MEAT & LIVESTOCK AUSTRALIA

PIRD Strategic Review

Producer Initiated Research and Development

On

Final Report Edited for MLA by:

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PIRD
PRODUCER-INITIATED RESEARCH & DEVELOPMENT

People

"The inventor produces ideas: the innovator makes new things happen. ... The successful innovator is a *doer* – someone with imagination who can visualise the possibilities of an idea and who has a strong desire to see it realized in concrete form."

From 'The Innovators' William Davis 1987

"Realistically, what MLA can do with levy funds available is to provide the tools for individual producers to do things better. Creating the environment within which individual producers can become more profitable is what MLA is all about. ... There is so much in the Australian beef and sheepmeat industries R&D which is leading the world. ... it disappoints me that we are not actually taking up a lot of that technology. ... **Technology is adopted because it makes good commercial commonsense.**"

David Crombie, Chair MLA, FEEDBACK June. 1999

Introduction

MLA has commissioned a forward-looking review of the nine-years of PIRD activity.

Since 1993, the MRC/MLA Producer Initiated Research & Development Project has resulted in 125 completed PIRDs, 56 active and 51 new applications for 2001 – indicating an ongoing producer group interest. However, the pathway to a successful PIRD can be challenging, with a number not starting or being cancelled along the way.

An estimated 20,000 producers connected to Groups have had close or some contact with the meat PIRD scheme. Adding those who have observed PIRD progress and results at field days would expand this number to some 30,000. The application, interaction and approval process has been progressively refined by the Co-ordinator and PIRD Evaluation Committee, assisted by feedback from stakeholders and by independent evaluation of projects.

In this overall Project Review, MLA sought a broader understanding of flow-on changes arising from PIRDs and various returns on the PIRD investment – for groups and producers involved, for other producers and stakeholders, for MLA and the industry. The strategic review has been undertaken by:

- Developing an appreciation of the width and depth of PIRDs and their operation, and PIRD successes or difficulties from various angles, through review of reports, and records, and discussion with participants and stakeholders.

- Independent analysis of a range of *investment*, *worthwhile* and *return* measures. These elements have been identified from the original objectives of PIRDs and of MLA's R&D investment, from various stakeholder assessments on outcomes of a cross-section of projects and flow-on effects, and from the existing sets of PIRD evaluation reports.

This is a review of the MLA PIRD Program. In 1996, the wool industry joined the PIRD initiative with MLA. This extended to 2000/01.

Sandra Welsman May 2001

Contents

Thanks are extended to all who provided their time for lively discussions, and for the useful insights they contributed to this review. Also to PIRD participants generally for their open and interesting reports.

Overview and summary

The development of the MLA PIRD scheme, PIRD numbers, patterns and costings, and its evolution to a network, are considered in Section 1.

MLA investment in PIRDs is analysed in Section 2, including PIRD fit with the spectrum of MLA learning activities [2.1, 2.2], and policy, financial, people and R&D measures of return or leverage [2.3]. Views of a range of stakeholders are considered [2.4]. These lead into an assessment of the investment and its worth [2.5], and suggestions for the future [3].

PIRDS on balance – costs and returns

- **Demand:** ***A number of indicators confirm marketplace call for PIRDs or PIRD type, producer driven, activity supported by industry organisations.*** In a competitive arena for producer time and effort, MLA PIRDs have maintained a role and presence for nine years.

- **Cost:** ***Meat industry R&D has provided about $1,700,000 for PIRD activity*** over 1993/94 to 2000/01, or about $250,000 a year in recent times [Tables in 1.1].

- **Returns in summary:** Benefits have been direct – to both PIRD Group members and via communication and diffusion to wider local producer communities. Benefits to MLA and meat industry have also been achieved by leveraging the investment in the PIRD program [2.5].

Section	Measure of direct or leveraged return	Estimate of returns
2.3.ii	Collins Net Present Value calculated on 10 projects using results and reasonable adoption assumptions	**$11 million** NPV at 1998, from these 10 PIRDs only
2.3.ii	Conservative (and not easily verifiable) extrapolation to the 170 completed or now active PIRDs	Say, **$25-$30 million** return to group producers and wider adopters
2.3.ii	Contributions from Group members and supporters, estimated as at least $1.10 for $1 of total cost to MLA	**$1,870,000** over 1993 to 2000
2.3.iii	Producers close to or observing MLA PIRDs	**5,000** actively to **30,000** as observers
2.3.i	MLA Objectives, visibility, and goodwill	**Enhanced** diffusion to more levypayers
2.3.iv	PIRDs implement MLA and other R&D findings	Many **aligned with** MLA programs

- ***On the basis of the cost and return assessments summarised above, the overall MLA PIRD program would be described as successful and worthwhile.***

- It could be argued that returns from PIRD scheme investment as estimated above are speculative, unverifiable and place some weight on non-financial factors, and that returns primarily favour the PIRD group members ahead of other producers.

- These points are valid to a degree, both in relation to PIRDs and agricultural R&D and extension generally. However, without some tested adoption of the results of innovative research and development, the value of that R&D is essentially zero.

- Whether investment in PIRDs has been, and will be, worthwhile for MLA depends also on how MLA sees its role in moving information gained from R&D programs into adoption in sectors of the meat industry. At present, MLA is actively involved in a range of information transfer and learning exercises.

Looking Forward

In the course of this review, factors relating to the forward direction of MLA PIRDs were identified. Four strategy points, with suggestions for change are developed in section 3.1 for consideration by MLA.

i. ***Bring PIRDs closer to core MLA activity*** – clarify key PIRD elements (such as producer initiated and driven, local level knowledge and problem study, practical MLA interface with producers), then optimum positioning within MLA and in relation to MLA and other R&D.

ii ***Next stage – two PIRD streams, different expectations*** – PIRDs (focus on group members, more learning than research, smaller grants) and PIRDs (wider focus, clear links to science).

Iii ***More successfully completed PIRDs*** – without losing producer oriented strengths.

Iv ***Develop and harness the PIRD network and resource*** for utilisation by MLA, the industry, researchers, existing and future PIRD groups.

1. The PIRD Scheme – Key points

Producer Initiated Research & Development was started by the MRC in 1993 in response to producer interest to be more involved in R&D testing in their local conditions. Over the years, elements of the program have been clarified and developed. The objectives of MLA investment in PIRDs are indicated in the framework for PIRD eligibility [1.1].

- The project must be a producer group effort, and have direct value for the beef, sheep or goatmeat activities of the group members.
- Each project must have clear objectives and be practical and technically sound.
- Groups must be willing to share their information with others in the industry.
- The scheme is flexible. PIRD funding can offset direct costs of research or help with the cost of a facilitator or a reporting assistant. Grants can take group members on an educational, fact-finding trip or be used to engage a speaker for the group and run workshops.

The PIRD concept struck a chord, particularly with organised producer groups.

- From 1993 to 2000, 246 PIRD grants were approved, from 382 applications. 125 PIRDs have been completed, 56 are active, 43 did not start and 22 were cancelled after start. Targeted marketing efforts plus ongoing producer group interest have seen an increase in applications and in anticipated grants for 2001 [Chronology and tables 1.1].

- PIRD activity has also been well distributed across issue areas, from grazing to marketing. Cattle and sheepmeat producers are both served by the scheme, with proportionally more lamb producer groups. Goat producer interest is increasing. PIRDs are spread across all States and the NT, with interest growing in NSW and Queensland, less so in Victoria.

- Meat and Livestock industry annual investment in PIRDs has ranged from about $140,000 to $275,000, averaging around $250,000 in recent years. The 99/00 PIRD project investment of some $274,400 was 0.83% of the total MLA R&D expenditure of $33 million that year. On average, completed PIRDs received $5,230 each, and cost MLA about $9,400 each.

- Independent Beef and Sheep producer groups and production/marketing alliances, some developed specifically to carry out a PIRD, are the major users. PIRD applications centred through formal associations and their branches or networks is the next largest category. Landcare and Grazing Groups and Breed Societies are 'PIRD active' [1.1].

The PIRD scheme has evolved from an idea, to a program, to a network.

- From the start, the annual PIRD investment (under 1% of MLA R&D) has been decided via an independent evaluation committee with links to active producers and groups.
- Criteria and process have been refined over the years, using feedback and evaluations [1.2]. Structured changes range from Preliminary Applications through to 1999 KPIs and planned communications. Stability of staffing has assisted continuity in relations with stakeholders.
- Systematic evaluations of individual PIRDs commenced in 1995. Reports by Jim Lees give considered and useful assessments. These are summarised into a score on selected PIRDs against success measures. Specific reviews have also been conducted [1.3].
- PIRDs are widespread and diverse [1.1]. Problems are identified mainly by producer groups, with varying assistance, keen to investigate, try out and do something (for some at considerable time and effort cost). It appears that without the PIRD structure, more so than the funding, many of these practical problems and new ways would not be explored.
- PIRD activity is practically aligned with MLA and agricultural R&D (although PIRDs test older science as much as the cutting edge).

PIRDs are now a dynamic activity linking a range of stakeholders in the Australian red meat industry. PIRDs in 2001 continue to be creatures of the hands-on workplace. The program appears to be realistically structured and organised, reflecting its origins in direct producer contact. For producer-levy payers, a PIRD is a front-line point of MLA service. The stakeholder interfaces can be pictured as the network around a PIRD [diagram 1.4].

These positive points, plus suggestions of negatives (unsuccessful PIRDs, criteria openness, interaction of rigour and innovation, links with science and fit within MLA, and extent of demand – 1.4), need to balanced against PIRD objectives and costs [sections 2 and 3].

2. Analysis of MLA investment in PIRDs – key points

It could be clearer to describe the core PIRD activities as 'testing' and 'application'. On occasion, a PIRD might enter into new science. More generally, it is recognised that PIRDs are part of the research implementation pathway. The PIRD scheme is both simple and complex. Questions on the value of PIRDs need to be answered from various angles.

Achieving the uptake of new ideas is a core issue for much science, product invention, and marketing effort. Without use, profit is not realised from investment in R&D.

- How ideas spread in target communities has been subject to much study. Those wanting to achieve change, including researchers, marketers, governments, look to speed-up the spread of information and adoption of new ways from the leader-innovators through to the majority.
- Overall, the theme of extension is changing from technology-transfer to facilitating adult learning, with growing emphasis on (and results from) active user groups.
- MLA PIRDs are well-established, group based and essentially participatory R&D (or research testing and application). The PIRD formula has sound features, although some PIRDs are more successful than others, and questions of priorities, process and links arise.
- The power of group dynamics and participation has been verified by the PIRD scheme. Producer groups identify a problem and commit to 'testing' and 'applying' ideas. This also provides direct marketplace feedback to MLA and researchers on issues and interests [2.1].

MLA and MRC before it have progressed a range of information transfer mechanisms. These use differing techniques. All aim to communicate results of research & development plus feedback from marketing programs to producers and associates across Australia.

- Many of the features of PIRDS fit with concepts of hastening diffusion, successful adult learning and successful spread of innovations. In the main, PIRDs are initiated by 'the innovators' and 'early adopters' in a local producer community.

PIRDs are uniquely positioned in the spectrum of MLA extension investments [2.2].

Measures of return and leverage

MLA has reinforced that 'return' has multiple dimensions, as considered in this review. The expression 'leverage' is used variously but with an underlying meaning of achieving more outcome, return or effect, than the initial size of investment might suggest [2.3].

- MLA goals, programs and positioning in the industry are supported by the PIRD project. PIRDs fit with MLA objectives. They can extend the learning's from many current MLA programs and older research. PIRDs offer the opportunity to test, adapt and apply information from publications, courses, field days and workshops – the 'seeing is believing' factor.
- Awareness, culture change and goodwill are returns of value to MLA and the industry. Goodwill can be leveraged into support for more adventurous or contentious investments – and PIRDs appear to generate considerable goodwill [2.3.i].

Economic and financial returns are gauged using a number of reference points. As with other research programs, when looking at PIRDs it is reasonable to assess overall economic return on the basis initially of some of the successful exercises. (This does not reduce the need to aim for higher success rates in terms of projects and uptake of results).

- In 1998, DJ Collins calculated returns on investment on ten completed PIRDs. By 98/99 the total MRC funding of the PIRD scheme had amounted to about $1.2 million. Collins found that the net present value of the 10 PIRD projects totalled

over $11 million and that the investment in these would break-even at modest levels of uptake of outcomes [2.3.ii].

- The $11 million NPV projected for these ten projects alone would have returned MRC's total PIRD investment many times. Even with the imprecision of forward economic estimates, there is considerable 'room to move' in these return calculations.
- Extrapolating from the calculations on 10 projects, a return to producers and the meat industry of $25-$30 million on 170 PIRD projects appears a conservative (though not readily verifiable) estimate. Or, about 16 times the $1.7 million MLA investment.
- To this should be added the additional returns from active front-line MLA investment across the projects, including contributions from others, flow on effects, and plus awareness, culture change, goodwill and social benefits.
- On contributions: Using the 1997 year as a sample, it appears reasonable to work on the basis of at least $1.10 to $1 match. Inputs from PIRD participants and others more than equal MLA costs in running the PIRD scheme – a financial leverage of at least 110% [2.3.ii].

Return from MLA PIRD investment in terms of people influenced and practices changed can also be viewed a number of ways [2.3.iii].

- It is estimated that at least 30,000 meat producers in total over 1993-2001 have had some contact with the meat PIRD scheme (ranging from Group participants to field day observers).
- Of the 20,000 producers connected to the Groups involved with the 125 *completed* and 56 *ongoing* PIRDs from 1993 to 2000-01, around 5,000 cattle and sheep producers would have been active or close participants in the PIRDs.
- There are indications that 50% to 100% of completed-PIRD participants have and will make significant changes as a result of their involvement, where the findings indicate that changes should be made. Some will make smaller scale alterations. Few remain unaffected.
- The PIRD Group investment also 'leverages' into the wider producer community (the 70-85% of producers not reached by other extension). Over time, producers with similar problems who observe or hear about PIRD results should make changes. This would occur via communications efforts associated with PIRD Groups, and through natural 'diffusion' of useful information from PIRD innovators to the producer majority, a generally untapped MLA arena.
- A number of stakeholders commented on the potential to utilise the PIRD Group network (generally led by innovative producers) for interactive communication, identification of R&D priorities, and for hastening understanding and uptake of new ways. The network could be an active core for field-testing research in different environments, and a basis for larger scale producer led research – moving on to 'bigger things' [2.3.iii].
- However, it is equally clear that just 'supporting groups' and interaction could become a diffuse and costly proposition – setting the scene for considerable future criticism.

Some PIRDs do make new findings, but in the main PIRDs are testing and applying publicly available research. Such research might be MLA originated or backed or commercial science, recent or older. These features add to the 'positioning' of PIRDs as a hands-on, problem focussed research implementation tool [2.3.iv].

- There are some concerns about the need for stronger scientific interactions and advice. On the other hand, there are indications of further R&D arising from PIRDs.
- Some feel that PIRD funding is small and unlikely to enable a structured look at a problem. Here the leveraged value of PIRDs needs to be considered. Often the major MLA contribution is the PIRD process – the structure, guidance and timetable for work, more than the money.
- PIRD Evaluation Committee members consider that applications are becoming clearer with the research and communications aspects now well thought through by more Groups. However, some producers and groups have expressed concerns with the escalating requirements in PIRD applications and demands in running a trial

Overall, it appears that the PIRD Evaluation Committee and PIRD Co-ordinator have developed a realistic set of interfaces for the PIRDs of 1993 to 2001 – balancing producer-driven testing, scientific and research orientation with flexibility toward type of producer identified problem, and generally encouraging initiative while increasing rigour. However, some changes of approach might be considered for a next stage of PIRDs [section 3].

These points are reinforced by the collation of comments from stakeholders [2.4].

1 THE PIRD SCHEME

The Producer Initiated Research & Development scheme was started by the Meat Research Corporation in 1993. This was a response to producer interest to be more involved in R&D testing in their local circumstances.

In 1996, the wool industry (IWS/Woolmark Co) joined the PIRD initiative with MLA and introduced Wool PIRDs. Some 68 were progressed over 1996 to 2000/01. This strategic review is of the MLA PIRD Project. However, some wool PIRD experiences also provide useful understanding and are mentioned on occasion.

As stated on the PIRD website [www.pird.com.au], the PIRD facility was created to:

- enable cattle, lamb, sheepmeat and goat producers to conduct research and development to address everyday problems and find practical solutions
- enable producers to trial new technologies in their own environment
- support examination of local issues directly impacting on producer profitability and identification of possible solutions
- help producer groups undertake their own research and development on a grassroots level and incorporate findings into practical, profitable businesses
- support producers learning and working together on common problems
- allow producers to have control of some of their levies and to use them to solve their own problems.

Over the years, key elements of the PIRD program have been clarified. The objectives of MLA investment in PIRDs are indicated in the framework set out for PIRD eligibility –

- Any beef, lamb, sheep or goat meat producer group can apply for PIRD funding. The project must be a producer group effort (PIRD funding is not available to individuals)
- The project must have direct value for the beef, sheep or goatmeat activities of the group members.
- The project must be practical and technically sound. Each project must have clear objectives, with a means for achieving a successful outcome.
- Group members must indicate a significant personal commitment to the project. Members must be physically involved in the project.
- PIRD projects must be completed within two years, and groups must be willing to share their information with others in the industry.
- The scheme is flexible. PIRD funding can offset direct costs of research above normal farm expenditure or help with the cost of a consultant, facilitator or a reporting assistant. Funding can take group members on an educational, fact-finding trip or be used to engage a speaker for the group and run workshops.
- Groups are expected to seek sponsorship of consumables where possible eg electric fencing, fertiliser, tags etc. PIRD funding does not cover capital or animal purchases.

1.1 Nine years of PIRD inter-activity

The PIRD idea originated with Dr Ian McCausland, Meat Research Corporation (MRC), after consideration of similar activities overseas. In October 1992, the Producer Initiated Research and Development project was launched, promoted and first applications sought.

