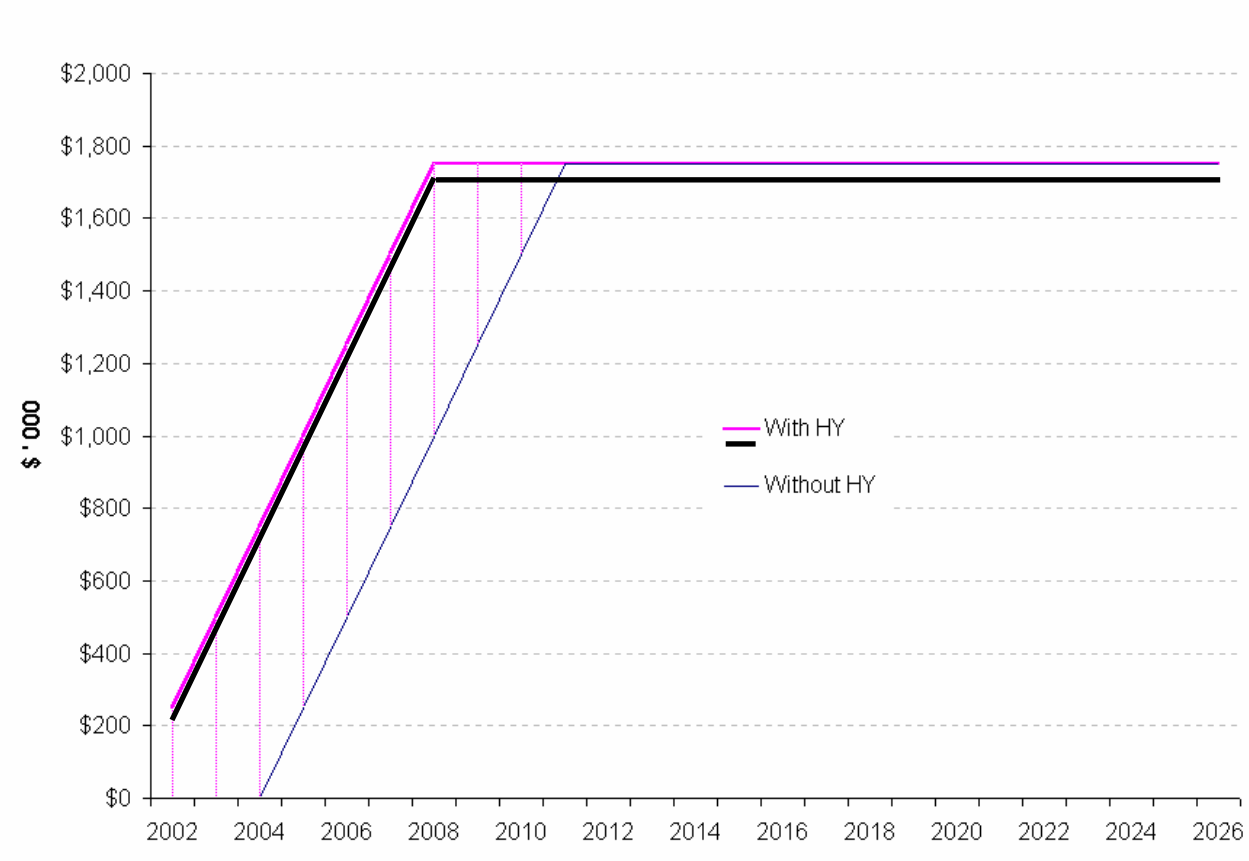


Table 4: Assumptions relevant to earlier SGS adoption by additional producers

Additional adoption earlier	3 years	Consultation revealed research outputs to be delivered after 1.5 years, as opposed to an average of 4.5 years without the Harvest Year.
Proportion of producers who could possibly adopt, and are likely to adopt.	20%	Assumed in both with and without Harvest Year, based on consultation (ie: 20% of the additional 8,000 identified in Table 1).
Research outcomes…	primarily applied research outcomes	Pers comm., Warren Mason, September 2002, and therefore no development period is required prior to on farm adoption.

Up to 5% higher additional adoption of existing SGS outcomes(2b)

The present value of higher quality outputs being made available is $2.4 million over 25 years. This result, a product of the benefits obtained over and above what would have happened in the absence of the Harvest Year, is shown in Figure 5. The assumptions that drive the results are listed in Table 5.

