



# final report

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## Pastures Australia Management Agreement

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**Executive summary**

Australian Wool Innovation (AWI), Meat and Livestock Australia (MLA), Grains Research and Development Corporation (GRDC), Dairy Australia (DA) and Rural Industries Research and Development Corporation (RIRDC) worked together to develop an investment model (Pastures Australia) that will meet the needs of their various industry stakeholders and capture maximum value for R&D investment. This project was to support MLA's contribution to Pastures Australia. Carefully placed and co-ordinated investments should lead to better outcomes, greater impact, and less duplication of research efforts.

Pastures Australia aimed to provide the common pasture investment model for the five RDCs named in this agreement. It provided a forum to facilitate an integrated approach to pasture improvement and pasture management. It should be seen as a co-ordinating entity to improve information flows and facilitate improvement in pasture genetics and management relevant to the needs of different regions. The goals and objectives were focussed on the essential elements of R&D and not attempt to undertake activities best done by commercial entities and other stakeholders.

Pastures Australia was successful in assisting bringing together discrete sections of RD&E the supply chain, commercialising of varieties, developing associated management information, proposing new processes (breeding methods and partnerships). Progress was made addressing the fragmented nature of the pasture supply chain (as identified in an external review of Pastures Australia) demonstrated by the formation of the basis for a pasture variety trailing network. However, a revised business model for Pastures Australia was required if it was to achieve the sought after aspirations of a coordinated supply chain.

## **Background**

Pastures play a central role in the production of meat, wool, grains, milk and fodder across Australia and are a common feature in investment portfolios for the Rural R&D Corporations. It is the generic value of pastures that provides an opportunity for co-ordinated R&D investment.

AWI, MLA, GRDC, DA and RIRDC have been working together to develop an investment model that will meet the needs of their various industry stakeholders and capture maximum value for R&D investment. Carefully placed and co-ordinated investments should lead to better outcomes, greater impact, and less duplication of research efforts.

Pastures Australia was to provide the common pasture investment model for the five RDCs. It will provide a forum to facilitate an integrated approach to pasture improvement and pasture management. The aspiration was for it to be seen as a co-ordinating entity to improve information flows and facilitate improvement in pasture genetics and management relevant to the needs of different regions. The goals and objectives are focused on the essential elements of R&D and not attempt to undertake activities best done by commercial entities and other stakeholders.

This project was the Management Agreement to provide the managing agent (AWI) with MLA's contribution to PA.

The role of a Pastures Australia initiative is to;

- Provide a strategic approach to investment that is both market lead (applied research) and research driven (basic research)
- Provide a forum to facilitate an integrated approach to pasture improvement in pasture and pasture management, both technical and commercial
- Improve information flows (commercial and technical) and facilitate improvement in pasture genetic information and management relevant to the needs of different regions
- Improve the performance of existing capability (public and private) without controlling the marketplace
- Not attempt to undertake activities best done by commercial entities.

The Management Committee of Pastures Australia developed a Strategic Investment Plan which includes the following;

- Ongoing market research and identification of priorities
- Monitoring of adoption and return on investment RD&E priorities towards achieving the outcomes described in the investment strategy - including implementation of genetic evaluation system, regional testing network, agronomy and management, 'pasture picker' web based tool, engagement of the private sector, plant breeding only where a demonstrated market failure case exists.
- Better information and advice to support decisions by farmers and their advisors.

The proposed role and scope of functions of Pastures Australia (PA) was developed in 2006 by representatives of the five investor RDC's in consultation with a broad cross-section of industry throughout Australia. An investment strategy document was produced to be used as the primary reference point for the focus of PA activities and assessment of success.

Analysis of strategic intention outlined in that document against activities undertaken and results generated follows.

### **Pasture plant improvement**

During the period 1985-1998, the grains, wool, dairy and meat industries all invested in plant breeding. During that period, the majority of pasture breeding within Australia was conducted within State Departments of Ag, and tended to depend on:

- a small number of key individuals, working usually on a particular species for a particular region
- commercialisation was via tendering for licenses at the end of a "development" period, around 10 years or more, to commercial marketers.
- State DPIs have progressed individual commercial relationships to support their breeding programs

AWI and GRDC have had a lengthy partnership in supporting NAPLIP (National Annual Pasture Legume Improvement Program), and generated many new lines of annual legumes. Recognising this investment in annuals, MLA's focus (in some cases partnering with the dairy industry) was orientated to perennials. GRDC was also a significant investor in lucerne. There was recognition of this somewhat ad hoc strategy for MLA investment in review of meat industry investments in pasture breeding, conducted in c. 2000 by Alex Lazenby, the conclusions of which can be summarised as follows:

- meat industry investment in pasture breeding is a good thing
- it has been successful
- we have no data on kg seed sold from improved varieties, ha sown or industry impact

During the early 2000's, through discussion with RDC staff, producers, researchers and advisors, the following was noted:

- pasture breeding as then practised makes little or no use of tools now routinely used in animal breeding for statistical analysis. This is partly due to lack of pedigree data, and so it is very hard for the people involved to make good comparisons of genetic material from different sources or from different years (both of which are routine in animal breeding)
- in consequence, any comparison of genetic material such as new v old cultivars is done on a relatively small scale, almost invariably limited to within company, and within a small number of environments
- in consequence, the material available to commercial producers seeking to purchase improved pasture seed, is extremely variable in both quality and quantity of objective information about the varieties and cultivars available
- because of the combination of methodology and resulting poor information, it is not clear how much better the new variety is against other like varieties, and so potential customers have no basis for confident decision-making.
- in consequence, there is a lack of trust in the supply chain - there is reluctance to take on new varieties, and so lower than ideal uptake, less investment than ideal in breeding programs, and hence lower rate of progress than should be achieved
- management information is not present with new lines, thus making adoption of new lines somewhat exploratory and so risky
- ROI of plant breeding investments was uncertain (in terms of benefit to grain, wool or meat production).

Result: market failure due primarily to lack of information.

In general, there is almost no sound information in Australia on rates of progress in (for example), dry matter production per ha, and uncertainty if new improved varieties can produce more animal food per ha per dollar of input, reduce risk, or improve environmental outcomes than older varieties.

## PASTURES AUSTRALIA

MLA raised these concerns with the other RDCs involved in funding pasture breeding (AWI, GRDC, DA and RIRDC), and built support for a more coordinated approach, which has come to be known as Pastures Australia. In this framework, the parties have agreed to a program over a 5-year period (starting 0506 to 0910), including the appointment of a coordinator.

The purpose of Pastures Australia was to capture increased value for farmers and a key priority is facilitate the development of a more informed market place.

There were 5 primary areas of Pastures Australia focus:

- **Technology** - new genetic technologies for application in pasture breeding programs, increasing the likelihood of genetic progress
- **Information** - establishment of a National Variety Testing network, underpinning improved information for breeders and customers
- **Post-purchase management** - research in the agronomy of new cultivars and varieties, reducing uncertainty about obtaining value from a purchase/renovation decision
- **Extension** - coordinated extension on the value of new pasture varieties, increasing understanding of the value of renovation and the value of improved varieties/cultivars
- **Coordination and leadership** - consult with all sectors in the supply chain; ongoing market analysis, create greater 'pull through' of improved varieties by each sector in the supply chain based on improved knowledge and confidence; transition from the current model an agreed model;

Each of the RDCs has a different history and priority for breeding, management package development and extension. All recognise each stage is important, and dealing with a fragmented supply chain is an issue.

The initiation of Pastures Australia caused some angst within traditional plant breeding groups as the message that support for plant breeding was likely to decline at a time of declining state government funding. Concurrent with this was an opportunity to explore new thinking in both partnering with commercial players and also in exploring MLA Donor Company options.

## THE CHARTER OF PASTURES AUSTRALIA

The purpose of Pastures Australia was to capture increased value for farmers from research, development and extension of improved pastures. The first priority is to facilitate the development of a more informed marketplace. This would be achieved by improving the flow and quality of information and ensuring that decisions are based on objective and complete data. Further development of skills in the industry will be required in addition to the provision of new processes, products and tools.

The achievement of a more informed market place necessitated the development of a comprehensive program beginning with the identification of critical information gaps, the establishment of appropriate R&D initiatives to fill them and a multi-dimensional engagement strategy to create interest and an incentive to learn. This has not happened for a range of reasons outlined in this document.

## MISSION

### Return on investment will be maximised by;

- **Sound market research**

Activity in this area was undertaken during the period under review with results reported in the 'Key Outputs' section of this review.