The concept struck a chord, particularly with organised producer groups such as branches of the Beef Improvement Association (BIA), breed and breeding Associations, and a number of commercial or consultant driven entities. From 81 applications in 1993, 31 projects were selected. Expectations of Producer Initiated R&D became clearer as this first round of selection progressed. ***Development has continued over the nine years.***

CHRONOLOGY of the PIRD Scheme

1992 October	First PIRD round launched and promoted. Gerald Martin as Co-ordinator.
1993 Feb 28	First round of applications closed. MRC Program manager: Gabrielle Kay.
1993 April	*PIRD Evaluation Committee (PEC) formed* (2 members from the Cattle Council, 2 by the Sheepmeats Council, the PIRD Co-ordinator plus MRC/MLA).
1993 May	PEC reviewed all applications, supported 31 projects for funding by MRC.
1993	*Standard Project Assessment sheet developed* for PEC use.
1993	*Basic PIRD Agreement document simplified* to 2 pages (from 8).
1994	*PEC started mid-term reviews* and October meetings. 3 PIRDs reviewed by each PEC member contacting the PIRD and reporting for PEC discussion.
1994	*Preliminary Application introduced* to encourage early contact with Co-ordinator
1995	*Reviews of subsets of completed PIRDs began.* For each year a set is reviewed by Jim Lees during operation and at completion, usually 3 years after start.
1995	PIRDs promoted at each MRC Meat Profit Day and continuing.
1995	Woolgrowers expressed interest in PIRDs. Discussions with Woolmark Co.
1996	The Woolmark Company funds pilot round of 12 PIRDs.
1996	Joint (Meat & Wool) PIRD program agreed. Co-ordinator Gerald Martin.
1996	Co-ordinator commissioned development of database.
1996	Journalist Don Story summarising final reports from 1993 for a public report.
1997	Woolmark Co. funds a full round of 36 projects. First meat SuperPIRD starts.
1997	*First Joint PIRD Evaluation Team meeting* (meat, wool).
1997	All future PIRD Evaluation and Mid-term meetings to have joint session.
1997	*PIRD website developed and launched.*
1997	*First Outcomes book* with D.Story summaries published for wider audiences.
1998	Effort to increase use of Preliminary Application Forms and early contact.
1998	*Joint Communication Strategy developed.* Updated each year for MLA-WM
1998	*Formal Key Performance Indicators* (KPIs) required of approved PIRDs.
1998	*Economic review of PIRD program* by David Collins.
1999	*PIRD Communication group* (WM-MLA) started. Regular phone meetings.
2000	Media Releases posted on website.
2000	*Second Outcomes book published*, prepared by Don Story.
2000	Outcomes stories posted on website, plus 'Ten Tips for a Successful PIRD'.
2000	Lees evaluations of 1997 PIRDs plus focus groups for participant feedback.
2000	Extra promotion in Queensland & Northern Territory trialled.
2001	Strategic nine-year review of MLA PIRD project.

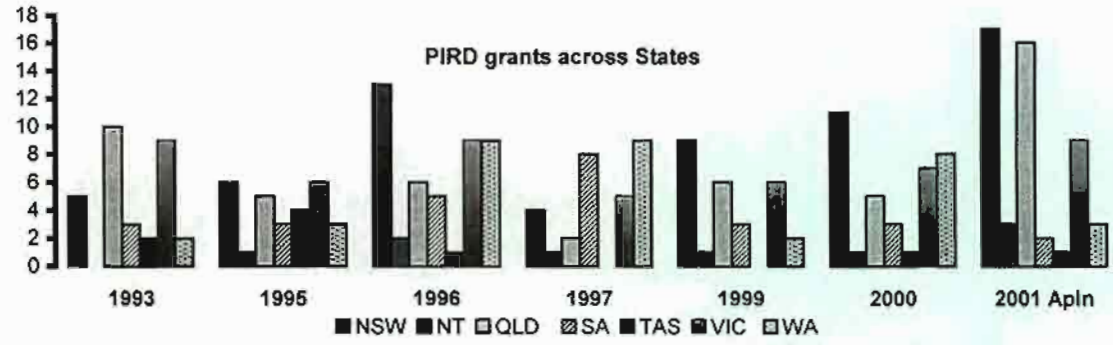
The PIRD program consolidated as it developed over 1994 to 2000. Targeted marketing efforts plus ongoing producer group interest have seen an increase in applications and in anticipated grants for 2001.

PIRDs	1993	1994	1995	1996	1997	1998	1999	2000	Total	2001
Applications	81	42	36	57	36	49	43	38	382	51
Grants	31	26	28	46	29	26	27	33	246	~35
Non-start	3	3	7	10	5	3	7	5	43	
Cancelled	2	0	1	10	3	2	2	2	22	
Active					3+1hld	9	17	26	56	
Completed	26	23	20	26	17	12	1		125	
(Cmp Unsat)				(4)	(6)	(1)			(11)	
Of grants										Applns
Cattle	15	12	10	24	13	11	14	13	112	25
Sheep	10	9	15	10	12	8	8	12	84	11
C & Sh	6	5	3	12	3	6	3	7	45	10
Goats							2	1	3	5
SuperPIRD					1 sheep	1 sheep			2	
Pasture Feed Grazing	9	5	7	17	8	8	11	15	80	16
PIRDs	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**Total**	**2001**
Cattle breeding	2	4	3	4	1	1	1	3	19	5
Sheep breeding	2	3	4	1	1	4	4	4	23	2
Animal prod	10	8	7	7	9	10	7	2	60	12
Farm m'ment										
Products & Marketing	6	4	6	19	10	3	3	6	57	6
Envr't Water	1	2					1	3	76	3
Feedlots	1		1						2	
Other										2

PIRD activity has also been well distributed across issue areas. Pasture, feed and grazing questions have dominated especially in recent years (reflecting efforts such as SGS and Prograze). Animal production, farm management and breeding are constant issue areas. Marketing alliance and product preparation PIRDs were particularly active five years ago.

Cattle and sheepmeat producers are both served by the PIRD scheme, with proportionally more lamb producer groups. Goat producer interest is increasing. PIRDs are spread across all States and the NT, with interest growing in NSW and Queensland, less so in Victoria.[1]

[1] Having observed fading interest in Queensland, in 2000 the PIRD teamed trialled a regional publicity effort utilising a Roma based journalist to report on PIRD results for local media (also in NT). Applications increased significantly in 2001.



PIRDs by State	1993	1994	1995	1996	1997	1998	1999	2000	Total	2001
Applications	81	42	36	57	36	49	43	38	382	51
Grants	31	26	28	46	29	26	27	33	246	
Of Grants										Applns
NSW	5	8	6	13	4	6	9	11	62	17
NT			1	2	1		1	1	6	3
QLD	10	3	5	6	2	7	6	5	44	16
SA	3	4	3	5	8	5	3	3	34	2
TAS	2	1	4	1		1		1	10	1
VIC	9	7	6	9	5	2	6	7	51	9
WA	2	3	3	9	9	5	2	8	41	3

Meat and Livestock industry annual investment in PIRDs has ranged from about $140,000 to $275,000, averaging around $250,000 in recent years. The 99/00 PIRD project investment of $274,400 was 0.83% of the total MLA R&D expenditure of $33 million that year. ***On average, completed PIRDs received $5,230 each and cost MLA about $9,400 each.***

MLA Investment in PIRDs

	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	Total
Rounded Dollars of the day									
Grants number	31	26	28	46	29	26	27	33	246
Active					3+1ssp	9	17	26	56
Completed	26	23	20	26	17	12	1		125
PIRDs spend $ compl/active/cancl	81,000	146,000	130,000	136,000	138,000	115,000	111,000	90,000	947,000
Management of Project, PEC[2] $	59,000	38,000	53,000	59,000	40,300	62,500	70,000	71,000	452,800
Project Evaluations $		7,500	6,200	10,500	14,300	14,300	20,000	40,000	112,800
Marketing & Communications[3] $				20,000	21,800	30,000	73,400	40,000	185,200
Annual Total for PIRD Project $	140,000	191,500	189,200	225,500	214,400	221,800	274,400	241,000	1,697,800
Ave. grant to cmplt or active PIRDs $	3,115	6,350	6,500	5,230	6,570	5,475	6,165	3,460	5,230 each
Average total cost per completed or active PIRD $	5,380	8,330	9,460	8,670	10,210	10,560	15,240	9,270	9,400 each

[2] From MLA figures. Includes Project Co-ordinator, PIRD Evaluation Committee. No MLA management costs.

[3] Includes Marketing, advertising, Project Outcomes reports, brochures, materials, communications, Meat Profit Days.

MLA *Annual Report 1999-2000* shows allocations of Research and Development funding. R&D investments during 1999-2000 totalled $33 million. Annual Report information, grouped to align with PIRD subject areas [first table in 1.1], indicates $6 million to pasture, feed, grazing and nutrition projects; $3 million to cattle and sheep genetics; $4 million to animal production/overall farm management, and $20 million to products and marketing.

The MLA focus is on returning value to levy-payers through marketing and R&D programs plus the associated implementation of findings. In 2000-01, MLA is progressing 30 programs within the planned framework of: building meat demand; product integrity, product and marketing infrastructure, and competitive supply.[4]

Patterns in 'group' involvement with MLA PIRDs are illustrated in the following table. Some groups are counted under two headings, while others are not included because they did not fit clearly into a category. The numbers do not add to 246 approved grants to 2000.

Independent Beef and Sheep producer groups and production/marketing alliances, some developed specifically to carry out a PIRD, are the major users. PIRD applications centred through formal associations and their branches or networks is the next largest category. Beef Improvement Association (BIA) groups across Australia are regular applicants – with 15 grants in all. Cattle and Sheep Associations and Breed Societies are 'PIRD active'.

[4] MLA *Annual Report 1999-2000*

	1993	1994	1995	1996	1997	1998	1999	2000	Total	2001
Grants	31	26	28	46	29	26	27	33	246	
										Applns
Farmer Assns State, branches				1		1			2	
Beef alliances producer grps	2	4	5	9	4	14	3	4	45	4
BIA Beef Impvt Assn/branches	1	2	1	6	3	1	1		15	5
Cattle Assns & Breed Socs	5	4	3	6	1	3	1	4	27	2
Cattle exporters							1	1	2	1
Sheep Assns, Breed Grps	1		1		1	1	2	4	10	2
Lamb/sheepmt alliances /grps	2	5	6	6	12	8	5	6	50	6
Grazing Grps incl.Prograze				1		1	1	4	7	
Landcare Grps	1	2		3	1	3	5	2	17	3
Environment Conservation	1		1	2	2	1	1	3	11	1
Ag Bureaus / Councils	2	1							3	
Keep in Touch (KIT) Groups			1			1	1		3	1
Farm Advance local groups	3	1	2						6	
Beefcheque grp							3		3	1
Beef Research Committees				1 Qld		1 Qld	1 NT 1 Qld		4	
Cicerone Proj							1	1	2	1
Angus Society			1		1					
Brigalow Beef								1	1	1
AAM Farm Adv	1	1	1							
Murweh Qld							1		1	2
Centre Plus			1	1					2	
Tagasaste Gps				1	2				3	
Traprock Wool	1		1						2	
Walcha Adv Ser		1		1					2	

In recent years, PROGRAZE and BeefCheque have prompted formation of specific PIRD groups. However, 'Farm Advance' as an impetus finished in the mid-1990s (at least one Farm Advance group PIRDs was cancelled). Various Landcare Groups across many regions have applied. Supported projects generally relate to grazing. Other Conservation and Environmental groups apply from time to time.

About twelve specific groups have completed second PIRDs and one group has completed a third, including those listed in the last nine rows of the table above.

1.2 How PIRDS are reviewed and managed

"MLA rightly expects some use of any other product that fits with a PIRD's aims. It is not a PIRD if it's really a Prograze course. [We] suggest they do Prograze then come back next year with a practical exercise. Others who have done the Prograze course [or BeefCheque] have the theory, now they want to get into practical operation and testing." *Gerald Martin, April 2001*

In 2000, a Top Ten Tips guide prepared by the PEC was made available to interested groups or leaders on the website and from the Co-ordinator. Prepared from experience gained in guiding, adjudicating and reviewing many PIRDs, plus feedback from participants and evaluations, this Guide also illustrates the expectations of a PIRD group and provides an outline of the Criteria and process (also set out in the Application pack).

The PEC looks for evidence of these elements in assessing the structure of proposed PIRDs.

THE TOP TEN TIPS
KEYS to a SUCCESSFUL PIRD

1 ***Clearly defined opportunity***
The group agrees that the target is important, will increase their bottom line if successful and they want to participate in trials

2 ***A clear measurable outcome***
Not too many targets, one or two measurable outcomes.

3 ***A leader/PIRD Contact person,*** who manages the administration and is in charge of the reporting to PIRD Coordinator. Six monthly reporting is an important part of the project to enable MLA ... to monitor funding benefits. Accounts must be approved by this person and sent to PIRD Coordinator for payment. The group's PIRD contact person has the ability to assess progress, is responsible for seeing the project runs smoothly and communicates with the PIRD Coordinator if changes need to be made. Some funding can be used for this important role.

4 ***Ability to develop a problem/issue into a project***
The best PIRDs start with a workshop planning session to increase group ownership and participation.

5 ***Professional help for trial design and analysis of data or facilitation***
Most PIRDs have some level of assistance from Agriculture Department specialists or private consultants

6 ***High level of member participation, physical involvement***
Trial sites should be spread on members properties, with members contributing their expertise and labour.

7 ***Group function and people skills***
Good group management, interaction and participation.

8 ***Effective leadership – some members of the group will "champion" the project***

9 ***Promote successful results locally***
Good local media contacts for the promotion of outcomes

10 ***Good outside support / contributions***
The group has organized local businesses, suppliers and consultants to assist the group with sponsorship and equipment donations.

CRITERIA for PIRDs (Grants up to $10,000 over two years)

The MLA PIRD Evaluation Committee formally considers and scores the following criteria for each application. These include consideration of the ten points above and general fit with industry, MLA and PIRD program objectives. The criteria below and notes on each, further explain the objectives, priorities and style of the PIRD scheme.

The question of setting PIRD topic list has been considered by the PEC. The principle confirmed is that key problem areas are to be identified by producers not the committee.

1 **The PIRD proposal has direct value for the beef and/or sheepmeat production activities of the group members.**

The longstanding expectation has been that the 'value' is to accrue firstly and often mainly to the group members. This has been set as the first measure for project selection and a benchmark for a successful PIRD. So, the intended results need to be identifiable and ideally measurable but the expected value of specific trial need not always be economically positive. The 'return' to the group from a single PIRD could be knowledge and understanding gained, initial practical testing of new ways, elimination of some factors influencing a knotty problem, and/or the cementing of an active group ready to take-on a next stage PIRD and/or further trialling on their farms. This is confirmed in the second criterion.[5]

2 **It has clear and achievable objectives and an indication of the benefits of a successful outcome.**

Manageable, achievable and reasonably measurable objectives are emphasised. The PIRD Co-ordinator and PEC work to focus proposals that Groups present with broad objectives. For instance, to 'reduce lambing losses' is an overall goal. A manageable PIRD objective could be 'to use scanning to separate a sample of twin bearing ewes, manage feed and compare lambing losses with control mobs, repeated on three properties'. The factors to be tested would be use of scanning and different feed management. Results should be measurable.

Defining a project with 'clear and achievable objectives' and a systematic methodology has been an obstacle for some groups interested in PIRD funding [refer below].

3 **It involves significant personal commitment from the group members.**

The concern is that PIRD applications are Producer-Initiated and Producer run. The PEC recognises the value-added by skilled outside guidance to a group in defining objectives and preparing an application plus facilitation of group sessions, and this help is encouraged. Leadership and management is expected to be the role of some of the group members (rather than an outside adviser or manager). Other group members should be actively involved.

It is expected that the PIRD will be based on group member properties and members will carry out most of the PIRD work (payment can be sought for bookkeepers, report writers, specialist measurers, advisers, facilitators).

[5] These notes reflect discussions with PIRD Evaluation Committee members, PIRD Co-ordinator and MLA managers.

PIRDs initiated or driven by consultants or Departments of Agriculture are discouraged. PIRD applications from Association officers can fall into a grey zone.

4 **It is practically and technically sound.**

A PIRD trial needs to make sense in terms of general scientific and practical understanding of the problem area but does *not* have to be focussed on the front-line of science. A successful PIRD might repeat trials elsewhere but in the local situation, or might gather and test 'older' research not trialled before by the producers in the Group. MLA and the PEC expect PIRDs to use current techniques where this fits (eg. Lambplan) and proposals contrary to established research or marketing directions would be unlikely to receive support. Trials need to be well structured, including control groups and repeats. PIRDs can also be study tours or workshops.

5 **Benefit to non-members is significant**

Potential benefit to producers locally (or more widely) but outside the group is important. PIRD proposals structured in a manner to commercially favour only a small group are encouraged to include activities that will publicise findings to other producers. MLA will also communicate findings of PIRDs through reports, FEEDBACK and publicity.

6 **Outside support is appropriate.**

PIRD scheme grants are targeted. PIRD funding mainly supports arms-length advice and expert assistance plus some record keeping, for get-togethers, communications, and some consumerables. Groups are expected to arrange donated products and loans of equipment where possible. MLA does not pay for capital equipment, fencing, troughs or the like. Consultants should be supporting rather than driving the PIRD direction and operation.

SUPERPIRDs (up to $100,000 perhaps more, two additional criteria)

7 **The Group must have completed a successful PIRD**

The Producer group must demonstrate capacity to steer, manage and 'bring in' a more complex and costly research and development exercise. Indicators include depth of group leadership and skills, cross-links to research and development activities and advisers, regular progress reviews, trial adjustment, account management and reporting.

8 **Application and benefit of knowledge gained clearly wider than the group**

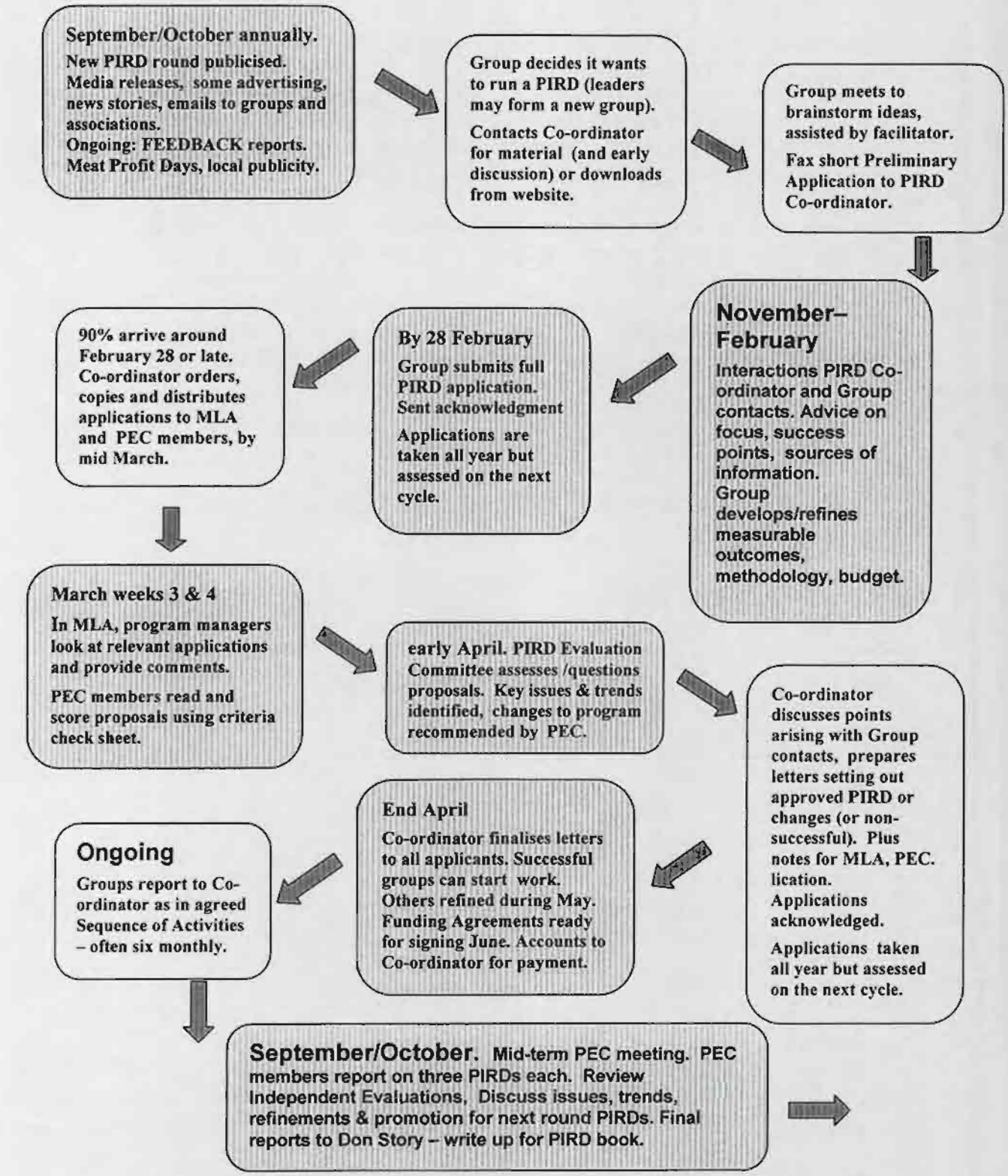
Potential benefit wider than the group need to be demonstrated in the PIRD objectives, trial structure, cross-links with R&D centres and communications plans. Benefit should have a practical and economic basis but can include less tangible outcomes.