Figure 5 Benefits of higher, additional adoption

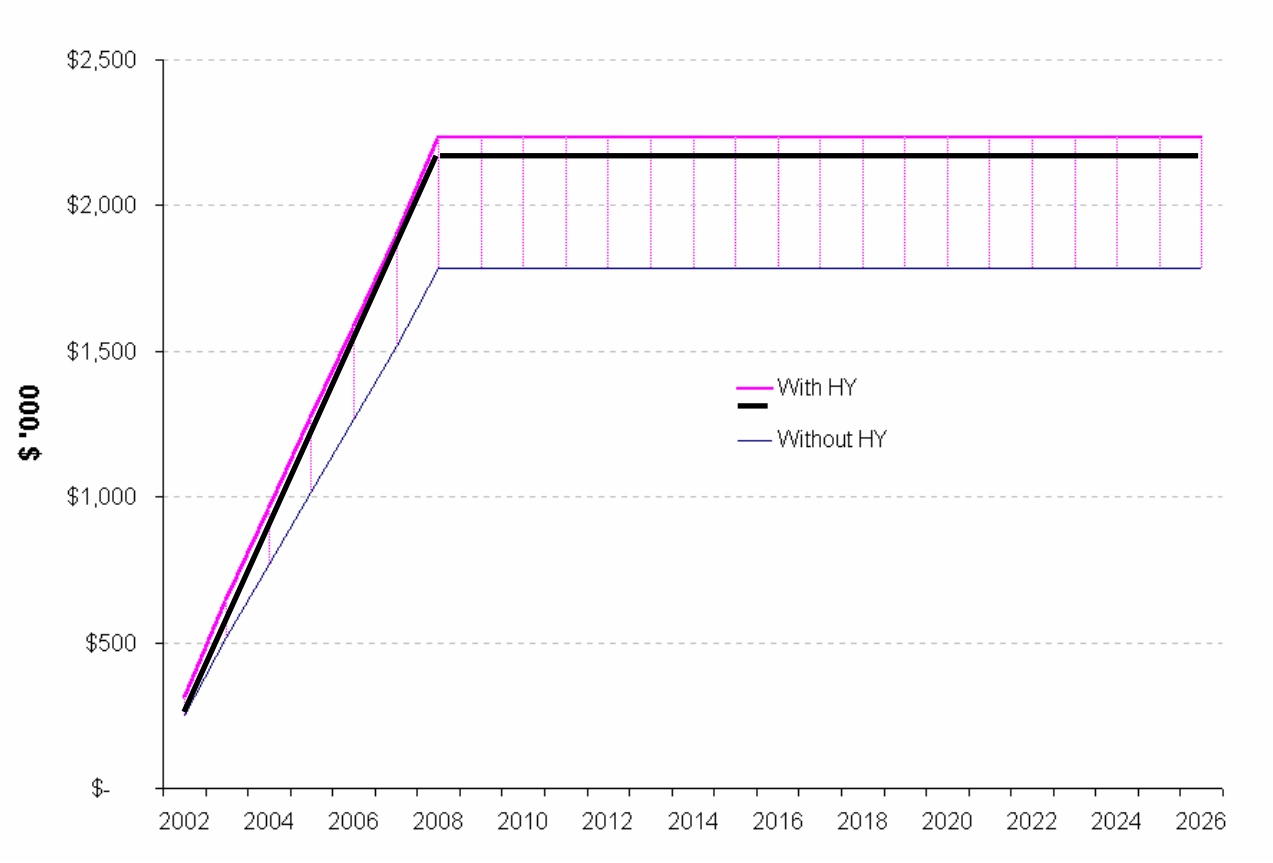


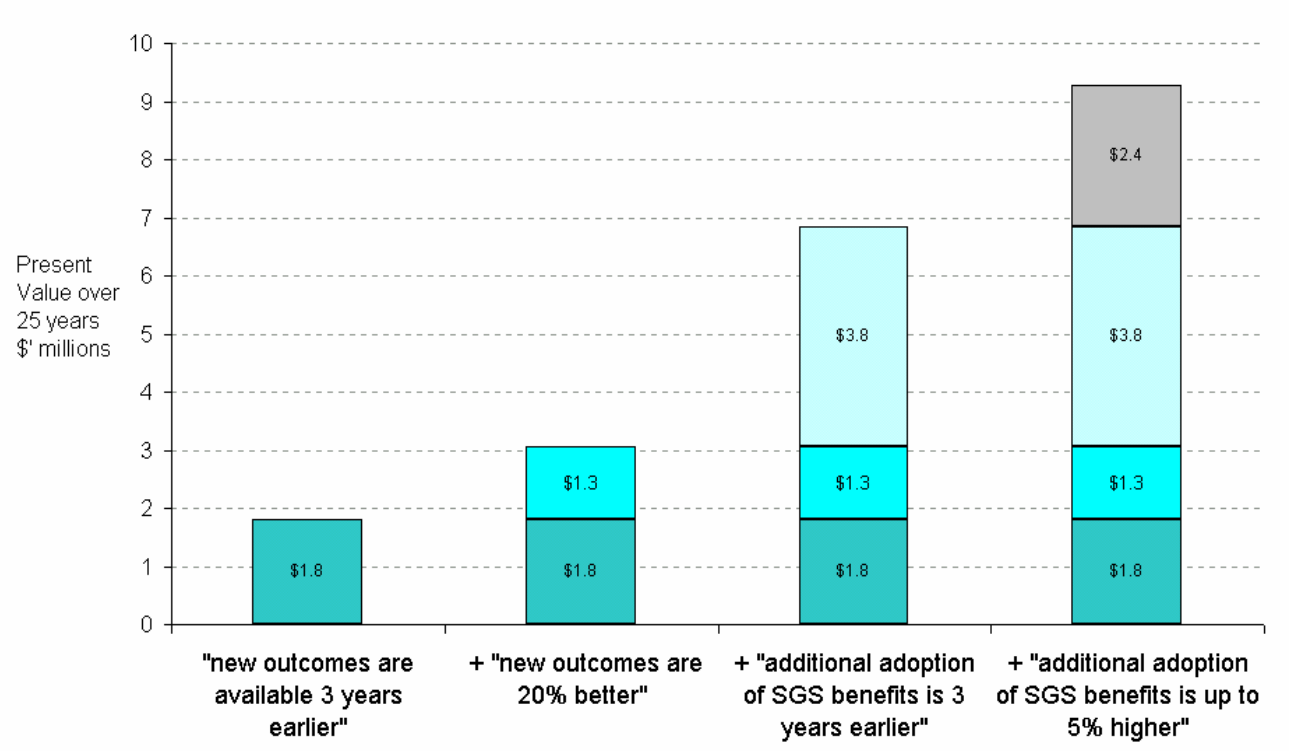
Table 5: Assumptions relevant to additional adoption

***Additional** adoption*	< 5%	Less than five percent additional adoption of existing SGS outcomes as a result of Harvest Year activities.
New/additional research outcomes…	primarily applied research outcomes	Pers comm., Warren Mason, September 2002, and therefore no development period is required prior to on farm adoption.

4.2.2 Overall Benefits of the Harvest Year

The cumulative present value of the Harvest Year investment is $9.3 million over 25 years. This estimate does not include the value of better future R&D outcomes.

Figure 6: Cumulative Present Value of Harvest Benefits



As illustrated in Figure 6, just over 25% of the total estimated Harvest Year present value is estimated to result from the Harvest Year outputs delivering additional adoption of SGS outcomes. Another 45% of the benefit comes from the Harvest Year delivering additional adoption earlier. The sensitivity of those results are discussed later.

Indicators which demonstrate the positive net benefit of the Harvest Year investment include:

- A benefit cost ratio of 2.9;
- A net present value of $6.1 million over 25 years;
- A net present value per dollar invested in the year of $1.90; and
- A rate of return of 2%.

However, these estimates do not include the value of the SGS Harvest Year to future R&D programs/phases. In the absence of quantitative measures to include its value explicitly, threshold analysis has been undertaken to demonstrate what value would be required to obtain a range of rates of return. This is illustrated in Table 6. No distinction between immediate benefits to future grazing research and development programs and those to the wider research and development "industry" has been made in this threshold analysis.

Table 6: Value of R&D benefit required to obtain various Rates of Return

Rate of return on Harvest Year investment	5%	10%	20%
Annual net present value of benefit to future R&D required ($'million)	$0.8	$2.2	$5.0

To put the magnitude of these required benefits in perspective they can be considered in the context of the wider R&D budget which they might be a part of. The benefit potentially captured, or efficiencies achieved, in comparison to a range of R&D budgets is shown as a percentage of total expenditure in the following table.

Table 7: Research benefit as a proportion of R&D expenditure

Annual net present value of Harvest Year benefit to future R&D	$0.8	$2.2	$5.0
MLA's annual expenditure ($41 million)[1]	2.0%	5.4%	12.2%
Combined annual RDC's expenditure ($341 million)[1]	0.2%	0.6%	1.5%
Total annual Australian Govt expenditure on Ag R&D ($610 million)[2]	0.1%	0.4%	0.8%
Total annual Australian (public & private) R&D expenditure ($8,926 million)[3]	< 0.01%	0.02%	0.06%

Notes 1 Radcliffe, J (2001) The National Agricultural Research System in Australia: in country report.
2 AFFA (1999) Innovation in Australia's Agrifood Sector.
3 ABS – www.abs.gov.au

Overall the benefit of the SGS Harvest Year need only be small in relation to the current expenditure on R&D by the range of research entities who could potentially adopt a Harvest Year or learn from the SGS Harvest Year experience. While this threshold analysis is simplified, it does illustrate that only relatively minor future benefits to R&D entities could contribute to the rate of return to MLA's investment in SGS Harvest Year being greater than the 2% shown in the preceding analysis.

4.2.3 Sensitivity of results and the driving assumptions

Sensitivity analysis on a series of analysis parameters was undertaken. A number of key assumptions which drive the analysis results are discussed below:

Per hectare benefit

The per hectare benefit already delivered by SGS proper at the program's end assumed for this analysis is $1.00/ha. $1.00 per hectare has been used in the absence of any consensus on actual benefits. Table 8 shows a range of estimates that have been attributed to the SGS program and the rate of return to the Harvest Year if these were used as the base program benefit (given all else constant). Primarily these are illustrative examples of the types of benefits available, and they cannot be summed.