- **Investing in new plant breeding where market failure exists and demand can be demonstrated**

No new plant breeding investment was undertaken. Funding was provided to complete some existing NAPLIP breeding programs

- **Investing in processes and technologies that have benefit through the value chain - completed:**

1. Development of an integrated genetic improvement and evaluation process – a comprehensive plan developed and available for commercial/industry adoption
2. Pasture Picker – pasture selection tool developed with industry education and adoption program being implemented
3. Phosphorus Assessment Tool – comprehensive 'all of enterprise' tool developed with industry education and adoption program being implemented

- **Increasing our knowledge and analysis of variety performance and adaptation**

Initiated, but complexity of industry sector participation limited development.

Meetings and negotiations were undertaken with seed companies, and the Australia Seed Federation seeking to develop the business case, participation in and support for a regional testing network. MLA subsequently supported a coordinator (MLA project PAS.0296) to progress negotiations. A trial network was established.

Linking the trial network data to an EBV based evaluation system was scoped by a Pastures Australia project (Development of an integrated genetic improvement and evaluation process) however the model was not finalised during the Pastures Australia program, to establish an 'EBV system for pastures, as LambPlan is for the sheep industry.

- **Driving adoption of pasture technology through sound management packages**

Packages developed and available in South Australia and Western Australia with additional packages for NSW and Western Australia nearing completion (see Outputs)

- **Increased information flow and collaboration between different sections of the supply chain**

Not achieved to date. Issues involved are covered in the 'Key Outputs' section

## KEY OUTPUTS

***By 2010 Pastures Australia will have produced the following key outputs;***

### **A) Committed stakeholder network through the three Consultative Groups**

One of the fundamental problems identified with pastures was the fragmentation of industry with interest groups or sectors operating in 'silos' with minimal collaborative engagement between them. The originally proposed model of the three Consultative Groups consisting of Producers, Agribusiness and Research & Advisory was recognised as potentially reinforcing this separation so a more broadly inclusive consultative structure was implemented. Starting with a large industry forum in 2006, steps were slowly progressed to obtaining a more collegiate approach to pasture RD&E. From a series of industry, workshops held in February 2009 a voluntary Industry Strategy Group (ISG) was formed and an initial meeting of the group was held in April 2009. What quickly became apparent was that for it to be effective a more formal structure would be required with a clear role for ISG to be mandated. At that point the Management Committee commissioned the implementation of a review of PA (see MLA project PAS.0324) and development of ISG was suspended pending the outcome of the review. Subsequent to the review being completed the issue of an industry consultative group had not been addressed.

### **B) Market research which identifies pasture investment opportunities for the public and private sector**

Three substantial initiatives were undertaken with specific opportunities identified and documented:

#### **1. Market Analysis of the pasture industry**

The detailed report of market analysis of pastures in Australia was developed by the via desk top review, industry interview and the results were presented, reviewed and validated via industry representative and researchers as well as advisors and growers at nationwide workshops. The report addressed

- PART 1 - Summary for future Pasture Research derived from the Market Analysis.
- PART 2 - Market Analysis.
- PART 3 - Stakeholder Questionnaire and Workshop Report.
- PART 4 – Grower and Advisor Workshop Reports.

Pastures Australia undertook a number of steps in developing the new investment plan.

- **Steering Committee** - A steering committee was set up to set some broad objectives, provide terms of reference and commission the necessary steps to develop and complete the Business Investment Plan.
- **Market Analysis** - Pastures Australia commissioned and independent Market Analysis of the Pasture Market in Australia. This analysis addressed the value of pastures to the various commodities, provides a breakdown of the country into a number of regions with similar agro-climatic conditions, and provides an audit of current pasture species and varieties.
- **Industry Questionnaire** - The various stakeholders in the industry were identified and sent a questionnaire addressing their views on the state of the pasture industry in Australia. This allowed feedback on funding, breeding, genetic improvement, product path to market, delivery of pasture advice, likely farmer needs and commercialisation and licensing issues. Stakeholders involved in completing the questionnaire included:
  - Australian Seed Federation
  - Rural R&D Corporations
  - Federal and State Research Agencies

- Seed Companies involved in breeding and marketing
  - Seed wholesalers involved in regional marketing and distribution
  - Retail groups involved in seed sales to primary producers
- **Adelaide Industry Workshop** - An industry workshop was then held Adelaide on February 23<sup>rd</sup> and 24<sup>th</sup>, 2006. The workshop included the various industry stakeholders. At the workshop PA presented the preliminary business plan, market analysis and results from the questionnaire. An independent facilitator then sought feedback from the participants and broke them into groups to raise issues and focus on developing a proposed role for Pastures Australia and priority investment areas. The workshop group felt that farmer and advisor representation was lacking at the workshop, and that they were not the best group to set the priorities based on the differing regional needs of producers around Australia. They recommended that a series of regional workshops be undertaken to get feedback to the plan and set regional funding priorities.