There are two SuperPirds

Sheep Physical Traits. The Combined Sheep Producers project, based in Wellington NSW, started in 1997 and is active. This SuperPird is developing an objective system for describing type traits for all sheep breeds – to be deliverable across Australia by accredited Lambplan assessors.

WA Q Lamb: started in 1998, this SuperPird is run by WA Q Lamb Inc. and is based at Badgingarra WA. The Group is actively testing and demonstrating the value of current and new maternal breed genetics to produce quality, heavy weight sucker lambs.

The Annual MLA PIRD process



In mid-term reviews, PEC members investigate: General views, would the project have proceeded without PIRD funds; what have members learned; what are members doing differently; is the group stronger; size, structure and operation of the group; is financial benchmarking (Edge) or groups training (WIGS) considered; communications with co-ordinator; any suggested changes.

1.3 Reports and Evaluations

Structured review of selected PIRDs commenced in 1995. Mr Jim Lees of the University of New England Institute for Rural Futures has conducted assessments annually for MLA. The Co-ordinator and Evaluator select some 25% of each annual set of PIRDs for review from their start, during operation, and about three years later when most are completed. MLA receives formal evaluations 3.5 to 4 years after the set of PIRDs starts.

The Lees reports on 1996 and 1997 projects consider a cross-section of PIRDs. These are usefully illustrative of projects, group sizes, locations and relative success judged against a number of criteria. Jim Lees communicated with many participants in preparing the evaluations. This 2001 Strategic Review utilises the Lees reports plus other information sources [Appendix B]. To repeat the surveys was outside the scope of this review.

Final Report of the Assessment of the Performance of the 1996 PIRD Projects – May 2000

Some key features of the ten PIRDs from 1996 selected for assessment by Jim Lees: –

PIRD	Title	Group	Memb	Trials Sites and Communications	Final report	Link with MLA R&D
NSW	Summer active pastures	BIA & Prograze	20	Five property sites. Seminar, inspections, open field day, trip	May 1998	Prograze
NSW	Intensive breeding system (for data records, feedback)	Cattle group	7	A few sites. Six seminars, two open to breeders.	January 2000	Breedplan BreedObject
NSW	Farm Performance Monitoring and Analysis	Farm Management Group	77	Comparative analysis of data, 20 properties Two seminars.	September 1997	management programs
VIC	Summer Grazing Management	PROGRAZE Group	12	One property only. Group meetings. Info to Grp members. Grp started with PIRD and continuing	May 1998. Stopped after first of 2 trials	Prograze benchmarking
VIC	Improving Carcass Value in Bf Cattle (castration time)	BIA and cattle group	200	Five properties. Field days on 2. Expo display, press release	March 2000	various
SA	Tagasaste	Production group	10	10 sites, major field day (250) bus groups, news items,	November 1998	Tagasaste studies
WA	Beef Satellite Farms-extend best practice managm't	BIA	245	17 farms. Farm walks (600), press articles, grazing newsletter	June 1999	grazing Prograze management
TAS	Urea based Supplements	Consultancy group	12	12 sites. Results presented field days, meetings Tas & Vic	August 1999	feed supplements
NT	Establishing Native Pastures	Land District Conservation Assn	45		Project cancelled April 1999	
NT	Persistence of Preferred Species in Rain-fed Pastures	Landcare	80	Nine sites. Reports to widespread meetings, field days. Newsletter Uptake evident.	December 1999	MLA Producer Demonstration Sites

These 10 PIRDs were successful to varying degrees. The Tasmanian urea project produced results that were quickly applied. The NT PIRD produced useable and used results. PIRD money supplemented funds from Landcare and MLA PDS. The WA reached numerous producers – not all decided to adopt controlled grazing. The PIRD commitment of $7,750 ($100.00 claimed) was to supplement some $160,000 of inputs from BIA (WA) and Agriculture WA. The NSW Farm Management Group comparative analysis exercise – consultant led – faced conceptual difficulties. Other trials had practical problems.

By surveys of group members, discussion and analysis, Lees evaluated, for each project:

- whether information generated met the needs of group members (including whether the project nature and design would likely have generated the problem solving information sought)
- the extent of use of information from the PIRD by group members and by other producers to change the way they were running their farms (including changes in knowledge, skills, attitudes, aspirations and behaviour as result of some contact with the project)
- management of the project and involvement of group members and how this influenced benefits.

Lees' assessments of 'good' or 'reasonable' are shaded. ***By these measures, most of these PIRDs were positive in their conduct, in results and in actual or potential flow-on effects.***

PIRD	Title	Project Manage -ment	Group members involved	Extent of outcomes	Likely change in Grp practice	Potential benefits	Overall project operation	Overall Group operation
NSW	Summer active pastures	Good	Medium	Medium	Low	Medium	Fair	Fair
NSW	Intensive breeding systems	Good	High	Medium	High	Large	Good	Good
NSW	Comparative Analysis	Good	Medium	Medium	Low	Small	Fair	Fair
VIC	Summer Grazing Management	Good	High	Medium	Medium	Medium	Fair	Fair
VIC	Improving Beef Carcass Value	Fair	Low	Small	Low	Small	Poor	Fair
SA	Tagasaste	Good	High	Medium	Medium	Medium	Good	Good
WA	Beef Satellite Farms	Good	High	Medium	Medium	Medium	Fair	Good
TAS	Urea based Supplements	Good	Medium	Medium	High	Medium	Good	Good
NT	Establishing Native Pastures	cancelled						
NT	Persistence of Preferred Species	Good	Low	Large	High	Large	Good	Fair

Characteristics of a Successful PIRD Group: Lees assessed factors that appeared to be present in a successfully performing PIRD Groups (as distinct from PIRD trials). A number of these confirmed or added to the development directions of the PIRD program and criteria.

- Group members understand and generally agree with the mission of the project
- Members agree with the rationale and objectives of their PIRD project
- Frequency of group meetings adequate for organising activities and involving members
- Level of member involvement sufficient to engender ownership of outcomes
- Information generated can be readily applied on members' farms, will give productivity gains
- Responsibilities are shared equally among group members
- The Group gets things done and members can point to concrete achievements
- Group seeks and welcomes input from all members on all aspects of its operation
- The group has a life distinct from any particular project
- The group's existence is independent of inputs by outsiders (Dept Agriculture, consultants).

Final Report of the Assessment of the Performance of the 1997 PIRD Projects – March 2001

Most of the 1997 set of PIRD projects were complete by the end of 2000. Jim Lees carried out a two part assessment on 1997 projects.

i. Detailed evaluation of 13 projects, seven meat PIRDs, six wool PIRDs. The six meat PIRDs are detailed below (although feedback from and on all the PIRDs is valuable).

ii. Focus group discussions with PIRD scheme participants (two meetings, in NSW, Victoria).

PIRD	Title	Group	Memb	Trials Sites and Communications	Final report	Link with MLA R&D
NSW	Lamb Marketing – contracts v saleyds using feedback	Lamb Marketing Group	12	Information flow within group, local interactions	May 2000	Breeding terminal sires market chain
VIC	Ewe and Ram Evaluation – first cross v Merino ewes, Lplan sires	Prime Lamb Group	40	Many sheep, 2 sites. Results public. Local press, big Elmore Field Day viewing.	July 2000	Lambplan Wormplan carcass info
VIC	Earthworms and Pasture Productivity	Land Protection Association	22	30 farms. Limited publicity so far.	Suspended late 1999 due to dry seasons	Pastures
SA	Drench Resistance – tests, alternatives	Prime Lamb Group	10	10 properties. Clear results. Two public meetings well attended	June 1999	Animal health
SA	Beef Marketing – info on market specifications	Beef Group	21	Group meetings, speakers, open days, field days, wide net	November 2000	Prograze SGS Cattlecare market chain
WA	Kikuyu and Phalaris Pastures	BIA	17	Limited group contact Some BIA members at SGA farm walks	Not available	trials run with SGS program
WA	Beef finishing on Tagasaste – for live export	Prod'n Group – Beef	38	results public, science journal, 100 at 2 field days, Tagtalk, news	January 2000	

These PIRD groups were surveyed by Lees in June 1999 and November 2000, so the assessments have flowed through the life of the projects and are quite current. Ten criteria were used in this assessment of PIRD and Group performance. The shaded areas indicate positive or strongly positive assessments. Wider benefit and impacts were not always expected.

PIRD	Title	aims met	group oper'n	project oper'n	out-comes	likely change	wider benefit	group future	wider impact	overall project	overall group
NSW	Lamb Marketing	Some	Good	Good	Medium	High	Small	Certain	Low	Good	Good
NSW	Ewe and Ram Evaluation	Some	Satisf	Good	Medium	Medium	Medium	Certain	Medium	Good	Good
VIC	Earthworms Pasture Prod	Some	Good	Good	Small	Low	Small	Uncert	Low	Good	Good
SA	Drench Resistance	All	Satisf	Good	Medium	High	Medium	Uncert	Medium	Good	Satisf
SA	Beef Marketing	All	Satisf	Good	Medium	High	Medium	Certain	Low	Good	Good
WA	Kikuyu Phal. Pastures	All	Satisf	Good	Medium	Low	Small	Uncert	Low	Good	Satisf
WA	Beef finishing on Tagasaste	All	Satisf	Good	Medium	Low	Small	Uncert	Low	Good	Satisf

In summarising evaluations of 1997 PIRDs, Lees identified a number points for reflection.

- Even though Groups are usually led by experienced farmers, they generally over-estimate the achievable practical changes. This perhaps reflects a concern that if they set realistic targets the project might not receive PIRD support.
- All but two (wool) were well managed even where work was not shared or advisers changed. "In general ...for these projects good use was made of the funds provided" for the PIRD.
- For most of the projects the extent of outcomes was assessed as 'medium', meaning that outcomes achieved were significant for the Group (the key criterion). A 'large' outcome would be greater than expected and/or have influenced producers outside the group.
- As with mainstream research, results of a trial can be positive and useful without prompting changes in farm practices. For instance, some results confirm existing practices, others indicate there is not sufficient gain to be made to warrant changing.
- Nine of the eleven (meat and wool) PIRDs assessed as 'good' on overall performance received significant input from professional project managers (Dept Ag, CSIRO, consultants). "Making use of the knowledge and skills of professionals in the management and conduct of PIRD projects greatly improves the chance of a successful outcome."
- However, "where professionals play a significant role in the management and conduct of projects there will often be a reduced role available to the group members ... a trade-off between the success of projects and the success of groups".
- Calculation of precise benefits gained by the industry (or groups of producers) as the result of the PIRD program or PIRD projects is complex. Some benefits may be small and several years may pass before there is detectable return on investment. Other benefits are less measurable, including knowledge and experience gained (considerably so, for example, during the earthworm PIRD even though it is now on-hold).

Focus on the process of PIRDs

Jim Lees conducted two focus group meetings (NSW, Victoria) involving 17 people representing 11 groups in the 1997 set of PIRDs. The aim was tap the various experiences of the PIRD scheme and process and to assess whether the PIRD program was improving group members' technical knowledge, skills in problem definition and solving, and achieving practice changes. Issues and possible process improvements were identified. Lees' main findings were: [6]

- Groups sought more information before application on the expected life-cycle and reporting requirements of a PIRD.
- Completing the application was a difficulty, in particular framing the proposal, identifying measurable objectives, methodology etc.
- Administrative load appeared high and a burden to some Group members (although many making comments appeared to misunderstand what was sought of them).
- Where projects do not proceed as planned, these groups had difficulty setting up new project plans, getting them approved and moving. Participants suggested face-to-face access to a skilled person to assist.
- Some groups found responsibilities to publicise results onerous and felt MLA should do more to publicise the program and results to wider areas.
- Lack of interface between PIRD projects and related research underway. Producers felt there would be worthwhile pay-off for the industry if communication between researchers and farmers could be facilitated

A number of these points have been addressed in PIRD process changes (eg. website information).

[6] Meat and Livestock Australia: *Final Report of the Assessment of the Performance of 1997 PIRD Projects*, Jim Lees, March 2001.

Evaluation of 1999 and 2000 PIRD Projects
MLA has commissioned further yearly evaluations as proposed by Jim Lees.

a) Review of 10 projects from 1999 plus the use of Key Performance Indicators

Since 1999, for each PIRD approved for funding the Group has been asked to provide a simple set of Key Performance Indicators (KPIs) to the Co-ordinator before or at the time they start work. Some Groups struggle to provide KPIs, others have set clear targets. Issues include: assistance needed, being realistic, benefits outside KPIs (report June 2002).

Example of useful KPIs for a PIRD with focussed, measurable objectives

QLD	**Before the Project started**	**KPI target at end project**
Grazing	140 grazing days / hectare	240 grazing days /ha (as before problem)
	Ground cover less than 50%	Ground cover more than 70%
	5 perennial species frequency 12%	5 perennial species frequency 20%

b) Review of 15 projects from MLA 2000 PIRD set

This evaluation round will include: assessment of before and after KPI data; identification of changes group members have made to practices on their farms during the life of the PIRDs; assessment of changes in attitudes of Group members as a result of PIRD involvement; evolving of Group function, and assessment of what group members have learnt in carrying out the projects (Final report June 2003).

Economic Impact of PIRDs – Report by DJ Collins 1998
Ten PIRD projects were economically evaluated for MRC. A standard cost benefit analysis was carried out on each project [refer 2.3.ii for details].

> "The estimated return on the MRC's investment in each of PIRD projects was found to be very attractive from an economic viewpoint. The net present value of all projects totalled over $11 million." *David Collins 1998*

An Evaluation Strategy for PIRD Projects, 1999
MLA commissioned the Rural Extension Centre, University of Queensland, to develop a method by which changes in individuals attributable to their involvement in PIRDs could be gauged. This exercise progressed more toward identifying ways by which PIRD Group members could evaluate their projects for their reports to the PIRD co-ordinator.[7] Four types of PIRD were identified: Strong producer input; Strong producer input and experience; Undetermined producer input; Adviser led projects. Three methods of evaluation support were tested with Groups and assessed.

Workshops: 1 day evaluation training. Useful, interactive, but expensive (costs and time)
Printed Evaluation Guidelines/Kit: Used regularly by some, also for setting up projects. Cost-effective. Need to be well designed and to encourage telephone interaction.
Telephone support: Enables regular contact, lower cost, better if occurs routinely.

A formal PIRD Communication Plan was prepared in 1999. Prior to this communication efforts responded to identified needs. Communication and promotion is reviewed annually in advance of the October roll-out of a new PIRD round.

[7] *Development of an Evaluation Strategy for PIRD Projects*, Dr Kate Roberts, Rural Extension Centre Univ. Qld Sept 1999.

1.4 Evolution – from idea to program to network

From a concept in 1992, in response to a need, the MLA PIRD Scheme has developed into a dynamic activity linking a range of stakeholders in the Australian red meat industry.

The 2001 PIRD scheme, as it has been developed, might be described as a MLA program of sizeable scope, realistically structured and organised, reflecting its origins in direct producer contact, responsive and moderate in total cost.

Positive indicators include:

- From the start, the annual PIRD investment (under 1% of MLA R&D) has been decided via an *independent evaluation committee* with links to active producers and groups.
- *Criteria and process have been refined* over the years, utilising feedback and evaluations. Structured changes range from Preliminary Applications through to 1999 KPIs and planned communications. Stability of staffing has assisted continuity in relations with stakeholders.
- *Systematic evaluations of individual PIRDs* commenced about the time the first PIRDs were completing, and have continued. The reports by Jim Lees provide considered assessments. These are summarised into a score on selected PIRDs against 'success measures' [1.3]. The analysis, comments and summary tables, *read together*, provide a useful annual oversight of positives and issues with the PIRD program. Specific reviews have also been conducted.
- *PIRDs are widely spread around Australia, across a diversity of problem areas and across cattle and sheep producer groups* (with some goat PIRDs). Problems are identified mainly by producer groups, with varying assistance, keen to investigate, try out and do something (for some at considerable time and effort cost). It appears that without the PIRD structure, more so than the funding, many of these practical problems and new ways would not be explored.
- PIRD activity is practically aligned with MLA and agricultural R&D (although PIRDs test 'older science' as much as the 'cutting edge').

Suggestions of negatives arose from discussions –

- While a wide range of producers and groups are actively involved in PIRDs, a smaller but significant number have been associated with non-approval, non-start or PIRD difficulties.
- Assessment criteria are publicly stated but there is some feeling of need for more transparency on sub-criteria and assessing project applications.
- The PEC structure and interactive process might work against very innovative ideas.
- Application and start-up processes are becoming more rigorous. Some groups struggle with applications. Are there target producers? What is the role of external facilitators?
- Stronger lines from scientific research and other R&D to PIRDs are sought by some.
- There is need for wide communication of PIRD findings, but communication and promotion budget is sizeable. Would there be strong producer demand without such promotion?
- The PIRD scheme seems to be positioned as 'extra' to MLA mainstream activity, even though PIRD projects and results feature in FEEDBACK and MLA Annual Report.

These positives, and possible negatives, need to balanced against PIRD objectives and costs, as considered in sections 2 and 3..