Table 8: Rates of return with alternative estimates of base SGS benefits

Estimate of marginal benefit	**$/ha**	**BCR of Harvest Year, all else constant**
NE Vic – Lamb production, set stocked phalaris, high input systems[1]	94	272
NW Slopes, NSW – Merino wethers on native wallaby grass pasture,	32	93

Estimate of marginal benefit	$/ha	BCR of Harvest Year, all else constant
rotationally grazed[1].		
Albany, WA – livestock production on Kikuyu pasture between tree belts[1]	0.95	2.8
Vasey (W Vic) – lamb production on a high input system[1]	194	563
Carcoar, NSW – Merino ewes with crossbred lambs continuously grazed to match feed available on a high input pasture[1]	65	189
Prograze – MLA has reported that on average farm profits could be increased by $3,000 per annum[2] (average of $2.70/hectare for average property of 1,116 ha)	2.70	8

Notes 1 Examples of profitability improvement of SGS experimental treatments compared to district average (SGS Final Report: A triple bottom line report, February 2002).
2 As reported in BDA Group (2002), LWA 1990 – 2000 Return on Investment Evaluation, Working Draft report to Land and Water Australia.

Sensitivity analysis shows that the benefit indicators are sensitive to assumptions of the base SGS program benefit, though do not approach negative returns. The per hectare base benefit of SGS would need to fall to $0.34/hectare, a benefit well below any of those estimates shown in Table 8, before the Harvest Year investment would approach a break even return.

Equally important in the analysis of the Harvest Year, is the estimate of the relative amount of benefit to be delivered from SGS following completion of the program proper. In this analysis, it was estimated that a benefit equivalent to approximately 30 percent of that already delivered by SGS proper would become available in the years following the program's completion (ie: 30c/ha). Sensitivity analysis illustrates this parameter to not be significant in the analysis given that the adoption of existing, and not additional benefits, dominate the analysis results, ie: even if no new knowledge was drawn from the research program during the years following SGS's completion, the Harvest Year program would deliver positive net benefits on the basis of increasing and bringing forward additional adoption of the existing SGS benefit.

Similarly, we would need a significant increase in the new knowledge delivered post SGS to achieve higher rates of return. To achieve rates of return of five and ten percent respectively, the benefit to be derived following the completion of the SGS program would need to increase to 127 and 285 percent of the base benefit (ie: $1.27 and $2.85/ha).

The discount rate used

A discount rate of seven percent, consistent with NSW Treasury Guidelines, has been used in this analysis. Sensitivities have been undertaken at four and ten percent and show the analysis to be sensitive to the discount rate, though the rate would need to rise to 23 percent before the Harvest Year investment would obtain a break even return.

Number of hectares impacted

The analysis is sensitive to the number of farms, and consequently hectares, impacted. The number of farms to have benefited and, thus likely to be able to benefit from additional SGS outcomes (whether or not they adopt) and the number of properties which could potentially adopt existing SGS outcomes after the base program's completion, would both need to fall below 2,800 before the Harvest Year investment would not deliver a positive return.

The analysis is not sensitive to the additional proportion of farmers adopting SGS program outputs as a result of the Harvest Year activities. The analysis assumes, based on consultation, that Harvest Year activities will contribute up to an additional five percent of the 8,000 who will potentially adopt (ie: 400). Even if the additional adoption resulting from the Harvest Year does not eventuate, the Harvest Year investment breaks even on the strength of other benefits identified.

In-kind cost of the Harvest Year

While the analysis is not sensitive to the in-kind cost of the Harvest Year, it is a parameter with some uncertainty. However, threshold analysis shows that the value of in-kind contributions would need to increase from $1.1 million to $7.2 million before the investment would approach a breakeven situation.

4.3 Summary of Economic Analysis

Economic analysis reveals the Harvest Year to have been a worthwhile investment. A net present value of $6.1 million over 25 years, or $1.90 per dollar invested is expected to flow as a result of MLA's investment in a Harvest Year for the Sustainable Grazing Systems program. The rate of return of 2% is consistent with average rates of return to R&D expenditure in Australia.

However these results do not include the potential benefits to future research and development. Threshold analysis indicates that the Harvest Year would only need to present small benefits to research providers, as compared to their total Research & Development budgets, for the rate of return on the Harvest Year investment to increase from 2% to 5%.

The partially *ex ante* (which comes because some of the products are not completed let alone adopted) nature of this analysis introduces some uncertainty to the results. Sensitivity analysis shows that the analysis is not particularly sensitive to any one analysis parameter and that parameters must be considerably outside of the range of likely parameters before the return on investment approaches zero. For example, the base benefit from SGS program must fall below $0.34/ha before a breakeven position would be reached, which is significantly outside of the range of benefits to have been identified as examples of SGS program benefits.

The results are dominated by the benefits derived from the Harvest Year extending and speeding up adoption of SGS program outcomes. Over 60% of the benefit is resultant from additional adoption of SGS program outcomes occurring three years earlier and by, up to, five percent more farmers, as a result of Harvest Year activities. Based on consultation, expectations are that this will be a major benefit of the Harvest Year. In the event that the Harvest Year does not at all provide for more and earlier additional adoption of existing SGS outcomes, the Harvest Year investment fails to break even on just the delivery of new SGS outcomes (given total Harvest Year costs), with a BCR of 0.95. Again, however, this does not include potential benefits to future R&D.

Expectations are that MLA's SGS Harvest Year has provided a positive net return, even without the inclusion of potential benefits to future R&D. This is an endorsement for the SGS Harvest Year model used/developed by MLA and SGS/HY management over the past 18 months. Whether this presents an opportunity to other R&D providers will be dependent on

the nature of the R&D provider and their outputs and processes and the expected rates of return to alternative uses of their funding.

5. FORMAL EVALUATION FRAMEWORK

Based on our review of Harvest Year documentation and discussions with the SGS management team, a formal evaluation framework was developed. This was based on the hierarchy of intended outcomes for the Harvest Year, as shown in Figure 1 (Chapter 2).

The formal evaluation undertaken draws on the hierarchy of intended outcomes as shown in figure 1, the findings and impressions from the consultations and the benefit cost analysis.

In Table 9 we present a summary of:

- Outcomes / outputs sought in the Harvest Year.
- Attributes of success.
- Likely indicators of whether or not these outcomes / outputs would be achieved.
- An assessment of the levels of achievement, based on consultation and economic analysis.

Table 9: Achievement of the intended outcomes of the Harvest Year

Outcome/output	Attributes of success	Collated responses and assessment of achievement
Outputs		
Harvest Year teams formed and operational; with clear goals and work plans implemented	- HY teams have appropriate skills. - Planning is undertaken - Expectations are defined, HY teams have clear goals - Work plans are implemented	• HY teams have been formed and are operational. In general, the output has been achieved. • Over-achievement: through the increased networking and the likely future R&D pay-offs from this networking. • Under achievement areas: o Broadly adequate skills on teams but leadership and facilitation skills were deficient in some teams. The focus for the selection of HY participants was on scientific and technical skills. This lead to difficulties in their operation. One team experienced discord, frustration with some people withdrawing from the process completely; o Expectations have not been clear and in some cases not met. The process could have been better defined. There was a perceived lack of direction in the early phase. The rush at the end that suggests that planning could have been better; o Queries are raised regarding role, operation and effectiveness of the integration team. Some people suggested it was autocratic and dictatorial rather than coordinating and integrating; and o Loss of SGS 'culture' between the program and HY is significant, particularly regarding producer involvement.