**Regional Workshops** - Five regional workshops were held during April and May at Toowoomba, Wagga Wagga, Hamilton, Adelaide and Perth with participants drawn from the wider regions to attend. The groups were structured to provide about 50% producers, 25% researchers and 25% advisors and cover all major commodities benefiting from pasture investment. They were sent some background material from the Market Analysis to help prepare them for the session. At each of these workshops PA presented the key points of the preliminary business plan, regional information from the market analysis and results from the questionnaire. PA then sought feedback from the participants and broke them into groups to determine the priority investment areas to get the greatest return from PA funding.

## 2. ***Supplying the World with Australian Lucerne***

This study was initiated by PA being commissioned to develop an alternative investment model for the three public lucerne breeding programs in Australia, being conducted in Queensland, NSW and South Australia. The opportunity was a national breeding program that conceptually could be achieved from the strategic location of the existing three discrete programs (and their geographic coverage). Support for discrete breeding programs was challenging, particularly so as evaluation of different lines was being undertaken, but data sharing of performance was not sufficiently progressed between the breeding programs. Data sharing across geographic zones on performance of lines was a central component of a regional testing initiative to provide improved information and confidence in those purchases, by producers. The convergence of a regional testing network and breeding programs was one aspiration by addressing fragmentation. The investment prospectus developed generated six expressions of interest from the private sector. Subsequent integration of the breeding programs to meet the individual organisation's business interest was required to be undertaken by those individuals. This was not achieved - one contributing issue was the existing commercial partnerships with the breeding programs. Management of two of the three breeding programs involved subsequently declined to participate in the development of this initiative. The role of Pastures Australia was to facilitate the opportunity - by developing the prospectus, and seeking expressions of interest.

## 3. ***Pastures for Profit –opportunities to create more wealth from pastures in WA***

This study was a joint initiative between PA and DAFWA and involved a comprehensive assessment of the status of pastures in Western Australia and the opportunities and issues facing industry in the future. The study produced a comprehensive range of recommendations with the final report be lodged with DAFWA management, investor RDC's in PA and a number of the State government primary industry agencies. An offer



was also made to these state agencies to assist in conducting similar studies with them. This offer was not taken up.

### **C) Monitoring processes to estimate adoption and return on investment**

A market analysis report outlined industry characteristic and compiled seed sale information. Seed sales have been used as a metric for adoption, however it does not inform of success in establishment and subsequent conversion to increased, meat, milk, grain or wool. Likewise, enabling an assessment of ROI in plant improvement. No subsequent work was progressed due to limits in human and cash resources.

### **D) Management tools that assist pasture selection, agronomy and management**

Tools/packages developed:

1. Pasture Picker
2. Phosphorus Assessment – 5 Easy Steps training for producers
3. Sulla management package (SA & WA)
4. Growing biserrula to improve grain & livestock production
5. Whole farm case studies (3)
6. Farmnote for Bindoon RLEM tolerant sub-clover
7. Farmnote for Rosa Brook RLEM tolerant sub-clover
8. Twin sowing guide – DAFWA
9. New pasture legumes guide – NSW DPI

### **E) Agronomy, management and farming systems knowledge and practices developed for at least 6 varieties being commercialised:**

1. Bindoon – sub-clover
2. Rosa Brook – sub-clover
3. Cougar – pod holding medic
4. Moonbi – sulla
5. Wilpena – sulla
6. Flamenco – sulla
7. Casbah – biserrula
8. Mauro – biserrula

In development (NSW)

9. Bladder clover
10. Gland clover
11. Margurita – French serradella
12. Cadiz – French serradella

### **F) Piloting of a regional testing network, supported by analytical and data storage tools funded from public and private investment**

Pastures Australia progressed the negotiation between individual seed companies (individually and collectively) and the Australian Seed Federation laying a strong foundation for greater interaction. A trial and operator accreditation process was developed, combined with an external audit process. This was developed in consultation and had participation from seed companies.

MLA progressed development by Pastures Australia of a variety testing network and it commenced (see MLA report PAS.0296). The program established a series of independently run (to seed companies) evaluation trials. Seed companies identified and contributed lines for evaluation. A management group with the seed companies was developed.