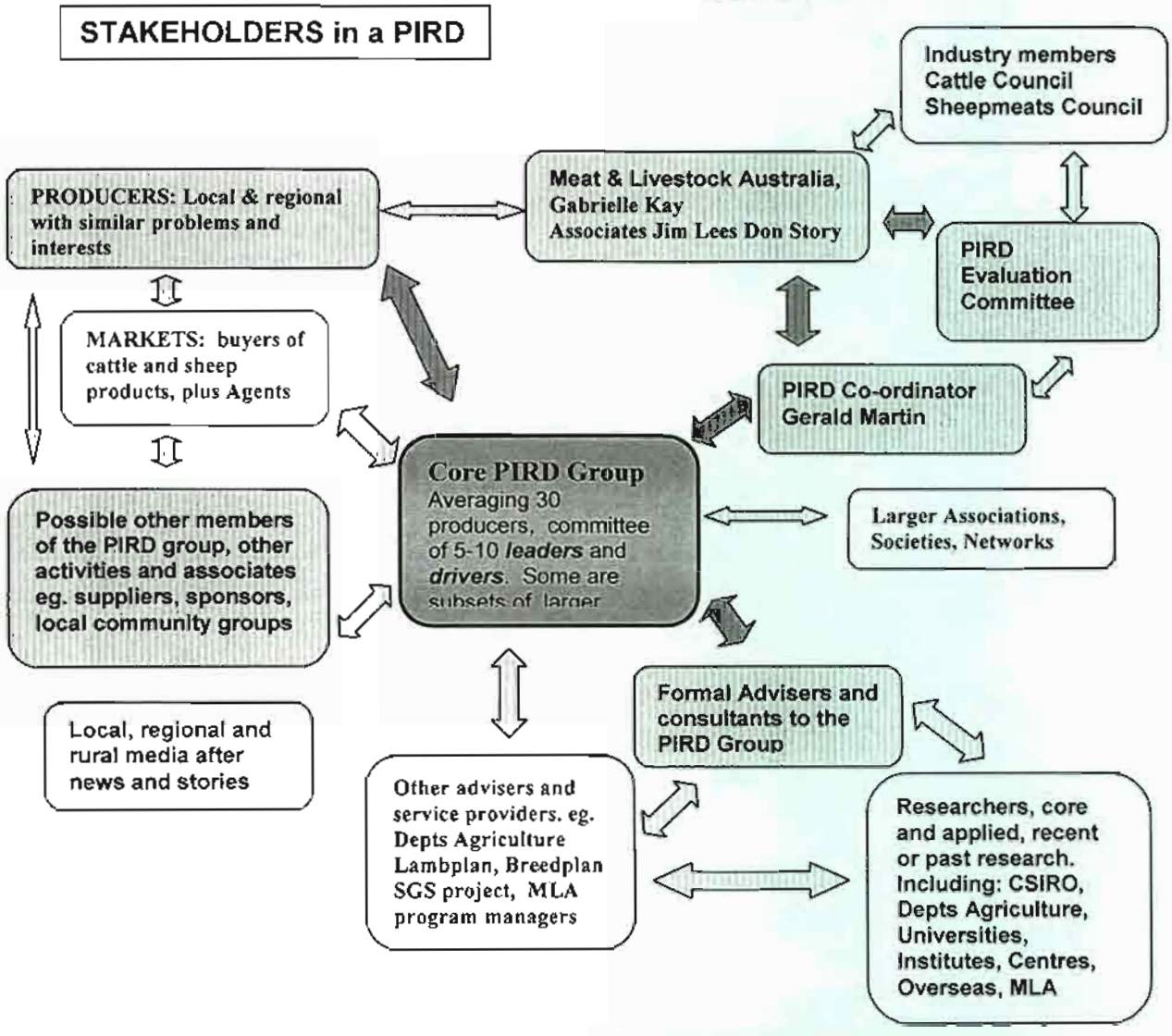
Significantly, PIRDs in 2001 continue to be creatures of the 'hands-on' workplace. To producer-levy payers, a PIRD is a front-line point of MLA contact and service. While some producers are familiar with the wide range of activities MLA progresses with and for the industry, many have limited contact with MLA. Some say that PIRDs are ...

"... seen as one of the few ways growers could derive a direct return for their levy funds".
Stock & Land 26 April 2001

Most are neither high profile nor contentious, but PIRDs have many interfaces. Investment in a single PIRD and its success or failure will usually affect a few, sometimes many.

The stakeholder interfaces might also be pictured as the 'network' around a PIRD. This is a structure for flow of information as well as a resource that might be harnessed where interaction with the front-line is sought.

STAKEHOLDERS in a PIRD



Such a network of visible activity with the meat industry constituency is one identifiable 'value' of the PIRD program and investment. Further measures of return-on-investment against MLA and PIRD Project objectives are considered in Section 2 of this review.

2 ANALYSIS: MLA INVESTMENT IN PIRDS

"The goal of on-farm research and development is to develop innovative tools and ideas that beef and lamb producers can use to increase income, reduce costs, enhance natural resources and improve quality of life." *MLA Research in progress, November 1999*

On occasion, a PIRD might enter into 'new science'. More generally, it is recognised that PIRDs are part of the research implementation pathway.

The 'research' elements of a PIRD investigate and test front-line research that originates from other organisations (breeding systems, pasture species, different drenches, management and marketing theories). 'Development' occurs in relating, adopting and applying ideas.

It could be clearer to describe the core PIRD activities as 'testing' and 'application'.

The PIRD scheme is both simple and complex. It aims to be straightforward in concept and operation. The bottom line for involved producers can often be expressed simply but there are important technical, industry, group and social interactions for participants as well.

"Unless a project offers the opportunity for those doing it to increase their incomes, they wouldn't do it." *PIRD participant, Lees report 2001*

Complexity also derives from the interfaces [diagram above] and from the factors that must interact when Groups carry out trials or exercises with a view to achieving positive outcomes.

Against this context, points such as the following raised by MLA need to be considered from a number of angles.

- What changes have occurred in groups and in group members businesses and practices since they have completed projects – attributable to the PIRD project?
- What leveraging has occurred?
- Have these changes been wider than the group and the group members?
- Would these changes have occurred without the PIRD project?
- Has the investment in PIRDs been worthwhile? Consider returns on investment.

Answers to questions on the value of PIRDs need to be analysed from various sources. In the annual evaluations, Lees has looked at some parts of these questions and gives useful reviews. Other reports provide economic assessments. Techniques used to enhance flow of R&D information and culture change to intended users need to be considered. Also, how PIRDs fit in the scheme of MLA learning activities. Insights should also be obtained from discussing MLA PIRDs and the points above with a range of stakeholders.

This section brings together information and considerations under the following headings:

- The spread of new ways
- A spectrum of MLA learning investment
- Measures of return and leverage
- Views: participants, advisers, producers, others

An overall assessment of whether the MLA investment in PIRDS has been worthwhile, and the range of values, returns, and costs, is provided [2.5].

2.1 The spread of new ways

Achieving the uptake of new ideas is a core issue for much science, product invention, marketing and industry development. Without use, profit is not realised from R&D investment. So, how ideas spread in target communities has been subject to much study.

'Diffusion theory' originated in rural science and sociology in the USA and has been used widely to explain the natural (social) transfer of ideas, fashions and technology. A feature of 'diffusion' is that change is often slow to reach a majority, even for ideas of real benefit.[8]

Understandably, those wanting to achieve real change, including researchers, marketers, governments, look to speed-up the spread of information and adoption of new ways. Studying a community (farmers, youth, teachers...) and categorising roles of different types of people in idea diffusion, then dissecting the learning flow process, can indicate what techniques might speed up change (advertising, education, trials, incentives).

Innovators and the diffusion of ideas

'Diffusion theory' studies have identified subsets of a community who might or should be interested in a scientific result, a new product or a new style. These groups are : – the innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%), 'laggards' and non-adopters (16%).[9]

The process of 'deciding-to-take-up-an-idea' has been described as follows:

Knowledge: People seek information *on how and why* an innovation applies to their situation ***Idea***

Persuasion: Adopters seek *evaluation information* which helps them understand the impacts of an idea and change on *their personal situation.* ***Consider usefulness***

Decision: Adopters make a decision to *adopt or reject* an innovation. ***Will try it out***

Implementation: Adopters *use, and possibly reinvent*, an innovation ***Test and adjust***

Confirmation: Adopters either confirm use or reject (*including later majority*). ***Keep using, refining***

Practical factors influence the trying of an idea, even by 'innovators' and 'early adopters', including

Compatibility: The degree an idea is seen as fitting with values, needs and past experiences.

Relative advantage: How much advantage does the innovation seem to offer over current methods?

Complexity: Degree of difficulty adopters feel they will have in understanding or using the innovation.

Trialability: The ease with which adopters can experiment with the innovation on a limited basis.

Observability: The degree to which the results of an innovation is visible to others.

So, overall, adoption is assisted by: high compatibility, high relative advantage, high trialability and observability, plus low complexity. For example: Uptake of mobile telephones in Australia.

Or, as observed by some who provided comments for this review:

[8] From *Youth Trends – An Amplifier presentation*, 2000: "Diffusion theory seeks to explain the uptake of new concepts or products. It is about how ideas spread from one person to the next. One of the classic studies was conducted into the spread of new hybrid seed corn in Iowa in the 1930s. The new seed corn, which was superior in every respect to the traditional seed, was introduced in 1928. But it wasn't adopted all at once. Of 259 farmers studied, only a handful had started planting the new seed by 1933. In 1934, sixteen .... In 1935, 21 more followed; the next year, there were 36, the year after, 61. ... by 1941, all but two of the two of the 259 farmers studied were using the new seed. In the parlance of diffusion research , the handful who started trying the new seed .... were the "innovators". The slightly larger group that followed them were the "early adopters" – the respected opinion leaders in the community. They observed the actions of the wild innovators and then did it themselves. The big bulge of farmers in 1936, '37 and '38 were the "early majority" and "late majority" – the deliberate and sceptical ... who would never try anything until the most respected farmers had tried it."

[9] References include a 2001 summary by David Jones, Faculty of Informatics and Communications, Central Queensland University of the theory developed in, E. Rogers (1995) *Diffusion of Innovations* (4th ed.). Rogers considered thousands diffusion theory publications to develop a framework to explain the diffusion of innovations.

"Top producers will track down information and go to elite sources. 50% will do this if it is very important to them. Most won't, and wait to be shown." *2001 PIRD group contact*

"It's human nature. The top 20% in a field are innovative. The rest need demonstration, need to see it working. PIRDs break into people's comfort zone." *PEC Committee member April 2001*

Successful extension of ideas through agricultural communities has been examined in various studies.[10] Given the importance of the 'spread of new ways' in rural sectors (as with other communities), many extension programs have been undertaken over decades. Some have been low key, some high profile and costly, with varying degrees of success. These have provided a lot of material for study.

Adult learning: key elements

The success of the 'Grasslands Productivity Program' (run by the Grasslands Society of Victoria 1993 to 1997) and the following Triple-P program, prompted JP Trompf and PWG Sale to look for the presence of 'key learning elements' in the structure of these extension exercises. They saw that:

"*The paired-paddock model resulted in marked changes in farm practices of the participants. ... Clearly, the adults involved in the program went through an effective learning experience...*".

Both programs involved forming 50 to 65 groups of 4-6 or more farmers plus paired paddock pasture and grazing trials on each farm (one control, one 'productivity' paddock using productive pasture technology). An industry funded facilitator provided technical advice and guidance. Each participant set up his/her paddocks and paid their own fertiliser, fencing and livestock costs. The small groups met informally on farms, or with the facilitator for discussion during the trials.

From a review of a range of learning studies, Trompf and Sale ranked 15 principles that, where met, should be expected to hasten learning and spread of new ways.[11]

1. Learning environment must be *comfortable and encouraging*
2. Learners must *actively participate* in the learning process
3. Learning should *build on local experience and use knowledge within the group*
4. Learning must meet the needs and *relate to the problems of the group*
5. Learners must have a *sense of progress* towards their learning goals
6. Learners must feel *a need to learn* [this element could be implied in 1-5]
7. Adults must learn what they want to learn and set their *own learning goals*
8. Learners must also be *involved in planning* their own learning experience
9. Learning must involve effective *two-way communication*
10. *Adults learn from each other*
11. Learning requires *frequent opportunity for reinforcement and practice*
12. Learning requires Action, Reflection, Conclusion and Planning
13. Learners must be *self-directed*
14. Consider that adults experience gradual decline in physical and sensory capacities
15. Consider that adults learn at different speeds.

The authors identified that all 15 elements were present in the 'paired-paddock' group trials. In particular, the small group, comfortable learning environment enabled two-way communication. Adults learnt from each other. The participants were required to be involved and participate by planning, setting up and managing their paddocks. They learnt and applied skills to a problem, and in doing so set their own learning objectives, *and they put the knowledge gained into practice.*

[10] There are large numbers of studies. This Review of PIRDs mentions only a few to provide context and assist understanding.

[11] JPTrompf, PWG Sale, *Adult learning: the essence of the paired paddock model*, La Trobe University paper 2001. From G Kay.

The Knowledge–> Persuasion–> Decision-to-try–> Implementation–> Confirmation path, plus key Adult Learning elements also fit with the notion of Continuous Improvement and Innovation (CI&I) developed by researchers studying these questions through the University of Queensland Rural Extension Centre.[12]

Their *Better Practices Process* has six steps for focussing thinking, action and creativity toward ongoing improvement and innovation. Alignment with PIRDs can be seen [underline].

Step 1 Situation Analysis
What are current practices & performance? Why?
What are current issues, needs, problems, opportunities & constraints?
Step 2 Impact Analysis
What will make a real difference to performance? Why?
How do I know it will make a difference to performance?
Step 3 Action Planning
What specific actions/practices can I implement?
How will I know if the action/practice is making a difference?
Step 4 Taking Action
What specific actions/practices am I implementing?
Am I recording if the actions/practices are having impact?
Step 5 Observing
What happened? Why?
What made a difference? Why
Step 6 Learning & Creating
What new questions & ideas do I/we have?
What new opportunities for action & improvement do I/we have?

These researchers seek to develop the capabilities within groups and individuals for ongoing "improvement and innovation", including through participative/multi-disciplinary R&D, and via networks (an organisation of individuals and groups who exchange inputs and outputs for benefit / purposeful outcomes).

Overall, the theme of communication is changing from 'technology transfer' to facilitating adult learning, with growing emphasis on (and results from) active groups.

> "There has been a change in extension ideology away from the "linear model" of technology transfer. This has resulted in a move away from linear 'top down' approaches from scientists to farmers, towards extension methodologies that emphasise information flows, adult learning principles and participation by stakeholders." *Marsh and Pannell, 2000* [13]

Participatory learning R&D has been described as 'cutting edge' in the eyes of many R&D professionals. A range of techniques that emphasise "importance of process versus technical tools", were identified in a 2000 review for RIRDC,[14] including:

- community workshops, with participatory tackling of some common problem
- on-farm trials: researcher designed/farmer run, farmer designed/farmer run
- interactive group visits, touring groups; and (well planned) farm walks.

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[12] R Clark, J Timms, A MacCartney, K Egerton-Warburton, N O'Dempsey, B Radokovich: *Achieving and enabling Continuous Improvement and Innovation: Focussing Action for Impact on Performance! – In a Team? In a Partnership? In a Network?*', 2001

[13] SP Marsh, DJ Pannell, *The New Environment for Agriculture,* A report for the RIRDC, 2000.

[14] R. John Petheram, *A Manual of Tools for Participatory R&D in Dryland Cropping Areas,* Univ of Melbourne, RIRDC project.

MLA PIRDs are well-established, group based and essentially participatory R&D (or research 'testing' and 'application'). The PIRD formula has sound features, although some PIRDs are more successful than others, and questions of priorities, process and links arise. PIRD activity also touches a wide range of stakeholder interests [1.4].

The power of group dynamics and participation has been verified by the PIRD scheme –successes or otherwise [section 2.4], and by aspects of MLA's experience with Producer Demonstration Sites and Beefplan Groups in Northern Australia, plus other reviews.[15]

> "This study confirms the strengths of small groups and adult learning, that is, learning by seeing and doing in achieving changes in knowledge, attitude, aspirations and adoption of technology. The study also suggests that while an individual may possess the attitude, knowledge and skill, adoption of new technology may not occur." *QPDI on PDS 1996* [16]

Larger-scale models include integrated R&D and extension exercises such as MLA's Sustainable Grazing Systems [below].

Such initiatives reflect increasing understanding of the value of managing and hastening the natural diffusion pathway when there is positive technological, management or marketing change to be implemented.

Producer groups identifying a problem and committing to 'testing' and 'application' of ideas, also provides direct marketplace feedback to MLA and researchers on issues and interests. Advertising and extension effort to 'passive audiences' can camouflage lack of real marketplace interest and reactions to some R&D outcomes.

Overall, agricultural extension has long presented challenges. However, in the continuum of MLA and other extension activities, PIRDs appear to offer a producer-problem oriented mechanism with some unique features for hastening implementation of R&D results [2.2].

> "What is known from [extension program] experience ... is that farmers are unlikely to adopt practices unless they are thoroughly convinced that noticeable improvements in enterprise performance will occur. Noticeable improvements in enterprise performance often result in significant benefits. Hence PIRD projects that have resulted in practice change by group members are likely to generate benefits and these benefits, over time, may provide a substantial return on investments made by the funding organisations." *Jim Lees UNE Inst. of Rural Futures 2001*

[15] Further evidence of Group dynamics supporting the extension of new ways was identified in a 1998 study. Membership of groups was related to adoption of sustainable farming practices. Those who adopted new practices were twice as likely to be members of brigades, landcare or farmer organisations. UNE Rural Development Centre, *The impact of farmers' participation in home study programs, local groups and wider information networks on the adoption of sustainable integrated management practices.* RIRDC 1998.

[16] QDPI Peter Smith, Dominic Marshall, *An Evaluation of the PDS Project*, June 1996.

2.2 A spectrum of MLA learning investment

MLA and previously MRC have progressed a range of information transfer mechanisms. These use differing techniques. All aim to communicate results of research & development plus feedback from marketing programs to producers and associates across Australia.

After decades of R&D investment, there is evident concern about producers (and other commercial operators along the supply chain) not moving to 'take-up' results to address their own problems and achieve returns for themselves.

> "[The Beefnet Conference] will involve a hands-on, practical series of workshops. We want real outcomes – practical answers to real problems." *Beefnet chair, Ian McKenzie. FEEDBACK May 2000*

"MLA [has] committed to provide levy payers with information designed to add value to their on-farm decision making process. Through a wide range of delivery channels – Meat Profit Days, industry forums, market reports, a series of on-farm publications, and electronic media – MLA has delivered mechanisms for industry participants to maintain close links with the market-place, and to enhance their business decisions." *David Crombie Chairman, Annual Report 1999-2000*

Meat Profit Days [MPDs] ***in regional centres*** [17]

Aims: To introduce new ideas. To ensure activities presented on the day are relevant, beneficial and can be applied at a national and local level.

Format: Producer initiated one day workshops. Programs developed by a local committee with working knowledge of the information red meat producers in their area seek. Speakers, workshops, displays. PIRDs often sought as a MPD topic.

Content: Talks (researchers, scientists, marketers), demonstrations of equipment or visible results (eg. steer trials). Open, letterboxed, invitations to cattle and sheep producers in a locality/region.

At May 2001: 21MPDs across Australia, ongoing. 400-500 attend each day, $30-$40 a person.

BeefCheque producer groups

Aim: To give farmers confidence to use grazing strategies for perennial grasses tested on a local focus farm, so to carry more stock. Grow more and use more grass, grow more beef, make more money.

Format: Collaborative MLA and Dept of Natural Resources & Environment (DNRE) Victoria. Project started 1996 with 15 beef producer groups across Gippsland meeting near monthly and using focus farms to examine grazing strategies and effects over years. Analyses financial and physical farm data to establish benchmarks. MLA financial involvement finished in 2000. Beefcheque groups continue to operate in Victoria.