Outcome/output	Attributes of success	Collated responses and assessment of achievement
Short-term outcomes		
Quality: More practical, sound and profitable products due to process of synthesis >At scientific, intermediary and producer levels	- Synthesis occurs. - Group process allows screening and more value adding than would have occurred. As a result, products are more practical, sound and profitable.	• The outcome considers three levels: scientific, intermediary and producer. The achievements focus mainly on the scientific level and not at the other two levels. • Overall, the quality has been higher due to synthesis process. More explicitly, synthesis has come from the data sharing, cross-site analysis and the networking between people with different skills, knowledge and worldview. Some negative impacts on quality have arisen because of the 'crash through' at the end, but this was outweighed by the positive impacts. • The impacts on quality have been quantified in the Benefit Cost Analysis.
Quantity: More products? >At scientific, intermediary and producer levels	- Are more products wanted, or are the main concerns with quality and timeliness? - The products need to be more than what would have occurred anyway.	• The outcome looked at three levels: scientific, intermediary and producer. The achievements focus mainly on the scientific and intermediary levels, not at the producer level. • Some outputs would not have occurred without the HY. Examples are the Biodiversity paper and subsequent Prograzier issue, as well as the social and adoption paper that develops a practice change model. • Acting on producer hunches that come out of the HY might have increased quantity of products (as well as quality). • There is a sense that more can be extracted from the data, which implies more products are possible.
Timeliness: Compressed time between research and products >At scientific, intermediary and producer levels	- Scientific publications are produced quicker; intermediaries have quicker access to material as do producers.	• Scientific papers release times will be reduced from 5 or more years to 1.5 years. • The impact of this acceleration of scientific products has been quantified in the Benefit Cost Analysis. • There is an expectation that there will be a flow on impact so that the products at

Outcome/output	Attributes of success	Collated responses and assessment of achievement
Short-term outcomes		
		intermediary and producer levels are also available by over 3 years quicker.
Cost: HY efficient >At scientific, intermediary and producer levels	- Bringing people together may be efficient. Is it more costly? - Efficiency is one aspect and cost-effectiveness another – ie: it depends on quality of outputs	• The Benefit Cost Analysis shows that benefits exceed costs. There are trade-offs between bringing people together and achieving outputs through the HY synthesis process, as compared to commissioning a small team to prepare various synthesis papers. The review considered the opportunity costs of researcher time (what else would they have been doing) but the findings are inconclusive. Overall the outcome has been achieved in that the benefits are higher than the costs. There is little basis to say the HY has been the best way of achieving the outcome, however.
R&D needs identified and prioritised	- Process of synthesis means that knowledge gaps are identified (& future R&D needs). Group process means that prioritisation can take place. - Documentation of R&D needs occurs.	• There is a higher level of awareness of knowledge gaps, though queries as to whether these are well documented (still in people's heads?) and definite doubts as to whether these are prioritised in a form that can be used. • HY did not form a bridge between the old and new program, as expected. The Sustainable Grain and Gazing System program developed quite separately. • Hunches have not been acted on. • Overall, this outcome has not been fully achieved as expected and can be labelled a "lost opportunity".

Outcome/output	Attributes of success	Collated responses and assessment of achievement
Medium term outcomes (audience awareness)		
Intermediaries (and extension agents) are aware of HY products, satisfied with and adopt/ communicate the products	- Target audience makes use of products in their existing delivery activities. They think that the products are better than just individual R&D results and more timely. - Ex-ante: products meet intended part of the practice change model cycle (motivation, exploration and practice change).	• The achievement of this outcome is low as few extension agents were involved in process, the products are not available yet and there is no active communication mechanism within the HY. Some positive impacts on this audience are anticipated when the Technical Manual and Edge / Prograze modules become available.
R&D needs considered by managers/funders	- R&D needs are considered in a more timely way, with a higher quality of base material to work with	• The future R&D needs have not been prioritised, although there is evidence to suggest that MLA and State Departments have considered R&D needs (probably through involvement of key individuals rather than any formalised process).

Outcome/output	Attributes of success	Collated responses and assessment of achievement
Medium term outcomes (use)		
Improved future R&D program/phase	- Program incorporates priorities identified, as well as hunches and best-bets (presumably by developing strategies relevant to these priorities and funding projects/activities accordingly). - that learns from both "old" program and HY - that has more support & a higher morale [reinvigorated researchers, etc]	• This has not occurred, although individual researchers may take forward their experiences into new programs.
Faster adoption by producers [that are reached by existing extension agents and delivery means].	- Adoption is accelerated	• Most participants believe that there will be faster adoption, as a result of the research results that are out faster, but these responses were generally qualified. The impact on faster adoption has been quantified in the Benefit Cost Analysis. There was a move away from the outputs being producer driven which will impact on adoption. The lack of communication mechanisms within the HY also will impact adoption.

Outcome/output	Attributes of success	Collated responses and assessment of achievement
Ultimate outcome		
Impact on sustainable grazing [profitability, sustainability]	- More profitable and sustainable practices used, earlier, with corresponding positive impacts on natural resource base.	• The achievements are inconclusive, largely due to the timing issues (as it is too early and the products are not yet available). The Benefit Cost Analysis captures claimed improvements, although some interviewees indicated that these claims might be optimistic.
By-product		
Other R&D programs consider HY concept	- Other R&D program managers and stakeholders see merit in and consider whether it can be used in their program	• Awareness of the 'concept' of a Harvest Year is now widespread. • The HY concept has been used in at least two other R&D programs: a dairy program in Victoria and the Sheep Meat Eating Quality program of MLA.

APPENDIX 1: SOME PRINCIPLES AND PEOPLE ISSUES WHICH CONTRIBUTE TO THE SUCCESS OF PROGRAMS LIKE SGS HARVEST YEAR

A1.1 Raising the bar: Principles of the program:

If sustainable grazing systems across the temperate, high rainfall zone in Australia was the vision, how could Harvest Year have maximised this? What if the success of Harvest Year was measured in outcomes, the cooperative learning environment, relationships and the legacy it left behind as well as the products?

In general, it could be argued that programs and people that are most inspiring are those that hold a vision or values that lift the quality of life and transformation for those that follow. While interviewing members of the Harvest Year it became obvious that many members felt inspired by SGS. Participants felt a sense of excitement that was awakening and inspirational.

Participants often spoke about principles, 'The model' or the culture of SGS and Harvest Year. The following section will discuss the use of these principles through the Harvest Year and it will show where the SGS principles became inspirational.

The following higher order values can be used as a measuring tool.

- Justice
- Faith
- Sincerity
- Philanthropy
- Heroism
- Devotion / openness / embracing
- Transformation / life.

The model: Principles of SGS:

During the interviewing process, participants often spoke of the principles behind the program. While they may have not been formally identified as operating principles, we would argue that the success of SGS rested on an agreed culture that could be described as principles of operation. One participant described them as follows:

- Elevating producers to experts; valuing the bottom up.
- Producer to producer: Individual farm based learning.
- Real conversations: We didn't run big events – we had far greater impact on 15 farmers (walking round a paddock).
- Multi-disciplinary:
- Reflection / feedback:

- Equality:

- Value input: Both researchers and producers have things to say to each other, they appreciate each other. M.317

Other principles highlighted throughout the interview process were:

- Integration: integrated research data
- Holism: Whole of Australia, moving towards whole farm
- Evolutionary process: Flexibility: think on your feet, make it up as you go along
- Empathy: Openness, inclusive, embracing
- Process orientated; The learning happens through experiencing the process
- Rests on quality of presence in individuals
- Willing to trust an idea: Hunches
- Focused on learning

Many people were involved in the Harvest Year as an extension of SGS. Without being clearly stated, it appears that many participants expected that these principles (The Model) form the philosophical foundation of Harvest Year as well.