**G) Demonstrated evidence of strong commercial and professional relationships throughout the pasture supply chain between investors, breeders, seed producers, marketers, agronomy advisors and farmers**

Establishment of the proposed industry steering group had the potential to play a key role in this area but without it no measurable improvement in these relationships has been generated. Roll-out of the regional testing network, having the Australian Seed Federation be a key contact point for the variety testing network business plan (instead of individual companies), Pasture Picker (and annual contributions to updating information on seed company lines) and Phosphorus Assessment tools provided the foundation to assist in this supply chain connection.

**H) Effective management of commercialisation, IP and royalties for pasture varieties and technologies**

Review of commercialisation agreements (between breeding agencies and commercial partners) by the Pastures Australia Coordinator indicated they could be improved, concurrent management packages were not often described, performance information to provide greater confidence in those purchases not available. A significantly improved process was implemented for the DAFWA releases with management information coupled to lines (for the sulla and medic programs). Funding of breeding programs by the RDC's has now been reduced. A comprehensive investment plan was also developed for lucerne but not adopted by the breeders involved.

The development of MLA's feedbase investment plan subsequently developed the actions from Pastures Australia with a focus on new investment being in the area of market failure - pre-breeding.

**I) A genetic evaluation scoped and trialed**

Completed and awaiting commercial adoption

**CONCLUSIONS**

The aspirations and intentions for the establishment of Pastures Australia were well developed and well articulated. Implementation of those aspirations however, has not been fulfilled even though many of the projected outputs have been met. There are many reasons for this shortfall, some of which but by no means all, are outlined as follows:

- The magnitude of the task and resources required in achieving the goals set was significantly underestimated.
- Investor members only partially committed their pasture programs to this initiative. Whilst there were valid reasons for this approach it robbed PA of the status of pastures 'umbrella' entity in the eyes of the broader industry who remained unsure of the extent of its role
- Management input from the investor members was at the wrong level. Middle management representatives were competing within their own organisations to

articulate the relative merits of PA against other initiatives and therefore it struggled to gain 'corporate' recognition within the RDC's, with the exception of MLA

- Fragmentation of the pasture industry and the secondary nature of its role in farm, and supply chain income generation, makes it a lower priority for sustained engagement by most industry operatives

The first three points listed would need to be addressed if there is to be any prospect of impacting the fourth point.

An external review was conducted (MLA project PAS.0324). It was conducted as Pastures Australia (PA) entered the final year of its first cycle (2006 – 2010). The aim was to review the programs, progress and performance and to assess and identify if there was a need for change and if so what would that change look like.

The review was undertaken within the context of an industry which lacks agreement by its participants as to what the pasture industry represents. At that stage, it was an array of industry sectors which are characterized as being diverse in terms of their geographical distribution, production activities, products and markets. The only sector which clearly identifies that the pasture industry exists are those supply chain participants which are directly engaged in plant breeding, seed production, processing and marketing, and participants engaged in pasture management systems (e.g. fertilizer and machinery).

Even within this sector there are competing principles (e.g. commercial drivers versus public good) which causes divergence and a lack of continuity. Many of the participants outside of the pasture sector identified themselves more as participants undertaking activities associated within 'silo's' namely sheep, beef, dairy and fodder production. The review identified that this dichotomy of views failed to recognize that the primary driver for all participants is the pasture and hence the various participants and sectors were all part of the one industry driving outcomes from a common base.

The review identified that PA's major strength was associated with its role in providing a central focus for the supply chain participants and stakeholders within the pasture industry to communicate and coordinate pasture related R, D & E activities.

It became evident to the review panel during the collection, collation and review of inputs to the PA review that of the objectives established for the review panel the most significant in terms of delivering a meaningful outcome to the PA investors would be to focus on what changes would be required to make PA successful going forward in terms of delivering value to the pasture industry. Given that the majority of information contributed to the review by participants acknowledged that PA had a significant role in the pasture industry going forward, however change was required to occur in PA if this support was to be harnessed.

It was agreed by the review panel that there is overwhelming support and good will from pasture industry stakeholders and the RDC's towards Pastures Australia. As an industry they fully support continuance of PA albeit that it needs some critical adjustments. The review panel concluded that without change, the current static PA model will not be well placed to deliver on its current objectives or those of its RDC and pasture industry stakeholders. Therefore, for PA to be successful, it will need a change in paradigm and realign its charter/objectives.