Sustainable Grazing Systems [SGS], ***Prograze***

Aim: To focus on profitable and sustainable grazing practices, recognising natural resource management and pastures as key issues affecting the bottom line. SGS "aims to have producers visit the sites, take home an idea, put that idea into practice on their property and adapt it to suit their situation".[18]

Format: The SGS program is a multi-faceted research and extension program with producer input through a network of producer committees in 11 high rainfall regions. SGS Regional Producer Networks each have 8-10 on-farm demonstration sites 'run by farmers for farmers', assisted by a MLA supported facilitator and research scientists. The regional producers network is supported by a major research effort on both national research sites and local farms across the country and Prograze, the practical grazing management skills training program.

Content: SGS the research program reaches back to the early 1990s and integrates six key elements or themes – animals, pastures, nutrients, water, biodiversity, economics. PROGRAZE: a national training course to improve pasture management skills of producers , content reflects the SGS program research findings. Major revision in 2000 especially water aspects.

At 2001: 3,500 producers had completed Prograze by 1995-96, with 9,500 expected by end 2001.

A Prograze Update session is being offered through the EDGE Network.

[17] MLA FEEDBACK July 1999

[18] MLA FEEDBACK April 2000. The MLA investment on SGS is scheduled to total $11 million (over 1996 to 2001). Other R&D Corporations and Federal and State agencies are also contributing to 'significantly multiply the investment'.

"There are not many national solutions to producer problems ... that's where PIRDs come in. They are about people finding solutions for their own systems ... not great science ... designed not so much for research ... but for producer groups who say 'this is a problem, we need to move to fix it up." *Producer 2001*

"What we must do is continue to encourage producers to use the research results in a practical manner to address a wide range of pasture production and sustainability issues." *FEEDBACK April 2000, quoting MLA Chairman on SGS*

Edge Network workshops
Aim: To "give producers the tools to improve the efficiency of their livestock enterprises and to make business decisions with confidence in the future".[19]
Format: A range of practical, group based workshops, skilled facilitators, quality learning materials, a national data centre to compare industry figures and an interactive website.
Content: Producers, family and staff identify the topics to make the biggest difference to their business, make an initial investment, participate in workshop activities through the year.
At May 2001: Workshops available in all Australian States covering: feedbase/Prograze Update, animals, finance, business development, marketing and people modules.

Working in Groups [WIGs]
Aim: To support development of effective producer groups formed to represent interests, solve problems or introduce innovations into the farming business.[20]
Format: Two day workshop followed by one day review 3-6 months later.
At May 2001: WIGS was developed by MLA as emphasis on delivery of MLA through groups increased. Now provided commercially through EDGE. Found useful by 95% of producers involved.

A diversity of Publications plus Websites
MLA FEEDBACK, Newsletters (Prograzier, Lambplan), *Tips and Tools,* SGS Magazine, Guides, Factsheets, market etc reports. Websites.

Supporting Beefnet, formation of individual marketing alliances and Conferences [21]
Such as the Beefnet 2000 Conference with the aim of identifying options for progressing the 90 + beef producer alliances across Australia.

BEEFPLAN best practice groups: 5 groups, 10-15 people, working together to develop best practise whole property to market systems. Northern beef.

Specific Producer Study Tours and Workshops and extension projects eg. uptake of Cattlecare & Flockcare, Export Slaughter Intervals.

Producer Demonstration Sites [PDSs]
Aim: To increase awareness and the rate of adoption of technology by beef producers by supporting sites used by grazier groups in northern Australia as a focus for learning, promotion and adoption of a wide range of new technologies.
Format: Projects funded by MLA as part of the Northern Australia Program for past 15 years. Each site is controlled by a grazier group with an interest in the subject assisted by a facilitator from Qld Department of Primary Industries. For instance, a three property trial on supplements to lift fertility of first calf cows, a six site trial of early weaning, a total herd fertility trial at Mt Aberdeen station.
At May 2001: As each PDS is completed the PDS is being absorbed within the PIRD program. PDSs will conclude June 2001.

Producer Initiated Research & Development [PIRDs]
Aim: To provide a way for producer groups to adapt the results of scientific research to local issues affecting their businesses – by conducting field trials, demonstrating new technologies, engaging experts for educational or fact-finding trips, workshops, other activities.
Format: Up to $10,000 can be sought for a basic PIRD project, aim for two year operation, producer initiated and managed. Producer groups with successful projects might apply for a limited number of 'SuperPIRDs' – up to $100,000.
Distinction: PIRDs are close in operation to PDS and SGS regional sites but PIRDs differ from these programs in being fully driven by producer group identification of local problems, from soils, to grazing, to production, to management, to marketing pathway. PDS and SGS more researcher driven.

Note: This summary covers only MLA programs. There are large numbers of other extension, training and communication and group activities in the field, all competing for the producer's time.

[19] MLA MD Richard Brooks, Launch of EDGE NETWORK, FEEDBACK March 2000. Program developed jointly with Victorian Dept of Natural Resources and Environment, driven by a co-ordinator and a range of producers through a steering committee.
[20] MLA *On-farm Research Results* – New Products and Services for Beef and Lamb Producers.
[21] MLA *On-farm Research in Progress*, November 1999.

PIRDs originated in 1993 to fill a call to enable producers to lead and participate in their own the practical the testing and use of new ideas – linked where possible with scientific, management or marketing developments. Additional prompts likely included: –

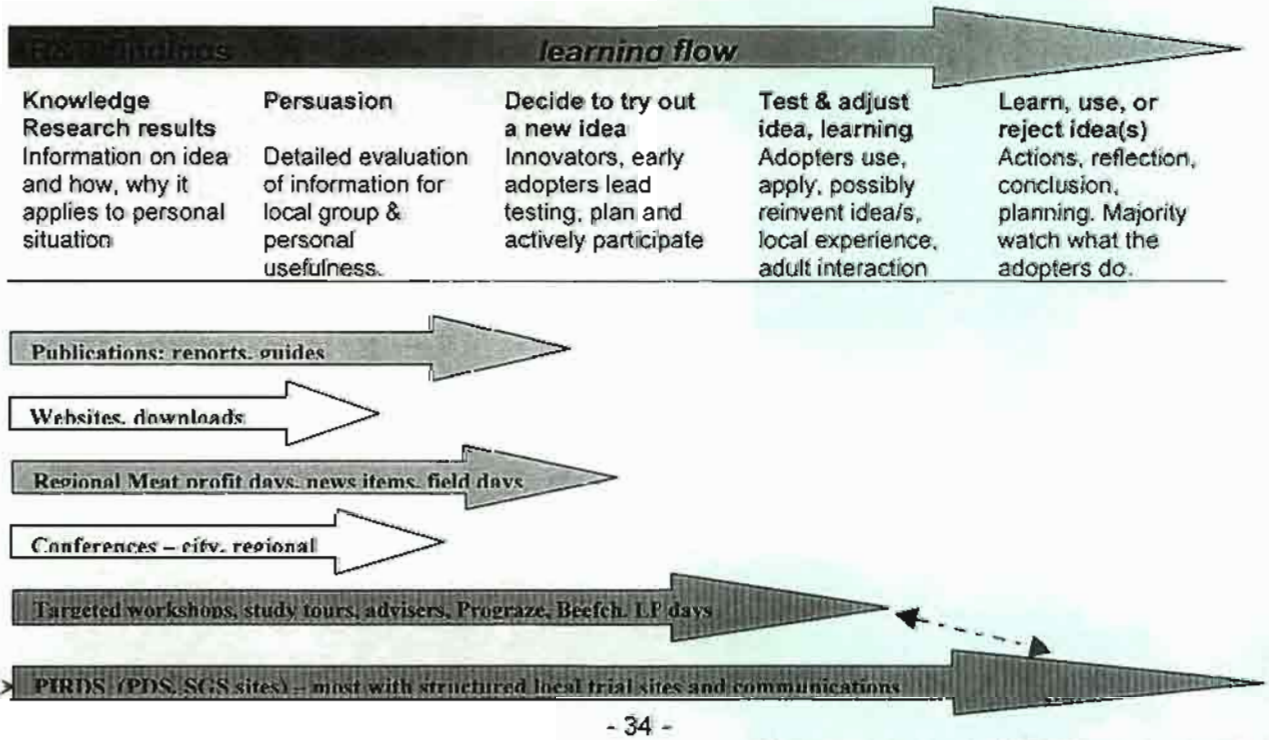
- differing local production and selling circumstances – R&D could cover all localities
- that many, even innovators, do not focus on research reports until their problem arises
- interest of existing groups to attract some funds to actively grapple with local problems
- desire of industry leaders to extend R&D, to increase uptake and farm profitability.

Many of the features of PIRDS fit with concepts of 'hastening diffusion', adult learning and successful spread of innovations.

In the main, PIRDs are initiated by 'the innovators' and 'early adopters' in a local producer community. ***Progressed well, a PIRD should enhance the uptake of R&D results and associated ideas by early adopters and some of the majority*** : –

- by extending *knowledge*, *persuading* in relation to local and personal situations, providing opportunity for *trying out*, testing and 'adjusting' (trialability),
- by demonstrating *compatibility*, *relative advantage*, and *results* (observability), and
- by *reducing the perceived complexity* of the change and ideas being promoted.

PIRDs are uniquely positioned on the spectrum of MLA technology transfer investments – the closest activities being PDSs (moving into PIRD scheme) and SGS sites. There can be direct uptake of new ideas from many sources, but PIRDs offer the potential for producer owned, planned and driven testing/observation. All adult learning principles can operate.



2.3 Measures of return and leverage

Investments of money, time, energy, creativity are almost always made with the expectation of a 'return', but the return may appear in many forms – some financial, some indirectly financial, some social, some personal.

Producer levy-payers, government and others contributing to MLA funds, expect returns. It is reasonable to assume that stakeholders expect a significant part the return on R&D investment (to meat industry and individuals) to translate into more profitable enterprises in due course. Again, profit can be measured in a number of ways (most could be turned into a 'value' in dollar terms), all influencing whether an investment has been worthwhile.

MLA has reinforced that 'return' has multiple dimensions.

> "The goal of on-farm research and development is to develop innovative tools and ideas that beef and lamb producers can use to increase income, reduce costs, enhance natural resources and improve quality of life." *MLA, Research in progress, November 1999*

Commercial organisations are moving from concentration on financial measures alone to taking a "*polyocular* view of how we assess performance – a view which looks at several sides simultaneously". In leading businesses, measuring performance by 'shedding light on processes' as well as targets and targets, supports their planning for a profitable future.[22]

There are parallels for industry investment in forms of R&D and assessment of performance. Agricultural R&D with its wide range of stakeholders, is by necessity ahead of the 'polyocular field' – in planning, and assessing in returns, many factors are considered .

The expression 'leverage' is used variously in commercial and scientific circles – but with an underlying meaning of achieving more outcome, return or effect, than the initial size of investment might suggest. Leveraging could be described as building a 'bigger footprint'.

So, leverage in the stockmarket: 'By purchasing options rather than fully paid shares an investor can buy a larger volume of securities for the same capital outlay'. Or in scientific investment and its flow-on commercial development.

> "With its user-guided priority setting, a developing R&D investment culture, growing commercial professionalism, and proven capacity to partner with others to form Australia's best teams, CSIRO is a cornerstone of Australia's innovation system. Our aim is to *leverage* these assets and attributes to maximise the return on public R&D investment to Australia." *Charles K Allen Chairman, CSIRO Strategic Plan 2000-2003*

Returns and leverage from PIRD investment are considered below from four angles.

- MLA goals, programs and positioning in the industry
- Economic and financial
- People and practices
- R&D, science and networks.

[22] Neil M Glass, *Management Masterclass Chp 3. A revolution in performance measurement*, 1998, London

i. MLA goals, programs and positioning in the industry

PIRDs fit with MLA objectives. Achieving uptake and profitable use of meat industry and other associated R&D – whether new or from years past – is a stated MLA objective. The PIRD concept has a unique and useful position in the MLA spectrum of communication [2.2]. PIRDs are able to fulfil many adult learning needs. Further, it is reasonable to assess that most PIRDs, even those judged less successful, do contribute to the knowledge levels of participants, who are often local leaders, innovators and at the forefront of new ways [2.1].

PIRDs extend the learnings from many current MLA programs and older research. PIRDs offer the opportunity to test, adapt and apply information from publications, courses, field days and workshops – the 'seeing is believing' factor.

MLA programs are 'behind' the trials in many PIRDs or link into a PIRD, as seen in the South West Prime Lamb project [2.3.iii] and in tables on 1996 and 1997 PIRDs [2.3, Appendix A]. The PIRD Evaluation Committee aims to relate PIRD projects to current or prior R&D programs. Links are often strengthened by the PIRD Co-ordinator during interactions leading up to application and on request of the PEC before formal approval

> "There are a lot more introductory courses available nowadays ... we recommend to a lot of groups that they do Prograze, or now Edge Nutrition, up front [not as a PIRD]... then to come back ... PIRDs are producer initiated *R&D* ... once they have done a course can move along much more strongly on a PIRD ... some groups are very knowledgeable ... PIRDs will support EDGE courses ... have the basic knowledge to try a PIRD out." *PEC Committee member 2001*

While some producers do make changes on the basis of written or workshop information, for groups and individuals, PIRDs fill a common need to try out and test the local usefulness of innovations and to move toward using new ways. *Arguably, a part of the return to producers and industry attributed to programs such as PROGRAZE, LAMBPLAN, BREEDPLAN and now EDGE, should also be credited to PIRDs.*

Awareness, culture change and goodwill are returns of value to MLA and the industry. Involvement of more producers in MLA-backed activities increases MLA visibility and perhaps industry cohesion. PIRDs are initiated by producer groups, widespread and visible.

> "It was incredible how far people were travelling to catch up on these fertility issues [at a PDS]. There was a really genuine interest in chasing tools to get some productivity improvements, ... it is such a widespread problem. Cattlemen in this area ... respond well to seeing those strategies in place in a commercial enterprise." *Steve Norman, Mt Aberdeen PDS, FEEDBACK March 2001*

Goodwill can be leveraged into support for more adventurous or contentious investments – and PIRDs appear to generate considerable goodwill. All MLA activities aim to benefit the producer, often through flow-back of returns. However, this can seem far away to producers, especially innovators keen to 'do something' by testing and applying research to problems.

> "[PIRDs give] groups of producers the chance to access relatively small amounts of their research dollars to tackle mainly local and regional problems. ... [they] surely need access to at least a small slice of their overall research funding effort so they can directly influence research spending into areas they consider important." *The Land*, Editorial 3 May 2001

> "I agree with the young man [at the AGM] who said 'there has been nothing there that has put any money in my pocket'. Ditto for our family or business." *Linda Hewitt producer FEEDBACK 1/99*

ii. Economic and financial

The Centre of International Economics recently calculated the expected returns of most active MLA R&D programs. CIE used computer models to calculate potential benefits "given reasonable assumptions of the impact of [each] program and probability of success". Estimates of success and adoption probabilities and timing were obtained from discussion with MLA general managers and senior managers.[23] CIE identified four ways an R&D program might "contribute to the prosperity of the beef and sheepmeat industries":

- improvements in on-farm productivity and/or reductions in farm production costs
- improvements in productivity ad/or reductions in production costs in activities in the beef value chain beyond the farm gate – lot feeding, processing, selling activities etc
- improvements in perceptions of product quality (in broadest terms) which register as improvements in demand in domestic and overseas markets; and
- improvements in access arrangements in export markets.

On PIRDs, CIE wrote:

> "PIRD funding to undertake on-farm R&D ... has been directed at a large array of highly localised problems. The amount of PIRD support is small (up to $10,000 over 2 years / project ... combined with in-kind contributions from the producer group involved).
>
> ... A reading of the June 2000 PIRD report on activities for suggests that some PIRD projects yield useful information to the producer groups concerned that will enhance the performance of their farm enterprises. However, the projects are far too numerous, fragmented and small scale in terms of the size of the problem being addressed and the average of beneficiaries to enable judgements to be made about their contribution to aggregate industry performance. We therefore do not simulate any gains from the PIRD subprogram."

Conceivably, the returns from PIRDs do not fit readily into an economic model. However, the fit of PIRDs with principles of successful adult learning [2.1, 2.2] plus the linkage of PIRDs with producer innovators, and with past, present and likely future R&D programs, suggest that the economic value of PIRDs should not be lightly dismissed.

Productivity increases or cost reductions materialise not with publication of R&D results or with workshops but with application of (tested and adapted) R&D findings on farms or in marketing and so on. CIE calculated significant returns for a number of MLA programs that have interfaces with the PIRD facility. Though larger programs these provide some indicators for also gauging economic return from PIRDs.

R&D Program	Target Producers	Assumed adoption	Assumed success, Assessed forward impact
Grazing Systems South – Prograze *$128 million payoff*	All southern Australia high rainfall graziers (say, 40,000)	9,500 attend courses by 2001; 7,400 had attended to 2000	50% of participants achieve 20% increase in pasture productivity, additional 14DSE, (or 10% lamb producers get 20% pasture gains)
Edge Network suite of learning activities *$44 million payoff*	18,000 beef specialists 12,000 lamb specialists	2,700 15% 1,800 by 2002	Prod'n costs down 18%, for 2.8% cattle; So industrywide unit prod'n costs down 0.35% Assume 0.35% reduction lamb prodn costs
Meat from woolsheep *$26 million payoff*	wool producers selling 5 m Merino lambs p.a	25% adoption	extra $6 a head, industry gain around $7 million a year
Lambplan *$21 million payoff*	21,000 prime lamb businesses	25% adopt'n (5,250 breeders, producers)	Adopters will achieve 1% increase stocking rate, 4% increase income, $1639/farm p.a.

[23] Centre for International Economics [CIE] for MLA, *Evaluation of benefits from MLA programs*, 2000.

Notably, it is not assumed that R&D outcomes will be largely adopted across an industry or a sector. This is a key point from the CIE report and the examples above. Many factors intervene in uptake of R&D beyond the logic of the new idea itself.

So, it is generally understood that there is real risk of non-success in every research or development project – in the science or in market research, and in adoption of outcomes. Potential benefit for industry or individual stakeholders is generally calculated on an assumption of success. This does not always occur, or it occurs in part. Return on investment in a R&D program is usually calculated on those parts that did succeed, with failures accepted as a normal hazard.

When looking at PIRDs, it is reasonable to assess overall economic return on the basis initially of some of the more successful exercises. (This does not reduce the need to aim for higher success rates in terms of projects and uptake of results).