Harvest Year, following the principles:

If Harvest Year had a failing, we would argue that the failure to hold onto the SGS principles resulted in a natural 'falling back' to rest on an 'old' paradigm. SGS Harvest Year was born out of a traditional agricultural research and extension environment. Traditionally research is conducted by researchers. Collation and analysis of data occurs in the years following data collection. Extension is conducted by advisors and consultants who may or may not have direct links to the researchers, after the results have been analysed. The producers – the end users are not involved in the research process. In recent years this model has been challenged with cooperative research and community action programs such as Landcare.

With the principles as outlined above, SGS challenged this traditional paradigm. With Harvest Year there was a loss of faith. In an attempt to gain recognition of the success of SGS, management focused on products – output. Management largely let go of the principles that we would argue had made SGS a success.

Producer driven:

MLA had faith in the expertise and vision of producers. The principle of being producer driven was repeatedly highlighted as an over whelming strength of SGS. *Producers keep the bastards honest. Keep the people focused on the target audience. It's good for MLA's credibility to have producers involved because when they get attacked (politically) they can say they incorporate producers – levy payers.* P.48. The importance of developing products for those who pay for them was highlighted. *Researchers don't like producers having a say over what they do. It's our money, we should have the say* P.222. *Producers have a license to get away with things… the producers kept the focus on what was relevant to the program* P.181.

One of the greatest limiting factors in Harvest Year was that it failed to hold onto the principle of being producer driven. *Producers keep asking 'what's going on'…. Producers are left out in the cold as part of Harvest Year, producers haven't had anything to do with*

Harvest Year. Why haven't producers had anything to do in Harvest Year, I thought they were the main driver and goal. S.94. The design of the products came from the management team. *They (Harvest Teams) didn't come up with the products. The list of products came from the management team.* P.330. It was top down. The strength of SGS was that the research was linked to what producers wanted (in most cases). With Harvest Year it appears that producers were 'consulted' but they did not drive the process. The collation of data and writing of papers was generally left to the researchers. *None of us (producers) were good at writing so the material went back to the technical people to write. It would have been good if the producers had been good enough and had time to write it up.* P18.

Producer to producer and producer driven were two phrases that kept arising during the interview process. These were some of the elements that made SGS unique and successful. Could the Harvest Year have had greater impact if it too had been driven by the needs on the ground?

Integration was a major theme during the Harvest Year. While difficult, it suggests a willingness to be open, to embrace the complexity and to find solutions that have integrity/sincerity across different systems. *Looking for generic principles was difficult. Large and small properties have very different requirements.* S.366. Integration of data in the cross site analysis sent shock waves through some. *Before Harvest Year the database wasn't finished, people hadn't entered their data or it was incomplete. MLA threw more dollars in. People had not had sufficient commitment. That's the reality. The decision to have the database refereed externally, to show the dirty laundry (sent shock waves). They were all worried about their own patch. We had to bring the whole thing together. Management and scientists need a strong commitment to the single approach to the database.* S268.

In the interview process, there was debate as to the effectiveness of integration between the teams. Some suggested that breaking up into Harvest Teams actually reduced the integration, others supported the model. *The breaking up of the Harvest Teams was sensible, if they were trying to interpret the theme outcomes. It was not sensible if they were trying to work out what was happening (or not) on producer properties and to design something to address the adoption of best practice.* C417. Some suggested that the breaking of issues into the teams went against the principle of holism. *Harvest Year wasn't holistic.* P.249.

If the principle of **integration** had been carried through the Harvest Year, perhaps the extension phase, the collation/analysis and research phase could be integrated. What if producers were asked to outline the products they would need to extend the information from SGS? What if producers were asked to drive the extension process and therefore the product development phase?

Real conversations, Empathy:

Participants suggested that SGS was more about supporting the learning in people than publicity. While SGS was focused on relationships, interactions and individual to individual exchange, the Harvest Year focused on developing generic products. The principle of real conversations was replaced with a focus on output which we would argue was driven by the desire for acknowledgment.

Multi-disciplinary and equality:

To bring a diverse group of researchers, producers and research organisation together to combine research ideas and data showed tremendous courage. *The idea of theme teams with researchers and a producer as the chair of each group (was great).* MLA management stepped into a new era. The Harvest Teams were a reflection of this principle, however interviewees often suggested due to constraints of time and geography, that the final analysis and writing of papers and reports was primarily taken by one individual. While the intention was for multi-disciplinary teams to work together as equals, in reality this was difficult.

The complexity of collaborative projects between different organisations was highlighted in contracts *I had a gripe with Warren about his expectations and what he was prepared to pay for. These extra expectations sneaked up. (for example) funding finished in July 2002 and yet I am expected to go to a meeting in Sydney in September. My salary is not paid by MLA.* Sc.441. The clash of cultures between organisations caused some difficulties. *I feel a lack of vision and energy in NSW Ag. Their way of doing business, they are not comfortable with working with others, they haven't had a real pain to cause them to re-invent themselves.* S210.

Reflection / feedback:

This review process is a formal reflection on the Harvest Year. Some saw this as positive and challenging while others felt the reflection processes during the Harvest Year lacked rigour. *They should critically review their performance. There is a lot of warm fuzzy and patting each other on the back because people became close and therefore found it hard to sit back and be critical of each other. In the review (of SGS) two years ago, some difficult questions should have been asked (and they weren't).* S.364.

Being forced to reflect on data was a challenge to some. *Harvest Year created a certain degree of discomfort. People don't like to be forced to look at data, they want to do it in their own time. It was like the Spanish inquisition for many. Many didn't respond well to that.* S.8.

Value Input:

This principle showed recognition of the value of each person, of different perspectives and ideas. Through the interview process it was clear that members were used to participating in forums, sharing ideas and being valued for their input.

Holism:

This principle reflects the desire for unity. It can be reflected in the move from the peg to the paddock to the whole farm in research, in the desire to include all high rainfall zones across Australia and the attempt to draw research conclusions that are generic across all sites. In the survey, respondents suggested that the Harvest Team approach broke things down too much, that it should have had a more holistic focus.

Evolutionary process:

This principle reflects the dynamism and fluidity of a process involving people. It recognises that each situation must be dealt with appropriately. It rests on values of justice and sincerity.

Interviewees express this in their comments that the process was evolving. *The trouble with Melbourne was that we didn't know what we were trying to do. We worked it out at the time* P.17.

The model allowed for the emergence of the Biodiversity and the Social and Adoption themes which have been discussed with pride. *No-one told us what to do, we put in our ideas, we had to be creative. The Biodiversity Harvest Team was not a straight track, it was a theme that emerged* P.13. This model allowed the themes and therefore greater depth of information to emerge. *If biodiversity hadn't been identified we would have missed all that information. It was an evolving thing from the regional sites* P.30.

Learning orientated:

This value expresses an interest in transformation and life. It suggests that organisations and individuals have a journey and can grow. Participants often revealed that they had gained learning from being involved, many highlighted the 'value for money' from working with other producers and researchers of 'high calibre'. However, learning was less important during Harvest Year than during SGS as the focus was on product development, not learning.

Willing to trust an idea:

Many people interviewed suggested that MLA 'had guts' to support a program that was new, innovative and undefined. The traditional research culture has had a long lag time in the release of research papers. The concept of hunches that came with the SGS model was hailed as a revolution. People liked it. Participants told of research only proving what the hunches suggested years earlier. *Go with the hunches. There is a need to move forward in a pace that the knowledge is coming.* P.230. *They (hunches) were published in a green book. They won't be any different from the results that are published in 5 years (from all the scientific analysis)* P.234. Some didn't trust that the producer hunches would be used. *I suspect that he (writing up report) will fall back on the traditional research mode and ignore producer observations in the final reporting* P.237. This culture clashed with the traditional model of proving results. *Integration team lost faith in the producers hunches and judgment, they lost confidence in being able to back producers' observations .The word litigation came up. (Then they said) if it's not proven - we can't back them.* P.231. New researchers asked *where's the data* P.231.. Others felt the 'hunches' lacked credibility. *Information that came out of the producer sites – gut feelings, it wasn't stuff you could base sound decisions on*. S.199. An irony in 'practice change' on the ground was highlighted by a producer who suggested that the scientists wouldn't publish the hunches, but that's what extension officers use as they travel from one farm to another. *There is a need for a bit more clout to be given to producer observations… extension officers do it all the time* P.251.

The SGS principles were the canvas on which the Harvest Year rested even though they were not formally adopted or agreed as the principles of operation. We would argue that it was these higher order principles that fostered the culture of 'doing more, giving more, being more' that was so often conveyed in the interviews. While it didn't embrace the principles, Harvest Year rested on the goodwill generated through the principles behind SGS. In summary:

- Heroism: Elevating producers to experts showed courage, as did tackling the entire Southern Australia high rainfall zone. MLA showed courage in putting resources behind a new idea.

- Faith: The evolutionary process showed faith in the teams and in the process, being producer driven required faith in the expertise of producers.
- Sincerity: Reflection and feedback showed the desire for sincerity.
- Justice: The focus on equality is a move towards the essence of justice.
- Devotion/openness: The openness, holism and willingness to put aside egos and follow the greater vision showed devotion, an embracing and a love of all life.
- Transformation / life: The willingness to change, the focus on learning and growth showed a commitment to transformation and life.

These principles form the culture in which the Harvest Year was executed. It can be argued that the greatest failure in the project was that the goal of the Harvest Year was product development. Harvest Year had the opportunity to increase the learning (for producers), to extend research (hunches) and to generate action on the ground if it had continued to embrace the principles behind SGS. While Harvest Year achieved products at a faster rate, we would argue that it fell short of its potential to improve sustainable grazing systems. *The model was OK, right at the end they threw the new model away and more of the old autocratic style was brought back.* P.258. *Warren didn't trust the model in the end, lost faith in the idea* P.237.

Why were good people involved?:

Throughout the interviewing process participants often discussed the value of a particular individual, often naming the qualities this person brought to the program. *The credit goes to Warren because he was prepared to think outside the square, he recognised deficiencies and was good at picking people. Warren should take the credit for pushing the SGS model.* P.173. *The teams that were successful were because of the leaders. Cam was very successful in getting the team to work* P.179. *Martin was leading the team at a cracking pace* S.83. *I enjoyed working with Ian… he was very approachable* C.183. *Our team worked well because we were well facilitated* P.137.

At other times, participants complained that processes were made difficult by individuals *At the Melbourne meeting our team was dominated by two or three individuals* S.198.

That SGS and Harvest Year attracted 'quality people' was a drawcard to others. *The people who are involved are (those that are) out in front, being with them was good learning. I'd come home from meetings charged, that kind of interaction is worth an enormous amount* P.2. *It was the right program at the right time, producers were ready. It was well planned and attracted the most outstanding producers* M.312.

A1.2 Individual Life Journeys

As highlighted, the success of a program is (at least partially) founded on the individuals within the program and the relationships between them. Individuals will not be involved within a program unless they see some personal benefit, professionally, economically or in terms of learning and growth. A program will not attract the type of people that can make it a success without a belief that the program will either foster them, nurture them, provide a challenge or

a learning vehicle. It must make a difference in their life. A successful program can stimulate or reinforce an individual in the following ways:

- **Vision, spirit, inspiration**: This modality can be where inspiration comes from. This holds the essence of an idea. It can hold a wisdom that can guide an endeavour and therefore generate principles to follow.

- **Facts and knowledge**: Thought is the vehicle for human communication, scientific research and mental stimulation. This modality is where we hold consciousness, thought and knowledge, where we structure processes and make plans. It can be the centre for judgement.

- **Communication**: The voice is the centre that holds the creative power of the 'word'. Through the 'word' people can make an impact in the world.

- **Empathy, relationships**: The heart centre is the vehicle for love. A desire to express from the heart can be observed through interactions. This modality is where our relationships rest. We collaborate and empathise or not from here.

- **Fun, will and creativity**: The 'belly' is the centre of dirty jokes, natural instincts and base desires. This modality can be used to create spontaneity, humour and the will to get things done. Without this, people are sleepy, lazy and uninteresting. This centre holds the vitality of an individual.

- **Power, resources**: Every human endeavour requires resources to 'power' it. Food, water, energy. This modality holds our force for life, our will to live and survive.

- **Place, sense of identity**: A sense of belonging gives purpose, structure and a modus operandi. If we know where we rest, we know what to do.

We would argue that the way these modalities are expressed in an individual is the foundation of the program. Individual life journeys are intimately bound up with a program. If the project fits with their life, an individual will accept a position. The individual in a program will each bring a quality of presence depending on their personal life stage, their desires and what they want. To understand why a program is successful, one can assess how it stimulated these qualities in each person.

Spirit –Vision:

SGS and Harvest Year stimulated participants' desires to be part of something that has a higher vision or purpose. *Working towards sustainable grazing systems offers something for future generations. I don't want the world to pass me by, I want to be involved in affairs - not satisfied with owning a heap. I want to make a contribution. If not - end up like Egypt (desert). I'm a greenie. Avert the demise of the human population. I don't have faith that we can - I want it for the grandkids.*P.236.

Participants highlighted the level of intensity that grew out of being involved with something that had vision. *I knew we were onto a really good idea but for it to take hold it had to be really successful* M.322. With Harvest Year this vision faded to be replaced by an functional

goal of product development. Perhaps this is why the interviewers got the impression that the sense of wonder is less in Harvest Year than in SGS.

Consciousness - Facts and knowledge:

Harvest Year particularly stimulated consciousness. Members who collated and analysed data had to work through complex thought processes and express ideas in a form that others could understand. The mental structures, timeframes, deadlines and organisational structures are a reflection of this modality.

The Word -Communication:

The products are a vehicle for communicating ideas. Harvest Year stimulated this modality as Harvest Team members collaborated on projects and developed ideas. Lack of communication between SGS and industry groups was a concern for some. *There was animosity between the Grasslands Society and SGS,(before) Paul came on as a representative. SGS felt secretive.* C.190.

Others felt that communication between the teams was limited. *In the Harvest Team there didn't seem to be a good mechanism for getting access to data. They had to rely on reports but couldn't get access to data from the other sites* .Sc.490.

The lack of awareness of the current picture could be seen as a lack of communication within Harvest Year. *I was the editor for the technical manual but I have no idea where it's up to (now).* S.419.

Communication was a key that would make or break the SGS Harvest Year. The products are communication tools, the programs are vehicles to communicate the information. However, it is evident that more effective communication would have lead to greater successes.