In 1998, DJ & BA Collins calculated returns on investment on ten completed PIRDs started 1994 to 1996. By 96/97, the total MRC funding of the PIRD scheme had amounted to some $750,000; by 98/99 about $1,180,000 [Table in 1.1]. Collins found that "the net present value of [10] projects totalled over $11 million [and] the MRC investment in the ten PIRD projects would break-even at very modest levels of uptake of PIRD outcomes".[24]

PIRD and final grant	Results and communication	Group adoption	NPV[25]	IRR
WA Lamb Group Use $7,854, two years	Net gain using crossbreds $34 per ewe, or extra $9.50 profit/hectare compared to Merino ewe (wool, lambs, ewe costs). Displays at 4 field days.	16 producing prime lambs, 6 using Finn/Booroola	$ 34,000	20%
SA Prime Lamb Marketing $9,210, two years	50c/kg average premium for lambs over 20kg. plus skin value up. Minus supplementary feed costs. Net gain $20 per lamb.	Part of 28,000 lambs group sells a year, but breakeven at 1%	$ 700,000	192%
VIC, BIA $9,662 contribution	More co-ordinated approach to reporting performance information, increase genetic gain 0.1% pa. Communication efforts patchy.[26]	40 breeders to 1998 extending to 50,000 comm'l herd cows	$ 1,400,000	49%
NSW Farm Performance	Goals established for producers to benchmark own /group performance. Seminars. Drought affected	assumed 5 members increased returns	$ 20,000	28%
QLD Cattle finishing 2 yrs $10,000 contribution	Higher weight gain for Jap Ox. Grow to 400-500kg on native pasture, then supplement on native/irrigated. Increase profit est. $16 a head.	Influenced producers 300 km away. Widespread.	$ 100,000	114%
VIC Prime Lamb Finishing Systems $9,800 2 years	Use scales, use genetically superior sires, sell ewe lambs lower weights, supplement if needed. Heavier lambs minus feed adds profit $6.50/lamb	Number of growers, 20,000 heaver lambs a year at 1998	$ 800,000	377%
NSW Balanced breeding for Profit $10,000 2 years	Angus Soc endorsed Group Breedplan, ran courses on indexes, 21 workshops 5 states, 310 people. Rates of genetic gain increased.	6,000 reports pa, Grp Breedplan herds 218 to 389 (70%)	$ 8,000,000	132%
SA Production, prom'n, mark'g qual. lambs $7,500 2 yrs	Members improved assessment skills, av carcase weight up 0.5kg, 30% over the hooks, scales bought, newsletter, press, field days. Extra $3/lmb	24 members group By 1998, half made marketing changes	$ 32,500	52%
TAS Prime lamb $10,000 2 yrs	Breeding, production, marketing alliance set up. Using XB ewes, Code of Practice. Est. 15 cents/kg	8 members, 7-8 outside producers	$ 143,000	122%
NSW Protein supplements, pasture $6,310 2yrs	Supplementary feeding needed monitoring and measuring weights, condition. Discussion groups, to Prograze, scales bought. Costs down $7/head.	35 at discussion grp, some changed qkly, others following	$ 66,000	75%

[24] DJ & BA Collins, *Assessment of the Economic Impact of PIRDs*, for MRC June 1998.

[25] A standard cost-benefit analysis was carried out for each project. Returns were assessed for group adopters based on a representative farm for area. NPV= Net Present Value (total benefits mostly over 15 years brought back to 1998 dollars). IRR%= Internal Rate of Return (estimated annual return via benefits to producers on MRC dollars invested in each PIRD).

[26] Break-even for MRC investment in the Voluntary Code was use for 330 cows. The BIA was disappointed by adoption rate. There were too many different quality packages around it was felt (discussion 2001).

The $11 million NPV projected for these ten projects alone would have returned MRC's total PIRD investment many times – 95 PIRDs were complete by 1996/97 for ~ $750,000.

Even with the imprecision of forward economic estimates, there is considerable 'room to move' in these return calculations. To this $11 million NPV on 10 early projects should be added the financial returns to producers involved (and sometimes others) from many of the 115 *further* PIRDs completed by 2000 and the 56 underway [Table in 1.1].

Extrapolating from the calculations on 10 projects, a return to producers and the meat industry of $25-$30 million on 170 PIRD projects appears a conservative (though not readily verifiable) estimate. Or, about 16 times the $1.7 million MLA investment. To this should be added the additional returns from active front-line MLA investment across the projects, including contributions from others, flow on effects, and plus awareness, culture change, goodwill and social benefits.

Contributions: Inputs by producers and other parties are an important feature of PIRD operations. This is another way in which MLA's investment is leveraged.

The MLA PIRD contribution is often 'starter money' and a sign of support. PIRD approval importantly provide a structure and timetable for progressing the experimentation or exercise. Contributions often well exceed MLA funding.

> "South West Prime Lamb Group would not be the strong group it is today without the seed funding received from PIRDs 95/V1 and 97/V3. This finding has allowed the group to develop and offer opportunities to members, which would have been limited without financial assistance. Benefit to members has already been demonstrated ... the opportunity for future PIRDs will allow the SWPLG the opportunity to explore specific projects that we believe will improve profitability of our businesses." *Kate Joseph Co-ordinator 95/V1 $7,674; 97/V3 cost $8,668.*

Across the 1997 set of projects, MLA committed some $90,000 in funds directly to PIRDs. 1997/98 PIRD management costs totalled about $75,000 [Table in 1.1]. The twenty active 1997 groups organised a variety of sources of support [summarised in Appendix A].

- Group member input over 2-3 years organising, administering and carrying out activities. This varied among groups. Some would have occurred anyway as a course of their work and self-education. Estimate of group members' in-kind contributions to PIRDs:
  20 groups, 20 days per group, $100 per day..... $ 40,000
- Agriculture Departments (NSW, Vic DNRE, PIRSA, AGWA, QDPI), CSIRO, others at 5-65 days per project (say 20 average) at $300 per day $120,000
- Cash and materials contributions, estimated for this set as $40,000
- Contributions of time and facilities by processors, consultants, speakers.$20,000.

So, financial leverage for the 1997 set of PIRDs was around $1 MLA to $1.30 of contributions by groups and others. The external contributions for 1997 PIRDs seemed to be in the order of $220,000 on a MLA investment totalling about $165,000. *The leverage would be about $2.40 to $1 from MLA if only funds going directly to the PIRD groups were considered.*

It appears reasonable to work on the basis of* at least *a $1.10 to $1 match. Contributions by PIRD participants and others more than equal MLA costs in running the PIRD scheme – a financial leverage of at least 110%.

iii. People and practices

"Through group action, individual outcomes, and changes, and learning occur, particularly in matters of social interaction (which includes business systems, profit, learning, techniques, opportunities, processes), and a side benefit or effect is a sense of identity that gives courage to try new things (or persist in old) that are more useful and potent than if the individual attempted to do these things oneself. Let us use "synergy" as the word ... not all groups are there for profit. But the learning some do is invaluable to their members. When a group's members are not receiving soft or hard benefits, the group stops existing." *Producer email 2001*

Return from MLA PIRD investment in terms of people influenced and practices changed might be considered in a number of ways.

Looking broadly, and based on the probability that PIRD instigators and active members are the 'innovators' and 'early adopters' in their rural community, a successful PIRD could be significantly influential.

An active PIRD core often has 5 to 40 members. However, a number of PIRDs are subsets of larger organised groups with membership already together through common interests. They are linked through newsletters, meetings and other communication mechanisms.

PIRD start yr	PIRD grants that year	Average group size	Group size range	Larger groups behind the active core members of the PIRD	Avge grp size without these
1998	26	260	5 to 5,700	Shorthorn Youth Club Australia 140 Gympie District Beef Liaison Committee 150 Tas Beef Cattle Assessment Impr Group 5700	33
1999	27	44	11 to 400	Upper Emu CH Catchment 400 GWYMAC 130	28
2000	33	24	11 to 135	Poll Dorset Association WA Branch 135	21
2001 applns	51	112	7 to 1,805	BIA - SE Australia 1805 BIA – NIRS 1500 BIA - Grass Tetany 277 WA Q Lamb Inc 140	39

For the 87 approved MLA PIRDs in 1998, 1999 and 2000, the Groups covered about 8,800 producers, both active and observing. Some of these PIRDs did not start or were cancelled part way for a range of reasons but about 70% progressed. A similar number of producers would have been linked to the PIRD Groups in years 1993 to 1997. Additional producers would have been associated with non-successful applications over the nine years, and about 6,000 are represented in the 51 Groups applying for 2001 PIRDs. A further 10,000 or more would have witnessed MLA PIRD results at field days and shows.

It appears reasonable to assess that at least 30,000 meat producers in total over 1993-2001 have had some contact – a lot or a little – with the MRC/MLA PIRD scheme.

Of the 20,000 producers connected to Groups involved with the 125* completed *and 56* ongoing *PIRDs from 1993 to 2000-01, around 5,000 cattle and sheep producers would have been active or close participants.

This figure can be compared to, for instance, the 4,500 participant target for the EDGE program, or the 9,500 Prograze attendees expected from the mid 1990s to end 2001.

Whether Group members changed practices during or within a few years of completion of PIRDs has been considered in the Lees [1.3] and Collins [2.3.ii] evaluations and Don Story's summaries of final reports 1994-1996.[27] Most have changed some aspects of their operations as a result of being involved in PIRDs, although not all to the full extent indicated by findings (note: some PIRDs confirm existing practices or clarify issues).

SA ***Prime Lamb Marketing*** *Collins report 1998*
Results at 1998: Three groups were formed with membership of 25 growers each. Seven newsletters were produced and distributed to all group members. Thirteen press articles on the aims and activities of the group were published. All members purchased scales and now have a better appreciation of the market they are targeting. Most group members are now targeting the production of heavy lambs for turn off in winter months. The groups were still going in 1998 and a 'SEARCH' conference was held to stimulate further interest in a more formal marketing strategy for the area.

NSW ***Protein Supplements to Improve Native Pasture Production*** *Collins report'98*
Results at 1998: Poa tussock pastures could be used more effectively with protein (urea, lupin) supplements. Fodder costs could be reduced 30% a year, around $2000 a farm. Discussion evening (35) agreed need for pasture monitoring and measurement of stock weights & condition. A number of group members attended Prograze courses, purchased scales & now regularly monitor pastures.

WA ***Beef Finishing on Tagasaste*** *Lees report 2001*
Results at 2000: The PIRD involved open field days and a mailing list of attendees was surveyed on whether they felt information from the feeding trial was useful to them in deciding whether it was worth supplementing cattle grazing tagasaste. Near 90% of respondents said the information was useful for this purpose, and also for deciding which supplements to use. About 60% said they had changed to using the supplement which appeared to be the best from the PIRD trial.

A full listing of 1997 PIRDs (prepared for this 2001 Review from the original applications and PIRD final reports) is provided in Appendix A. This list records information available on apparent uptake of findings, and wider communications efforts.

These sources indicate that 50% to 100% of completed PIRD Group participants have and will make significant changes as a result of their involvement, where the findings indicate that changes should be made. Some will make smaller scale alterations. Few will remain unaffected.

> "Very few producers have compared Merino ewes and first cross ewes under similar conditions to determine the merits of each breed. The Elmore Field Days committee and the Campaspe Prime Lamb Group wanted to address this problem and also wanted to quantify the value of using performance tested terminal sires. ... This project will assist producers to appreciate the possible advantages and disadvantages of making management changes: such as first cross and merino ewes as well as improving the genetic merits of the rams they purchase. ...
> PIRD should receive a big thankyou for the assistance to find the trial to display the results before some 60,000 people annually." *97/V01 Final Report 1999, PIRD funded $6,591*

As a parallel, for Prograze courses, it was assumed for the CIE study [above] that some 50% of attendees would make changes and achieve significant results.[28]

[27] MLA *PIRD Project Outcomes*, 2000. At p 3. PIRDs that increased knowledge rather than provided solutions include 93/N17-96/V04: Vaccines for white scours in calves tested, (not effective), selenium tested (inconclusive), source of problem unclear.

[28] Notably, a 1998 UNE survey of northern NSW producers, found that 4% of cattle or sheep grazing respondents had attended a Prograze course and half of these (2%) had made changes as an outcome of the course. UNE Rural

The PIRD Group investment also 'leverages' into the wider producer community. Over time, other producers with similar problems who observe or hear about PIRD results will make changes. This would occur through the wide PIRD network [1.4] in two ways.

i. *Through the communications efforts associated with PIRD Groups.*
These efforts are significant for many PIRDs, less so for others. Examples are provided in the tables summarising the Lees reports [1.3] and the Collins report [2.3.ii]. Activities include on-site field days, farm walks, open seminars, tours, discussion evening, displays at regional field days and shows, newsletters and media articles. Indications are that, on average, ***these efforts, extend the local 'hands-on' trial findings to at least six times as many people as directly involved in completed PIRDs, ie. 30,000 producers up to 2000.***

ii. *Through natural 'diffusion' of useful information to the producer majority.*
Diffusion of ideas can be a slow process. Managed activities, from advertising to workshops, aim to hasten communication but these arouse most interest in the innovators and early adopters. The majority wait to see respected producers *using* the new techniques or tools [2.1]. For the CIE report, MLA used adoption targets of 15%-30% for various on-farm programs. Realistically, 70-85% of producers are not reached in extension exercises. ***Local innovators and early adopters in Groups can learn, test and show results through PIRDs and this should enhance diffusion of new ways into this untapped MLA arena.***

Overall, investment of money, guidance and support, to strengthen the focus and assist the achievements of producer Groups and networks should leverage into greater returns on the range of meat industry and MLA communication efforts [2.2].

A number of stakeholders commented on the potential to utilise the PIRD Group network (generally led by innovative, successful producers) for interactive communication, identification of R&D priorities, and for hastening understanding and uptake of new ways. The network could be an active core for field-testing research in different environments, and a basis for larger scale producer led research – moving on to 'bigger things'.

> "I am interested that R&D bodies and funders of "innovation" in rural communities invest little in the 'basic human infrastructure (of local teams in a network) necessary for improvement and innovation ...people can be empowered by enabling them to distinguish the difference between 'groups' and 'teams'. The rural community in Australia has been constrained by the offer of public servants only to be part of 'groups', they have not yet been given the choice to be a role player in a 'high performing team'." *Researcher on Agricultural Groups, 2001*
>
> "Corporations inevitably believe, like Government, that communications with groups need only be one way, that they have information, answers or policy to deliver, like presents from [ahigh], and have great difficulty learning from groups or establishing meaningful duplex dialogue with groups." *Producer email, May 2001*

However, it is equally clear that just 'supporting groups' and interacting could become a diffuse and costly proposition – setting the scene for considerable future criticism. Many of the strongest groups are determinedly self-reliant and looking for sizeable challenges. Others are new groups coming together for a PIRD and seeking more guidance.
A feature of the PIRD scheme is that it offers process (problem-activity-result) support to Groups, with some money. A PIRD application and running a PIRD reinforces the reasoning for the Group. There *is* potential for the contribution and learning to flow both ways.

Development Centre, *The impact of farmers' participation in home study programs, local groups and wider information networks on the adoption of sustainable integrated management practices.* For RIRDC 1998.

Don Story writes on PIRD VIC: Effective Lamb Production in South West Victoria
South West Prime Lamb Group, 160 producer members

PROJECT AIM

* To give prime lamb producers the knowledge, skills and confidence to produce quality meat efficiently.

* To encourage farmers to become more consumer focussed and thus target their product to specific markets.

* To encourage farmers to become more aware of risk management options such as forward contracts and other marketing methods.

PIRD gives knowledge, skills and confidence to take control

More than 150,000 second-cross prime lambs are produced in South West Victoria each year, however group spokesperson Kate Joseph said district prime lamb producers had concerns with three key issues. These were:

- Identifying what markets are available for their lamb carcases and specialist cuts; what carcase specifications are needed to meet the various markets and where/how to their obtain this information;
- How to optimise production to ensure maximum numbers of lambs meet premium price criteria; and
- The need to improve lamb assessment and quality assurance skills so producers can be confident of producing a product that meets specification.

The South West Prime Lamb Group was formed in 1994 with 20 members. By the completion of the project and its predecessor the number of members had more than trebled and, more importantly, members were readily discussing options and opportunities. Over time a sustainable, active group developed. "It is a well-documented fact that the best way to learn is by example, particularly with peers," she said.

The project had seven core objectives. These were to have:

- 25 members complete a PROGRAZE(r) course and be able to measure feed production and relate this to animal requirements;
- 34 member selling at least 80% of their lambs by description - CALM, over-the-hooks or contracts;
- 25 members undertaking the Flockcare quality assurance program;
- all members visit at least one processing works;
- 25 members able to consistently fat score and accurately estimate carcase weight of their lambs;
- 25 members using LAMBPLAN figures to select terminal sires; and
- 25 members participating in a group benchmarking exercise.

Most objectives were met. Ms Joseph said any shortfall was due to members being unavailable when a particular program was run, or their being cautious of change.

Thirty members attended a PROGRAZE course and were developing skills to enable them to match feed supply with animal demand. Seventeen members were involved in a group marketing program during the 1998-99 selling season. More than 13,000 lambs were sold to different processors with more than 90% meeting specifications. "Through the marketing trial and other events, awareness of the advantages of sale by description is being addressed," Ms Joseph said. 34 members would have used sale by description (at least half for most of their lambs)." Paddock sales and the local saleyards were still being used but dependence on these methods of sale was being challenged. A Flockcare course was run early in 98. Twenty members took part. Ms Joseph said the course created considerable awareness of the requirements for Flockcare while only four members continued through to accreditation, others were developing better recording systems and continually addressing the issues.

Ms Joseph said all members were now aware of the importance of knowing their product. All trips to 'industry' included visits to at least one processing works. The tour in 1998 went to Cobram abattoir; other trips had visited M.C. Herd and Co, Geelong; Castricums in Dandenong and the now closed Hamilton works.

Opportunity to practice these skills in all group activities had been made wherever possible. Results of a recent survey showed that 90% of members owned scales, and used them to weigh 20 to 100% of their lambs before sale. During the marketing trial all kill sheets (and whenever possible assessment sheets) were analysed including the breakdown of fat scores for all 10,758 lambs killed in domestic works. About 92% of lambs were fat score 2 and 3 (56% and 36% respectively). Average carcase weight was 19.5kg with carcases ranging from 12 to 24 kg.

An estimated 40 members now use LAMBPLAN figures to select their terminal sires while eight members of the group sell performance measured sires of varying breeds. The EBV trial run during Spring 1996 (PIRD 95/V1) showed the value of EBVs and the results of this trial had often been used to demonstrate the difference between both high and low index rams and untested rams. "The fact that this trial was run on a members' property with input by members has gone a long way to give credibility to the trial and has had a marked effect on the adoption of selecting better quality sires," Ms Joseph said.

Only 15 of the group's members benchmarked their flocks on an annual basis. [Time and privacy were inhibitors]. About 16 members attended WIGS courses an excellent program and a worthwhile use of time.

iv. R&D, science and networks

> "There has been criticism that PIRDs research things considered ho hum (eg. use of phosphorous) ... we have never tried to say you have to research the latest technology." *Gerald Martin 2001*

Some PIRDs do make new research findings, but in the main PIRDs are 'testing' and 'applying' publicly available research. Such research might be MLA originated or backed (Lambplan, SGS) or commercial science (drenches, supplements, scanners). The South West Prime Lamb Group [above] demonstrates the scope for links with industry research.

Further, as there is no real finish point to R&D implementation, the testing and adopting of 'older science' to address a problem coming to the fore in a local Group area can be an important PIRD asset for producers and the meat industry (and researchers).

These features add to the 'positioning' of PIRDs as a hands-on, problem focussed research implementation tool. However, there are some interface concerns.