Internal communication was discussed as many people interviewed said they are largely unaware of what is occurring now. External communication was perceived to be lacking as people outside SGS have suggested it was 'an in club'.

Heart -Empathy, relationships:

The collaborative or team model for Harvest Year landed in an environment that traditionally works in isolation or in isolated groups. The interaction created by developing Harvest Teams provided a vehicle to share, collaborate, interact. Harvest Year allowed relationships to continue. Opportunities for people to come together fostered feelings of togetherness and strengthened bonds. Collaboration between researchers was repeatedly mentioned as a tremendous strength. It could be argued that this was one of the major strengths of SGS and Harvest Year. While products were the desired output, people interviewed repeatedly mentioned that it was the learning and relationships that they would carry into the future. *People were honest, we came from the heart. Our team had heart. The teams that weren't successful were ego based, ego overrode the total outcome and without good facilitation it was hard for those teams to function. As soon as people started working from the heart they wanted to get outcomes that we all wanted. People wanted to hear what they (each other) had to say.* P.148. People were attracted to being involved because they gained stimulation of the heart, relationships, friendships and empathy.

The Will - fun, creativity:

The spread of the program, while costly to get together was an inspiration to many. The sheer scale attracted attention. This quality appealed to the 'belly' of participants. People who wanted to be involved in something BIG, people who wanted to have an impact. Landing a new idea across an entire country (particularly the size of Australia) was ambitious to say the least.

The 'Will' centre is stimulated by challenge. Jobs that stimulate people to become engaged, excited, moving. Harvest Year provided a vehicle to express intellectual courage and creativity in the cross site analysis for the database. The teams provided a challenge for people who were traditionally used to working on their own.

Some respondents did not take up the challenge. Slow data gathering was considered by some to be dis-empowering and disloyal to the project. *SGS offered another 12 months contract and they are being disloyal and haven't done it (the work). Some may think it is jam for nothing.* S.96. National forums were haled as intense and rewarding, to boring. A comment on the Melbourne meeting highlights the boredom of a producer, *Having to sit through all that guff*. P. 218.

It appears that many people either were disengaged, continued to collect data or were directionless for the first few months of Harvest Year. For others, phrases like, 'under the hammer', 'my pants were on fire' were a reflection of the intensity of work required in the concluding months of Harvest Year.

As management and team leaders became aware that 'people were not using the database', that people hadn't finished collecting data and that many were not moving forward with writing papers, a massive reorientation descended from above. Management let go of the principles and introduced a structure for products, team leaders began to grab research and the intensity began. People were asked to comment on papers while they were writing their own. Scientific papers were not written when people were demanding research outcomes required for the development of extension products. The result was an extended timeframe. While Harvest Year officially finished June 30th many were still working on papers, Tips and Tools and the data.

During the interviews the discussion of this 'intensity' brought increased animation and excitement to the discussion. Many were concerned for the loss of information and a slight fear that mistakes may have occurred due to the need to: *crash through anything that held me up* S.83. However the intensity of the last few months of Harvest Year has generated enthusiasm and still brings a smile. This intensity appeals to the 'Will' centre. Participants who were 'under the hammer' had to exercise 'Will' to get results. They came alive, got creative and generally enjoyed the process.

Charge - Power, resources:

Personal needs can often derail a project that may be technically sound. MLA provided money to support not only some researchers' salaries but producers' time and meeting expenses, travel and workshops. By inviting husbands and wives to the Working in Groups course and to Albany, MLA addressed personal needs for family harmony and inclusiveness. These gestures can be seen as a reflection of the principles that are the foundation of the

Model. It was interesting that producers often discussed the involvement of their wives, and the importance of her involvement in the forums. SGS and Harvest Year had a huge impact on the personal lives of many producers. Researchers on the other hand, often commented that their wives knew nothing or very little of the program, that it had little effect in their personal life.

By supporting the Harvest Year financially, MLA provided a safe place, a space for researchers to analyse and distil data. This space allowed digestion and emergence of ideas. *The biggest need is creative time. It's not just assembling numbers and going through them in a functional way. If you don't have the opportunity to understand and distil them, - no worthy results, no long term valuable output, you only have busy-ness*. S.274. . With Harvest Year, MLA gave researchers time to digest the information. The regional committees also appreciated the financial support. *I said this is fantastic, we had our own bank account,(they said) do what you want, support the committee with dollars.* C66. Throughout the interviews it became apparent that this single act was the foundation for the emergence of outcomes. People felt valued. It gave them a sense of recognition and empathy with the world.

Place - Sense of identity:

A strong driver in life is a desire for belonging, to be part of something that is bigger than oneself. The Harvest Teams provided a sense of identity for people. By being allowed to choose what they were interested in, their identity was reinforced. Participants had a place in the program. Researchers, producers, consultants each had identified roles, each offered the perspective of their 'place' geographically. The structure provided by MLA nurtured this need for a sense of place.

Recognising the individual:

Throughout the program it appears that there was a natural understanding and stimulation of the modalities; vision, thought, word, empathy, will, power and place that make up a person. The principles of SGS supported these elements within individuals. During Harvest Year however, the loss of the principles meant these modalities were less obvious. While participants repeatedly told us that the individuals made the program, during Harvest Year there does not appear to have been a focus on the selection of people for roles or needs of individuals.

In SGS and in Harvest Year it was the individuals who made the difference. The lack of direction in the Harvest Teams was attributed to the fact that some of the leaders were selected on their technical competence not on their ability to guide a group of people. *People were selected because of their technical knowledge rather than their ability to facilitate a diverse group of people.* C.62. *The SGS model wasn't prescriptive but you have to have someone in the team with the ability to pull it together, someone with process skills.* C53. Repeatedly we heard that the lack of facilitation skills was an issue in some teams. *Our team worked well because we were well facilitated* P137. This was a reflection of the traditional research paradigm where scientific and technical knowledge are valued, not group process skills.

The desire for recognition, acclaim was not always well administered. Several people commented that their names were not going to be included on reports.

APPENDIX 2: RESULTS OF SURVEY OF PARTICIPANTS

A2.1 Scored Responses

	Producers n = 15	Scientists n = 24	Consultants n = 7	Mgt. Team n = 5
1. Time committed to HY	10%	43%	11%	49%
2. HY effect on: *				
- speed of product development	**7** (3-10)	**8** (6-10)	**8** (7-9)	**9** (8-9)
- quality of products	**7** (6-8)	**7** (3-10)	**7** (4-9)	**9** (8-10)
- your professional relationships / networks	**7** (5-10)	**7** (4-10)	**7** (5-8)	**8** (6-9)
- your skills / competencies	**7** (5-8)	**7** (5-9)	**7** (5-10)	**8** (8-9)
- you	**7** (5-9)	**6** (2-8)	**6** (4-8)	**8** (7-8)
3. Impacts of HY on: *				
- on ground action by producers	**6** (3-8)	**7** (5-10)	**7** (5-8)	**8** (6-9)
- research / researchers	**7** (6-9)	**8** (5-10)	**7** (6-9)	**8** (6-10)
- extension officers / consultants	**7** (5-9)	**6** (3-8)	**7** (6-9)	**6** (5-7)
- funding bodies	**7** (4-9)	**7** (5-9)	**6** (2-9)	**7** (5-8)
- networks / relationships	**7** (5-9)	**7** (4-10)	**7** (7-8)	**9** (7-10)
- knowledge / body of thought	**7** (5-8)	**7** (3-10)	**8** (6-9)	**8** (6-9)
4. Adequacy of HY Teams: *				
- representation	**8** (2-10)	**8** (4-10)	**8** (7-8)	**7** (6-8)
- skills / competencies	**8** (5-10)	**7** (4-8)	**7** (4-9)	**6** (5-7)
- integration	**7** (2-9)	**6** (1-10)	**7** (4-10)	**6** (4-8)

* Respondents scored their answer in the range of 1 (extreme negative) to 5 (neutral) to 10 (extreme positive). Average and (range) of scores shown.

A2.2 Suggestions for other Products that could / should be produced

By Producers

- Ideas outlined in Social and Adoption Harvest Team report.
- Guidelines / decision support tool for grazing management.
- An advanced PROGRAZE course.

- An accessible database for producers to look up what's been done, with a brief description of project activities and contact details.

By Scientists

- Producer site reports including a listing of producer hunches and observations.
- Tips and Tools on landscape management.
- CD with a farmer friendly summary of modelling outcomes.
- Video about SGS and the HY.
- Small brochures describing lessons learned at each national experiment site – targeted at producers.
- Environmental monitoring tools.
- Use SGS data to test and validate existing grazing models.

By Consultants

- Grazing management decision support tools for producers.
- A theme PROGRAZIER focusing on each SGS region, highlighting locally relevant systems.

By SGS Management Team

- Further investigation of across-theme integration (eg: between water and pastures).
- Farmer to farmer communications.

A2.3 Impact of Harvest Year on Future R&D Planning

Producers

- Difficult to tell, but hopefully positive.
- SGS and the HY demonstrated the importance of producer involvement in R&D.
- No apparent impact on planning of SGGS.*
- The HY identified needs and highlighted the importance of adoption in future R&D programs.
- Want to see a communication plan developed and resourced at the start of new R&D programs.

* *repeated response*.

Scientists

- We have a better knowledge of where the gaps are and have seen what has / has not worked.
- The AJEA special edition will share knowledge quickly and therefore provide clear direction for future projects.
- Created a model for speeding up research outputs.
- The HY demonstrated the need for time for data analysis as well as data collection.
- There has been a major missed opportunity for the lessons learned in SGS to be used to plan SGGS.*
- The getting together of different funding bodies to plan the next program, has been seen to be difficult and subject to politics.

* *repeated response*.

Consultants

- Good model created for future programs.
- Has identified gaps.

SGS Management Team

- Modest impact only.
- Has brought results together more quickly.
- The Social and Adoption framework will help future program design.
- A lost opportunity : the HY was expected to elucidate future R&D needs, but the broader focus of the proposed SGGS has distracted MLA.

A2.4 Who or What has primarily been responsible for the success of the Harvest Year?

Producers

- Producer involvement.*
- Warren Mason, Ian Simpson, Martin Andrew.*
- Cam Nicholson.
- The producer forum in Albany.

Scientists

- Martin Andrew, good at focusing theme Team outputs.*
- Theme leaders.*
- Warren Mason.*
- Greg Lodge, coordination of special edition papers.
- Producer involvement with scientists and consultants.
- The Albany meeting.
- MLA looked after people well.

* *repeated response*.

Consultants

- Significant funding from MLA.
- Harvest Team Leaders.
- Ian Simpson for direction of Tips and Tools.
- Warren Mason.

SGS Management Team

- Warren Mason.*
- MLA management showed commitment.
- Allowing the HY concept to evolve and change.

A2.5 Who or What was the Limiting Factor in the success of the Harvest Year?

Producers

- Loss of momentum towards the end.
- Lack of holistic focus.
- Lack of understanding of what the HY was trying to achieve.
- Time.*
- Lack of focus or process definition for Harvest Teams.
- Failure to capture full value from national sites, especially failure to follow up hunches, many of which were coming up from different groups.
- Lack of connection to an implementation plan.

* *repeated response*.

Scientists

- Pushed for time.*

- Lack of commitment to the HY early on.
- Getting researchers to fully explore their data.
- Some conclusions put out (in Tips and Tools, PROGRAZIER), before the theme analyses were done.
- Lack of clarity of data sharing issues.
- More attention needed on data management / preparation.
- Difficult for scientists to contribute to Harvest Teams and theme papers.
- Conflicting schedules.
- The input from themes and sites into Harvest Teams and extension tools was not planned.
- Lack of clear guidelines for Harvest Teams.

* *repeated response*.

Consultants

- Initial lack of process definition and clear objectives.*
- Lack of facilitation skills.
- Lack of time.
- Ability to resource the getting out of products in a timely way to extension providers.

SGS Management Team

- "Harvest Year" was a misleading name – contributed to confusion about goals.
- Time lines were too pressured, not achievable.
- Responsibilities of key scientists to both Harvest Teams and theme team activities (data analysis and publication) sapped their energy.

A2.6 Other Comments

By Producers

- Gained lots of experience and new friends.
- Harvest Teams may have been too big.

- HY meant more focus on developing the right products.
- It's too early to determine impacts of the HY on producers.*
- Harvest Teams were "chopped off" after suggesting possible products.
- Harvest Team approach broke things down too much; should have continued holistic focus.
- Technical manual would have taken at least five years without the HY.
- Concern about some topics or products being dumped because of lack of time.
- Need ongoing farm walks and publications to achieve full impact for producers.
- Group processes frustrating for some producers.
- HY products are irrelevant unless there is an ongoing delivery program.*
- Researchers really hummed when they broke down some of the barriers to collaboration.
- Jury still out on the quality of products.
- Unsure what the delivery mechanisms for products will be.

* *repeated response*.

By Scientists

- Collaboration across states was good.
- HY focused people on what had to be done.
- Tips and Tools came out too early.
- Producer impacts of the HY are hard to judge at this stage.*
- HY allowed researchers to maintain momentum.
- Across site analysis and publication processes have increased scientists' capability to look at "difficult" issues such as environmental aspects.
- There were challenging deadlines and pressures to achieve.
- Some trade off of quality due to tight deadlines.*
- Scientists learned more about using complex databases and legal issues re data ownership.

- Valued exposure to producers from other regions.
- Only the top producers were involved; some reservation about hitting the real producer market.
- Harvest Teams would have benefited from more conceptual skills.
- On ground impacts and practical change by producers are dependent on ongoing investment in using the tools.
- Having deadlines is good.
- Some disenhancement that some scientists have not cooperated fully under the pressure of pulling themes together – they went back into their comfort zones.
- Quality of some theme papers and other products compromised due to the need to conform to a middle ground (consensus) rather them exploring divergent issues.*
- The concept of spatial integration of results, has been new, good.
- Harvest Teams did not have time to explore whether data supported conclusions and the resulting products.

* *repeated response*.

By Consultants

- Good to interact with smart people.
- The HY created knowledge and resources which will be useful for other professional activities.
- HY products not yet available to producers.*
- HY potentially of most benefit to extension officers and consultants who need up to date information.
- Harvest Teams needed more facilitation and process skills.
- There must be investment in delivery of products to producers.

By SGS Management Team

- Researchers have been extended when taking the theme team approach; thinking has been strengthened.
- Harvest Teams did not have enough opportunity to communicate with others.
- Insufficient animal skills on Harvest Teams.

- If delivery of products is not driven, the producer impacts will be minimal.
- The mindset of some researchers has been changed but these changes could be overridden by the inertia and culture of their organisations.

* *repeated response*.