> "The reason the PIRD group should consult with [researchers] is because [they] have the technical knowledge to make it run. If you leave them out of the loop all you will get from the PIRD is more of the same. PIRD's ought to be about facilitating change on farm by participation. This must include getting the technical facts right before they do any work, and maintaining a learning process during the conduct of the work. This needs people who have the information to be in the loop." *Hutton Oddy MLA 2001*

Another concern expressed at times is that PIRD funding is small and unlikely to enable a structured look at a problem. Here the 'leveraged' value of PIRDs needs to be considered.
From the PIRD seed money, contributions of time, effort, equipment, supplies, and funds from other entities are leveraged – an estimated $ 2.40 for each $1 from MLA [2.3.ii].

Sometimes the 'other contributions' can be substantial, such as the $160,000 of inputs from BIA and Agriculture WA to the Beef Satellite Farms Controlled Grazing project (set up because seminars and workshops were assessed as having little effect). There is a risk that outside interests might swamp the PIRD connection, but in this case the MLA PIRD structure and support was a spur to the work (at a cost of $100 claimed).

Often the major MLA contribution is the PIRD process – the structure, guidance and timetable for work – more than the money. PIRD evaluator, Jim Lees, considers that much of the PIRD work would not happen at all without the MLA and PIRD impetus to both the Group operation and the specific PIRD investigation.

PIRDs are not intended to be exemplary science, however the PIRD Evaluation Committee seeks research logic in the structure of trials (focussed questions, control groups, repeats).

Guidance on trial structure is provided through interaction with the Co-ordinator, and PIRD funds are being used increasingly to support professional preparation and facilitation of projects. ***PEC members consider that applications are becoming clearer with the research and communications aspects now well thought through by more Groups.***

An indicator of the rigour being applied in PIRD approvals comes from the proportion of 'non-starts'. These PIRDs had been approved by the PEC. Some

had conditions attached that were not achievable through negotiation, so those PIRDs did not commence.
Records demonstrate efforts by the PIRD Co-ordinator to bring about mutually satisfactory projects along the PIRD pipelines. "PIRDs are not refused they are negotiated."

On the other hand, some producers and groups have expressed concerns with the escalating requirements in PIRD applications and demands in running a trial (reporting, KPIs etc). In his report on 1997 PIRDs and focus groups, Jim Lees identified the amount of time to run and administer a project as a concern among producers (also occurring with Landcare).

Some Groups (not all) felt disadvantaged when they heard that others had facilitators (paid for in part by PIRD funds) who prepared applications, guided the process and negotiated changes if needed with the PIRD Co-ordinator. Others, even with Ag Dept advisers, were concerned about not being allowed to shift the PIRD goals – a situation at times identified by the PIRD Co-ordinator (likely reasonably) as lack of focus (eg. 97/N02). As more precision is expected, contention could increase – an indictor of the rigour being applied.

There are suggestions also of disagreement because conditions set at the Preliminary Application or the PEC stage set do not fit with Group plans (such as requirements to use Lambplan or to do a Prograze workshop). Or conditions extend timeframes past a scheduled autumn start-up (mating, sowing), so diminishing enthusiasm to proceed.

Overall, it appears that the PIRD Evaluation Committee and PIRD Co-ordinator have developed a realistic set of interfaces for the PIRDs of 1993 to 2001 – balancing producer-driven testing, scientific and research orientation, flexibility toward type of producer identified problem and generally encouraging and assisting initiative while increasing rigour. Some changes of approach might be considered for a next stage of PIRDs [section 3].

Research and development leverage from PIRDs should also be taken into account. Again this varies among projects and groups. PIRDs can be leveraged to support other research by, for instance, PIRDs functioning as the logical end of a chain from base science, to testing and adult learning, through to routine usage. PIRD outcomes can also provide the practical, 'needs oriented' basis for further mainstream R&D and extension efforts.

Dung Beetles – from PIRD to profile

QLD Dung Beetles, Beef Liaison Group commenced with a Dung Beetle display at Gympie Farmex Field Days) in October 1998. The display was well attended over the two days, and introduced members as well as the public to the beetles and to the PIRD's program. Producers wanted to know more about beetles and Buffalo Fly populations.

A Field Day in January 1999 at one member's property with expert guest speaker, was attended by some 80 people. The ABC "Landline" crew filmed a story – a big boost to public awareness of the beetles. People brought along collected beetles – a practical quick survey of types in the region.
About the same time, a number of PDSs and Landcare groups were also starting to review the 'decades old' work on dung beetles. The Gympie Beef Liaison Group, three Landcare, a Beefplan and a producer group, came together at a PIRD funded National Dung Beetle Planning Forum in December 1999. Former CSIRO researchers were invited and thanked. 41 participants attended from 35 organisations around Australia. A committee of Champions was formed and a Strategic Plan developed. National Heritage Trust funding of some $200,000 was secured for full time technical officers to work in Queensland over 2000-2002. Research into chemical effects of drenches on beetles has been consolidated into a Guide.
MLA – initial PIRD $3,000, forum $15,000 and PDS funding. Total $35,000 – $40,000.

2.4 Views from PIRD stakeholders

Collecting comments from a range of stakeholders has clarified whether there is an ongoing marketplace interest in and need for PIRDs – and if changes are needed what form they might take.

" '... the problem is that there is plenty of great ... research out there which hasn't had practical and commercial applications for the industry. ... So a lot of emphasis needs to be placed on the uptake of existing technology.'...a basic R&D equation of $1 for research, $4 for adaptation of the research, and $10 for the adoption of the research needed to be applied." *The Land, 26 April 2001, quoting Andrew Nicholson of SA on wool research or ag research generally*

Various participants (in successful, part successful, non-start, cancelled and new PIRDs) plus advisers, producers, researchers and others were contacted [Appendix B].

i. PIRDs fill a (complex) need

"PIRDs have filled a need ... State government's have reduced funding for extension and field trials ... PIRDs have stepped in there for producers thinking about on-farm issues. ... Interesting to watch how PIRDs have changed over the years...testing sustainability ideas now. Would basically have to say there is still room for PIRDs on producers properties ... Prograze, Beefcheque ... don't take [research] to properties ... our PIRD group came out of Beefcheque group." *Bill Bray Chair VFF, CCA member, ex PEC member May 2001*

"While the group has been somewhat critical of the Application form [too long for a workshop] it would like to express its appreciation and thanks to the MRC for the grant. The workshop would not have taken place without the funding." *Monto Branch BIA (97/Q3 – Value based marketing workshop 1998, PIRD cost $1,854)*

There is ongoing interest – notwithstanding the effort required

"The spin-off benefits to the whole range of industries that these things [PIRD projects] touch on is probably enormous and the more publicity you get out of these things the more the spin off you'll get; and a person employed to administer and cross reference and disseminate information about these things – their salary would be paid for several times over. It's a cheap solution." *1997 PIRD participant, Lees report 2001*

"PIRD Groups are often locals who have come across a longer term common problem ... look around for funds ... 'need a bit of money to help us look at the problem'. Many of the trials would like not happen without the PIRD process ... with the funds come structure, timetables, a framework." *Jim Lees PIRD Evaluator Discussion April 2001*

Would not like to see PIRDs disappear. If can genuinely get producers to be in an 'I need' frame of mind rather than saying 'you should have' ... then can advance quickly. PIRDs in theory do this." *Mike Stephens, Executive Officer Beef improvement Association 2001*

"Any funding is good ... we have put a membership fee on group members ... we need to look at what has been done and to not rehash ... need to understand more about the processing and the market." *New group contact person and producer, 2001*

"There's a lot of work involved in running the group and the project." *1997 PIRD participant, Lees report 2001*

MLA role

"MLA should brand themselves better for PIRDs. Be seen out in the field. Hard to sell what MLA is doing with funds. PIRDs are a visible return." *Producer 2001*

"This dough that we are getting is our money and therefore we don't have to get down and say thank you very much ... and if we feel this money is not being used efficiently or there's not a high success rate [of Projects achieving their objectives] then we should wipe it [PIRD]." *1997 PIRD participant,, Lees report 2001*

"Funding bodies have an incredibly poor grasp of why groups exist, and why profit is not the ... sole focus of all farming groups. Until corporations can understand the value, or in some way, place a "value" on some group outcomes and outputs, like learning, they will never be able to contribute to many groups in any meaningful way." *Producer 2001*

ii. On changing culture, production and selling practices

" 'Farmers will often learn more from other farmers than they will from researchers ... The key is that [SGS] involves local people demonstrating change at a local level. Rather than a trial site at a research centre, they are in people's paddocks on real farms.' And they address those issues important to local producers." *FEEDBACK April 200 quoting SA producer Bill Stock, referring to the 10 on-farm demonstrations in the Lucindale region.* [29]

"Advantage is that it is hands-on ... people don't focus until they try [a technology] out on known circumstances ... some groups come up with similar things ... build on other PIRDs or ideas but with a twist on each PIRD." *PEC member May 2001*

Farmers are cautious by nature ... until see someone else doing it a loath to take up a new way ... PIRDs get into the comfort zone ... a practical starter for innovations ...field testing under farming conditions." *PEC member, April 2001*

"PIRD is a fantastic extension medium although is not usually recognised for this. When you read between the lines, there is tremendous thirst for knowledge. I think with more facilitation, guidance PIRDs could be developed into a really powerful extension tool ... hands on testing by producers in their environment, their farms ... generally local leaders." *Don Story May 2001*

iii. Fit with research, science, marketing

"Research may all be very good but it sits in a book or on a shelf not being used. When people want to know [ie. recognise their problem] they will listen to results at local group field days, look for case studies [magazines, internet], will not go back to science journals... get more if we do it as a small group ... keen to do PIRDs now." *Facilitator, two 2001 PIRDs*

"PIRDs fit a need if genuinely producer driven ... PIRDs for a very small amount of money should be adventurous, start points of big ideas, committee should not be too formal, restrictive for these... real innovators, users of technology, are some of the people working on their farms not committees." *Facilitator, many years*

"From every PIRD project involving Lambplan – all people who hadn't used it now swear by it ... people don't focus on things until they are relevant to them." *Don Story April 2001*

PIRDs are a good idea ... if group has have a worthwhile project – especially if lucky enough to have a research scientist working with you. Some have done some good work, with good results. Need to work on Group functioning. Takes time." *Producer 2001*

[29] Also: 'Benefits flow from on-farm trials', Professor Robert White, FEEDBACK May 2000.

iv. Difficulties and improvements

"PIRDs are a very good idea – addressing what producers themselves are interested in. Producers say we want an answer to this ... not what scientists tell them to do. But it is very hard for producers to set up a trial on own place. Producers can be diverted by commercial imperatives, eg. good or poor season. Should be able to do more PIRDs on central locations ... also the cycle runs too late for autumn AI etc." *Participant facilitator, May 2001*

"Groups aren't funded to carry-out publicity and certainly have no funding to promote MLA. It should be MLA's ... problem to publicise on a national basis and the local producers' problem to publicise on a local basis." *1997 PIRD participant, Lees report 2001* [30]

"The group felt that the current structure was somewhat cumbersome and not really conducive to changing activities as the environment surrounding the initial application (including activities) changed. While it is appreciated there is a need to maintain a focus for the funded projects, and keep the activities 'on track', flexibility to pursue avenues which were revealed during the course of the project should be maintained." *Group Report Lamb Marketing March 2000*

"PIRDs are a good idea ... some problems with who actually drives what is done ... farmers have good ideas but need someone with different skills to take a lead and help them through process ... it ought to be a partnership .. farmers can see a problem ... advisers / facilitators suggest technical solutions, do science research etc ... however, PIRDs fairly constricted ... can't afford to do a lot of extra work ... larger projects could pay for more." *Facilitator 2001*

"The group has discussed doing another PIRD. They have decided not to apply for another grant. People felt that unless someone is basically retired or has plenty of spare time, the paperwork involved in applying and reporting is just too time consuming ... being unpaid time the process becomes too costly. Unless the applications and reporting can be streamlined and simplified, then at this point in time our group is not interested in doing another PIRD. *We would recommend to other Groups to do a PIRD, if* they can find someone to spend the time voluntarily attending to the paperwork." *Monto BIA, 97/Q3 Final report*

Looking ahead

"Applications are getting better, quality and balanced, group can handle, basically motivated by a common problem, financial and emotional too – with a motivating person ... people pulling in research... link with 'real science' is stronger in the south ...a lot of PIRDs coming out of SGS ...leveraging PIRD results out to levy payers... would like to see expanded, PIRDs with one clear objective, then a second or third PIRD, more SuperPirds with researchers." *PEC member 2001*

"Our PIRD was an absolute success. Group members using the rotational grazing results, field day for 70 people, newsletter, 400 at seminar, video ... good applied research ... no-one had really looked at the nutrition angle – broke some new ground ... used NZ data ... found winter management options...challenge of fitting technology into farming systems." *Facilitator 2001*

"There is room for a straight line ... PIRD to science ... linkage with scientists, advisers enhances PIRDs ...especially with larger PIRDs." *PEC member, 2001*

"Could strengthen and manage a bit in broader projects ... link to science yes and no, needs to be real not essentially a scientific project ... shouldn't be too purist about 'all producers', 'correct science' ... but provide guidance on controls etc ". *Producer 2001* [31]

[30] MLA Lees Evaluation report, March 2001.

[31] The collation of comments above constitutes 'consultation'. It is not a formal marketplace survey.

2.5 PIRDS on balance – costs and returns

"PIRDs are about industry culture change... network groups of people keen to test R&D findings ... producers test concepts and technologies ... provide paddock scale testing – may be a bit short of rigour but PIRDs engage producers in the process ... they are keen to find out what others are doing ... good, bad ... to test concepts and technologies relevant to their own region ... research programs could have in-built PIRD components." *Producer 2001*

DEMAND: ***A number of indicators confirm marketplace call for PIRDs or PIRD type, producer driven, activity supported by producer organisations.***

The innovator and early adopters and groups generally support producer experimentation for all the 'adult learning' reasons, including topical problems, ownership of activity, interest in R&D but looking to test results locally, and wanting to change and improve their businesses. This is reflected in producer and other comments in the sections above.

Through the course of agricultural development in Australia, the majority has been more cautious but generally not negative to producer initiated experimentation. Even if they would not be involved in groups or trials, the majority knowingly watch the innovators.

"A lot of basic research is still half done from a producer's point of view ... real advantage is able to fill production knowledge gaps...plug in the technology in particular situations." *Adviser, 2001*

In a competitive arena for producer time and effort,[32] ***MLA PIRDs have maintained a role and presence for nine years.*** Application numbers for 2001 were higher than recent years, with the standard improving and 35-40 assessed by the PEC as viable PIRDs (33 in 2000, 27 in 1999). Advertising and communication efforts do back this level of interest but promotion is a general requirement of all rural extension programs – reflecting the geographical spread of cattle and sheep producers and the demands on their time.

COST: ***Meat industry R&D has provided about $1,700,000 for PIRD activity over 1993/94 to 2000/01, or about $250,000 a year in recent times*** [Tables in 1.1].

RETURNS: Benefits have been direct – to both PIRD Group members and through communication and diffusion to wider local producer communities. Returns to MLA and meat industry have also been achieved by leveraging the investment in the PIRD program.

Section	Measure of direct or leveraged return	Estimate of returns
2.3.ii	Collins Net Present Value calculated on 10 projects using results and reasonable adoption assumptions	**$11 million** NPV at 1998 from these 10 PIRDs only[33]
2.3.ii	Conservative (and not easily verifiable) extrapolation to the 170 completed or now active PIRDs	Say, **$25-$30 million** return to group producers and wider adopters
2.3.ii	Contributions from Group members and supporters, estimated as at least $1.10 for $1 total cost to MLA	**$1,870,000** over 1993 to 2000
2.3.iii	Producers close to or observing MLA PIRDs	**5,000** actively to **30,000** as observers
2.3.i	MLA Objectives, visibility, goodwill	**Enhanced** diffusion to more levypayers
2.3.iv	PIRDs implement MLA and other R&D findings	Many **aligned with** MLA programs

[32] "Landcare groups have exhausted the reservoir" – program facilitator 2001.

[33] A standard cost-benefit analysis was carried out for each project. Returns were assessed for group adopters based on a representative farm for area. NPV= Net Present Value (total benefits mostly over 15 years brought back to 1998 dollars).

i. Has the investment in PIRDs been worthwhile?

On the basis of the cost and return assessments summarised above, the overall MLA PIRD program would be described as successful and worthwhile.

➢ The logic for success comes from the dynamics behind the 'spread of new ways' and the fit with community dynamics and groups often led by innovators looking to do more, plus the fit of PIRDs with key principles of effective adult learning [2.1].

➢ These elements, including the emphasis on producer group problems and initiative, along with an hands-on responsiveness over the years, indicate why PIRDs have endured as a unique part of the MLA communication and extension spectrum [2.2].

➢ The PIRD program has achieved significant direct and leveraged returns, and has reached a relatively large number of producers, many being the local innovators [2.3].

➢ Comments obtained from a range of participants and other PIRD stakeholders confirm the value they place on the PIRD scheme and the marketplace demand (though with suggestions for improvement) [2.4].

However, it could be argued that :

- ***returns from PIRD scheme investment as estimated above are speculative, unverifiable and place some weight on non-financial factors, and***
- ***returns primarily favour the PIRD group members ahead of other producers or the industry as a whole.***

These points are valid to a degree, both in relation to PIRDs and agricultural R&D and extension generally. The benefits of agricultural R&D programs in terms of higher commercial profit for producer businesses are notoriously difficult to cost. This reflects the complexity of agricultural businesses in diverse geographical environments and across years with dramatic weather and market variations. Further, in family enterprises, other priorities, such as off-farm interests and income can substantially influence decisionmaking.

It is clear however, that without some adoption of the results of innovative research and development, the value of that R&D is essentially zero. Further, to be realistic almost all R&D advances have mixed impacts. Some producers will be competitively advantaged by adopting a new way (pasture species, software), others who cannot or will not change lose out. Some programs, such as genetics or quality standards, can lead to industry rationalisation.

PIRDs have substantial R&D adoption strengths for the reasons set out in sections above.

Whether investment in PIRDs has been and will be worthwhile for MLA depends also on how MLA sees its role in moving information gained from R&D programs into adoption through sectors of the meat industry. The efforts MLA have underway to implement research [2.2] including focussed actions such as SGS regional sites, Beefnet, PDS, PIRDs, indicate that MLA places priority on transferring knowledge in ways that enable local testing and demonstration of the value of the R&D and of the reasons to change.

Technology is adopted because it makes good commercial commonsense."
David Crombie, Chair MLA, FEEDBACK June. 1999

3 LOOKING FORWARD

In the course of preparation of this review, some points relating to the forward direction of MLA PIRDs were identified through research and discussion with stakeholders.

As with most reviews, issues raised often reflect specific experiences and interests. It is rather easy to criticise fairly complex yet 'simply presented' exercises such as the PIRD program, so comments need to be related to the MLA and PIRD program objectives. In doing this patterns became clear. Ideas on forward development followed.

The Terms of Reference sought a strategic evaluation of PIRDs over the nine years. The points below are additional, and are provided as concepts rather than a developed plan.

3.1 Strategy points for consideration

i. Bring PIRDs closer to core MLA activity

PIRD stories are regularly featured in FEEDBACK and provide colour and practical interest to the MLA Annual Report. Operationally however, PIRDs seem to have been long positioned on the edge of MLA / MRC R&D activity.

- The *MRC 1995-1996 Project Guide* lists 23 PIRDs on pages 181 to 183 near the back.
- MLA *Research in Progress November 1999* list 63 PIRDs at the end of the book.

A number of stakeholders expressed a view that the alignment between PIRDs and past and present MLA supported R&D could be both presented more clearly and strengthened. There was interest in a more formal flow of scientific information both to and from PIRDs.

Where groups of producers were keen to examine a problem and test and apply research, it was felt that the exercise could be enhanced by scientific input and structure (if this was not already occurring) and the results could be useful to researchers as well as producers.

There were also strong views that PIRDs should not be required to be either front-line research, or 'great science'. A key part of the PIRD value to producers (and an ingredient in the results achieved) is that the program is seen as 'hands-on' and 'owned by producers' and the grants are to assist producers to study and address their real, local, problems.

The PIRD program could be seen as 'ahead of its time'. It has been progressively developed to logically meet the practical adult need to first 'test' and then 'apply' new ways.

Suggestions (these relate also to the four points below)

- *Clarify priority elements of a PIRD scheme*, say: – Producer initiative; – producer driven group involvement; – local level knowledge building and problem study; – that PIRDs need to be an experienced, responsive, practical MLA interface with producer groups and producers.
- *Then a second set of key features*: possibly two formal PIRD streams [below]; use of producer properties, professional and scientific guidance to add value (some researcher led PIRDs?), effective interface with MLA program areas and research past and present.
- *Consider optimum positioning of PIRDs in MLA* and interactions in light of PIRD priorities.

ii. Next stage – two PIRD streams, different expectations

Reviewing PIRD lists and reports highlighted two types of PIRDs: less formal knowledge gathering and testing activities, and more ambitious 'research and development' exercises (already including SuperPirds and many of the current PIRDs eg. Te Mania in 1996).

There are arguments for developing this distinction more clearly and treating the applications for, and expectations of, the two types of PIRDs differently.

This would enable MLA to seek more from the larger scale PIRDs and groups, while still supporting and not overloading the groups seeking modest but useful support and some structure with links to MLA. Separating PIRDs into two streams would help clarify issues such as the need for and role of professional advisers (expected for the larger PIRDs) and to reduce the application requirements for one stream while increasing the rigour for the other..

Suggestions

- *Keep the PIRD name, or versions of it.* There are so many 'programs' across rural industries and titles change often. PIRDs have a level of recognition and established goodwill.
- *Consider a two stream approach, distinguished along the following lines.*

	Producer Initiated Research Testing PIRTs	Producer Initiated Research & Development PIRDs (or SuperPIRDs)
Key features	Groups aiming to increase producer knowledge and to apply that at a local level through study tours, workshops, small scale surveys and trials, focussed on the group.	Groups aiming to identify and test a range of research findings, to invest time and effort in sizeable trials on farms or from farms to processors or markets, to produce scientific type results deserving systematic analysis, perhaps to 'break new ground, can include tours, workshops, speakers.
People focus	On the members of the Group applying	Group and wider audiences, results applicable locally, regionally
Funds, say	Up to $7,000	Up to $20,000 (similar level to SGS regional sites) perhaps $100,000 for some. Most funding for professional links, skilled advice, testing, analysis of results, reports, knowledge gathering, communications
Application, assistance, reporting, administration.	Simplified application form, less formal financial agreement, and less reporting (end of activities only). Clearly state and publicise criteria.	Expect: Focus, demonstrated management capacity. MLA and researcher contact during application, advice on structure, science, past research, structure, issues. Consider some delegated admin (SGS way?) Consider assistance to group dynamics. Regular reporting, interaction with MLA.
Flow-on	Final report for use in Outcomes book	Extension of knowledge and results as key part of project, some MLA assistance as beneficial to other producers and MLA
Future	Could develop into PIRD applicant groups also local communicators.	Active, professional parts of the PIRD Network. Groups could be approached for research testing partnerships. IP questions?

- *Publicise these different categories* of PIRDs and MLA's expectations and commitment. Dual streams should expand producer group opportunity to become involved in 'testing' and 'applying' research, initially on moderate scale, then more seriously.

iii. More successfully completed PIRDs

"If PIRDs fall in a hole, usually due to champion being too busy. Find way in PIRD to compensate organiser." *1998 mid term review notes*

Of the 246 PIRD grants over 1993 to 2000, 125 were completed, 56 are active, 43 did not start (17%) and 22 were cancelled (9%). A few others struggled and were unsatisfactorily completed (11 or 4.5%). In discussions with participants from these groups, there was little evidence of ill-will toward PIRDs or MLA, but there is potential for this to occur.

A range of assessments were received on the reasons for non-success, both from committee members and group participants. These included:

- Champion / driver being too busy, in an accident, losing interest.
- Groups had not explored carefully and openly the purpose of the application, what they wanted to achieve as individuals or collectively
- Weather (particularly the drought of 1996-1997)
- Overload of PIRD administration requirements and instructions.
- Wanting to change direction, not agreed.

Suggestions

- *Implementing a two-stream approach* should enable some of the issues relating to non-success to be addressed, in different ways for each. For instance, simplified administration for the PIRT stream, more focus and structuring in advance for the PIRDs.
- *Consider mechanisms for involving the driver(s) more closely in the PIRD Network*. eg. telephone hook-ups to discuss issues relating to progressing PIRDs (eg, dealing with scientists, planning communications). Cross-invitations to PIRD events.
- *Further encourage WIGS courses*, including problem definition and focus elements.
- *Be wary of potential for mechanical re strictions* on innovative larger PIRDs. One of the PIRD program strengths is that it has evolved naturally with its constituency and marketplace.

iv. Develop and harness the PIRD network and resource

The PIRD Network [diagram 1.4] and PIRD generated resource is significant but somewhat scattered and untapped. Harnessing this network has been mentioned through the report.

Suggestions

- *See PIRDs as the logical end of a chain* from base science, to applied R&D, formal publication and extension activities, through to hands-on testing and adult learning and usage. The PIRD network could provide hands-on trial points for findings from some research.
- *Consider PIRD applications and outcomes as practical indicators of R&D needs.*
- *Utilise the network to enhance results* and (already substantial) returns from PIRDs [2.5].
- *Encourage PIRD groups to provide active feedback* on priorities and issues to MLA for use in forward R&D planning, plus some knowledge and insights for researchers (also, perhaps to CCA and SCA). This feedback (reflecting producers' efforts not just commentary) could be collected from PIRDs directly and through the Network.

Appendix A: 1997 PIRDs – a sample year

1997 was selected as the sample because this was a mid-way year and a number of projects has been reviewed by Jim Lees [1.3]. In 1997 there were some very successful PIRDs but also rather more 'completed unsatisfactorily' projects than other years [Table in 1.1].

	Group and Focus (No. in group)	Contributions MLA, other	Results and Uptake (mainly from final reports)	Extension	R&D and MLA Links
NSW	Lamb Marketing (12)	Budget $8,500 Spent $4,688 Group 45 days DepAg 32 days processor support	Completed May 2000. Downstream focus achieved. Improved lamb assessment abilities, procedure for producing, scheduling and delivering lambs from Group to processor. Understanding market realities. Co-operative structure investigated. Business Plan prepared. Members changed various practices.	Information flow within group, local interactions. Dep Ag field days Group reasonably satisfied but PIRD process difficulties	Marketing alliances, market chain terminal sire choice
NSW	Beef Breed Society (1,600)	B $10,000 S $10,000 Society $25,000	Completed. Funds assisted boosting of Breedplan understanding and use of EBVs, 50% increase in Grp Breedplan use. Further work needed on balanced breeding objectives (farm, product) and use of dollar indexes.	43 educational activities, 6 states EBV Brochure 3000 copies, four field days for agents Showring classes.	Breedplan Beef market chain
QLD	local BIA Value-based Marketing Workshop (28)	B $2,120 S 1,854 Grp, companies South Burnett Meatworks time	Completed March 1999. Workshop for 25 Feb 98. All improved marketing skills and overall effectiveness, some changed strategies (target Woolworths, MSA, direct sales, Korean, Jap Ox markets). New scales, ID, better handling. PIRD application too long for workshop but "workshop would not have taken place without the funding".	Workshop incl. bank managers, 3 young people entering beef industry. Excellent 2 days of learning.	Market chain MSA Indiv Cattle ID ViaScan, Retail Beef Yield
SA	Lamb Grp, Different systems of Finishing and Marketing Lamb (75)	B $8,900 S $5,950 Grp large input businesses PIRSA, CALM	Completed January 2000. producers more aware of production & marketing options, improved continuity of lamb supply, higher proportion lambs meeting customer size and quality specifications.	Grp raining and workshops, six field days & tours Newsletter Forward plans	CALM WIGS Mrktg alliances Ausmeat Lambplan rams Flockcare other
SA	Dairy Bull Grp Prodn Mktg Bull Beef (10)	B $9,530 S $1,283 Gr cattle, work PIRSA 8 days, speakers	Completed (unsatisf). Second PIRD. 94/S04 went very well. Developed best practice calf rearing book. Second had group difficulties. Much learnt, Full Guide book written, ready to publish. Need more backers, or could go on MLA website.	Group and local communication s. Potential for Guide to be an MLA publication and website	Close work with researchers PIRSA Struan and elsewhere
SA	Prime Lamb Grp Drench Resistance in sheep (10)	B $6,730 S $6,106 Group, PIRSA Wormtests, Pfizer capsules	Completed June 1999. Clear results, White drenches ineffective 100% properties, clear drenches 90%, combination 60%. Macrolide effective on all. Seasonal fluctuations. FEC essential tool and members using, changed drenching, reduced second summer drench.	10 properties.. Two public meetings well attended	Wormcheck Wormtest Faecal egg count Pasture larvae counts WA research
SA	Lamb Marketing Grp Prime lambs from Merino Ewes (25)	B $10,000 S $3,815 Grp purchases Consultant,	Completed April 2000. Members making better (and younger) ram selection decisions for markets (most now using Lambplan indexes with awareness of needs), managing young	Six property trials 3 years. Meeting to discuss Ram	Lambplan terminal sire breeds pregnancy testing

		l'stock agents	ewes, mating 50kg, some pregnancy testing. Information on East Friesian, Texel rams. Future work proposed: Ground-truth Lambplan ram data; testing buying ewes at 1.5 or 5.5 years.	Supply Tender (A Ball), Field day 1997 30 producers 3 speakers; 1999 on Lambplan data Group newsletter	nutrition management
SA	Beef Group Beef Marketing Specifications (17)	B $5,439 S $1,277 Group activities PIRSA advisers	Completed (unsatisf) Nov 2000. Started well but slowed then stopped by good beef prices, changed abattoir ownership. Involved in Prograze courses, Cattlecare.	Group meetings, speakers, open days, field days, wide net.	SGS Prograze Cattlecare MSA
SA	Merino Breeders Meat Marktg Grp, SA Prime Entire Lamb (350)	B $4,040 S $ 0 Grp. PIRSA, L'stock agents	Completed (unsatisf). Slow in getting organised, eventually faded and closed.		
SA	Lamb Grp Mineral Nutrition for Finishing Lambs (30)	B $7,000 S $4,727 Grp, SARDI PIRSA people & funds	Completed. Drenching with mineral supplements was common practice. Found to have no effective response but more needed to be known about worms on irrigated pastures and feed quality. Members gained knowledge to make changes.	5 properties trial & workshop. Results publicised.	SARDI worms nutrition pasture research
VIC	Field Days Lamb Grp Lamb Production, Lambplan Rams (40)	B $9,582 S $ 6,591 Bendigo TAFE CSL, DNRE suppliers, Grp	Completed July 2000. Compared high and average performance Lambplan rams / EBVs. 'High EBV Lambplan rams produce more meat from every lamb.' Merino ewes more profitable than crossbred ewes. Learnings bang used by members and wider audience. :unfortunately not all ram breeders are in Lambplan (because of the huge expense) ....". *Final Report*	Many sheep, 2 sites. Results public. Local press, big Elmore Field Day viewing Publicity less for final. Info to Lamb Marksman Grp Network.	Lambplan Prograze worm focus farms
VIC	Prime Lamb Grp Effective Lamb Production (45)	B $ 8,669 S $ 8,668 DNRE, agents speakers, AMLC	Completed October 1999. Many activities [see 2.3.iii]. Many members have made business changes as a result of the various activities and group interactions. Planning further trials and projects including PIRD applications.	Meetings, seminars, tours courses, dinners. Group size up from 20 to 68 and growing.	Prograze WIG Lambplan Benchmarkin g Flockcare Chemical care Marketing
VIC	Land Protection Assoc Earthworms to increase Pastures (22)	B $10,000 S $ 1,225 Grp work CSIRO 50 days	On hold due to run of dry seasons. Considerable knowledge attained by members, farmers. Well structured project underway.	30 farms. Limited publicity so far.	CSIRO Entomology work, Dr Geoff Baker
WA	Prime Lamb Devel't Grp. Lamb turnoff (20)	B $3,000 S $ 370 Grp, AgWA 30 days, CALM. abattoir	Completed (unsatisf). Had difficulty getting the PIRD going and then maintaining focus. Eventually closed.		CALM
WA	Prime Beef. More profitable market' strategies (20)	B $3,795 S $1,623 Grp activities AgWA advisers, Wesfarmers etc	Completed (unsatisf). Slow progress. Established local 'sale by sample'.	7 at field days 11 on study tour	marketing
WA	Regional BIA Kikuyu & Phalaris Grazing (17)	B $7,060 S $3,446 Grp 16 days AgWA 65 days	Active. Reviewed by Jim Lees. Aimed to raise group members' knowledge of management of these pastures. Goal met. Most planted more kikuyu plus annuals. Wider BIA less interested (eg. crop farmers)	Grp pasture walks but other limited. Some BIA members at SGS farm walks	SGS

WA	Regional BIA Ergotism, Heat Stress in Cattle (53, 85)	B $9,960 S 0 AgWA 30 days	Active. Slow progress, change of contact person and driver.		
WA	Beef Finishing on Tagasaste (38)	B $4,652 S $2,561 Businesses and consultants speakers AgWA	Completed Jan 2000. Cattle performance certainly improved by 25% supplement, best 2 kg lupins per head per day. Outcomes showed that commercial sense depends on markets targeted.	Results public, science journal, 100 at 2 field days, Tagtalk, news articles.	Tagasaste Nutrition
WA	Tagasaste Prodn Grp Alley Farm Systems Tagasaste (55)	B $9,684 S $ 966 Businesses, advisers, AgWA seed suppliers	Completed (unsatisf). Grp interest waned. Wingless grasshoppers ate tag first year. 3 AgWa staff resigned. Commitment to assist apparently not followed through.		Tagasaste Nutrition Grazing systems
NSW	Combined Sheep Producers Gr Sheep Physical Traits	B $35,700 S $ 6,816	Active. Data being used by Lambplan	Reports in FEDDBACK, Lambplan news	Lambplan
	Non-start or Cancelled				
NSW	Prime Lamb Marketing		Non-start by group, said had done much, wanted commercial confidentiality		
NT	Beef group		Group did not get started		
Q	Beef group		Did not start, technically not ready		
SA	Sheep meat Producers		Group took no action.		
VIC	Beef alliance group		No action, drought, group sold most of breeding herd		
VIC	Branch Grasslands Soc Vic		Trial site sold		
WA	Beef Discussion Group		No group support, no response to correspondence		
WA	Landcare District group		Made a start then faded		
WA	Sheep Producers Grp		Mixed enthusiasm, eventually cancelled.		

Appendix B: Sources

The MLA-PIRD commissioned evaluations by Lees and Collins and the final reports of some projects plus Don Story's summaries across the years (using final reports and discussions) provided considerable information. Further background and perspectives were obtained in telephone and email communications with a cross-section of PIRD stakeholders.

Producers, facilitators, PIRD stakeholders
Almost all sheep producers have meat and wool businesses. Most of these producers have been involved with Meat PIRDs (cattle, sheep, grazing etc), some with Wool PIRDs.

Bill Bray, Chair VFF Pastoral Council, CCA, former PEC member, group in two PIRDs
Simon Campbell, Blackall Qld
Geoff Davis, Fleurieu Beef Group, Myponga SA
Pip Rasenberg. Wagyu & Dairy Beef (two groups), Millicent SA
Caroline Gaden, Cicerone, Armidale NSW
Jim Harris, Warrah Creek Landcare Group, Willow Tree NSW
Tom Hawker, SA Stud Merino Breeders re meat PIRD
Joe Lane, NSW Farmers' Association
Stuart Mitchell, Bollon Qld
Andrew Nicholson, South Australia
Mark Robertson, Finley Lamb Group Victoria
Ian Rogan, Hassall & Associate, past PIRD facilitator
Ian Simpson, SGS Regional Committee Co-ordinator
Peter Speers, Simmental Society, NSW
Mike Stephens, Executive Officer, Beef Improvement Association
Jenny Sydenham, Geelong Murray Grey Breeder Group
Nicole Varley, two 2001 sheep applications, Shepparton Vic

Group Reports: Wayne Moxham-Price Chairman, Monto Branch BIA
Kate Joseph Co-ordinator South West Prime Lamb Group
Oberon Lamb Marketing Group
Kangaroo Island Lamb Grp
Willalooka Prime Lamb Grp
Lwr Nth Lamb Marketing Grp
Greenways Lamb Grp
Campaspe/Elmore Field Days Lamb Grp
Mid West Tagasaste Prodn Group – Beef

PIRD Evaluation Committee Members
Jeff Murray, Beverley WA
Ailsa Fox, Merton Victoria
Mike Hill, Roma Qld
Philip Harpham, Tenterfield NSW

MLA and PIRD operations
Len Stephens. General Manager Livestock Production and Innovation
Gabrielle Kay, Manager Producer Training & Development
Peter Loneragan, Manager North Australia Programs
Hutton Oddy, Manager Southern Programs – Beef
Ben Russell, Manager Southern Production Programs – Lamb
Robert Banks, Manager Strategic Planning and Genetics Co-ordinator

Gerald Martin PIRD Co-ordinator
Jim Lees UNE Institute of Rural Futures
Don Story - PIRD communications for MLA

Reports and papers

Final Report of the Assessment of the Performance of 1997 PIRD Projects, Jim Lees, 2001
(also 1996 projects, 2000)

Development of an Evaluation Strategy for PIRD Projects,
K Roberts, Rural Extension Centre UQ 1999

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MLA *On-farm Research Results* – New Products and Services for Beef and Lamb Producers

MLA *Annual Report 1999-2000*

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Neil M Glass, *Management Masterclass Chp 3. A revolution in performance measurement*,
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R Clark, J Timms, A MacCartney, K Egerton-Warburton, N O'Dempsey, B Radokovich: *Achieving and enabling Continuous Improvement and Innovation: Focussing Action for Impact on Performance! – In a Team? In a Partnership? In a Network?*', 2001

SP Marsh, DJ Pannell, *The New Environment for Agriculture,* A report for the RIRDC, 2000.

R. John Petheram, *A Manual of Tools for Participatory R&D in Dryland Cropping Areas,* University of Melbourne, RIRDC project.

UNE, *The impact of farmers' participation in home study programs, local groups & wider information networks on the adoption of sustainable integrated management practices*. RIRDC 1998