



RURAL INDUSTRIES RESEARCH  
& DEVELOPMENT CORPORATION

R&D Plan for the  
**Pasture Seeds Program**  
**2003-2008**

**A report for the Rural Industries Research  
and Development Corporation**

January 2003  
RIRDC Publication No 03/004

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ISBN 0 642 58572 5

ISSN 1447 2732

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Publication Number: 03/004

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#### RIRDC Contact Details

Rural Industries Research and Development Corporation

Level 1, AMA House

42 Macquarie Street

BARTON ACT 2600

PO Box 4776

KINGSTON ACT 2604

Phone: 06 272 4539

Fax: 06 272 5877

email: [rirdc@rirdc.gov.au](mailto:rirdc@rirdc.gov.au)

Internet: <http://www.rirdc.gov.au>

Email: [rirdc@rirdc.gov.au](mailto:rirdc@rirdc.gov.au)

January 2003

Printed by Union Offset Printing, Canberra

Design, layout and typesetting by RIRDC Publications' Unit

# Foreword

The pasture seed industry is, of itself, a small industry but a vital one to our livestock and pastoral enterprises

The R&D program administered by RIRDC is funded by statutory research levies and matching funds from the Commonwealth Government. The legislative authority for these levies comes from the Pasture Seed Levy Act 1989 and, at present, the levies cover certified seed for the clovers, medics and lucerne.

This Plan has been drawn up with particular reference to these levy based seeds. But its coverage is broader and has an objective of prompting some debate about a possible expansion of the levy base. Under the legislation there is scope for such an expansion although implementation is dependent upon extensive consultation in accord with strict Government Guidelines. It is hoped that the distribution of the Plan will aid debate for specific industry sectors about the possible inclusion under R&D levy arrangements.

In the longer term the coverage of the current arrangements could be expanded and it is hoped that this Plan can act as a catalyst in that process.

A lot of work has been undertaken in drawing up this Plan. It has been the subject of a workshop and extensive consultation with industry. On behalf of the Corporation, I would like to thank all those involved for the contribution that they have made.

**Simon Hearn**  
Managing Director

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# 1. Introduction

Statutory key funding arrangements for pasture seeds research were introduced in 1989. The arrangements apply to certified seed of prescribed species and cultivars. The levies currently apply to certified seed for clovers, serradella, medics and lucerne.

In 2000-2001 levies on these three species raised nearly \$190,000 and when matched by Commonwealth funding, these arrangements provided all up funding of around \$385,000 for the program.

Under the legislation there is provision for certified seed of other pasture species and cultivars to be added to the program. At this point growers of tropical pasture seeds have indicated general support for a levy but implementation is subject to further consultation in accord with current Government guidelines. There is nothing to stop additional species from being added if the industry requests that particular course of action be followed in accord with Government guidelines and it is supported by the Portfolio Minister. It can be done by gazettal action under Section 9 of the Pasture Seed Levy Act 1989.

## 2. Purpose of the Plan

This plan has four main purposes : -

- to present the rationale for the Pasture Seeds R&D Program that RIRDC manages on behalf of industry and the Commonwealth government;
- to provide clear signals concerning R&D needs and priorities for the period 2003 - 2008;
- to encourage and support discussion between the industry, the Corporation and researchers that will enable future changes in the needs of the industry to be identified, and responded to effectively; and
- to provide a framework within which consideration can be given to extending research levies beyond the existing ones - clover, medics, serradella and lucerne - to other pasture seeds.

The Pasture Seeds Program is over-sighted by an Advisory Committee. Details on its membership are at Appendix 1. This Committee is responsible for ranking research funding proposals within the framework of the Five Year R&D Plan. Its primary focus is on those pasture seeds which are levied to fund the program.

### 3. Vision Statement

The vision for the future, shared by the industry, RIRDC and the research community is :-

*A profitable and sustainable pasture seeds industry based on a reputation for the reliable supply, domestically and internationally, of a range of pasture species.*

## 4. The industry in brief

Changes have occurred in the Australian pasture seed industry since the last Seed Program was developed [R & D Plan for the Pasture Seeds Program 1996-2002]. Unfortunately, these changes are impossible to quantify because it is still just as difficult to obtain accurate up-to-date information as it was five years ago. For example, comprehensive information about domestic market sales and the level of imports and exports is impossible to obtain.

Best estimates suggest that annual sales of seed of the main pasture plants needed to satisfy the domestic market are: Ryegrass<sup>1</sup> 6,200 tonnes; Lucerne<sup>2</sup> 2,500 tonnes; Subterranean clover; 2,300 tonnes; Annual medics 1,800 tonnes; White clover 800 tonnes; Tall fescue<sup>3</sup> 400 tonnes to 500 tonnes.

Australia does not need to import much seed of pasture plants. The ryegrasses (about 4,600 tonnes) and tall fescue (about 700 tonnes) are the only two bought in significant tonnage.

In contrast, Australia has quite large export sales. Recent estimates indicate the following: Temperate legume seeds 7,700 tonnes valued at \$18.70 m (Lucerne 4,000 tonnes); Temperate grasses 950 tonnes valued at \$2.17 m; and Tropical and sub tropical plants<sup>4</sup> 685 tonnes valued at \$2.90 m.

There are many reasons why Australia should be viewed as an attractive place to produce seed, particularly as every major world climate can be found within the country, and our relative isolation should be seen as an advantage. There is clear opportunity for the Australian seed industry to expand with this good potential to increase exports of pasture seeds.

Indeed, the Australian seed industry is now much more a part of a global seed industry than it was five years ago. The trend to thinking globally has accelerated in recent years. The Seed Industry Association of Australia [SIAA] has undergone quite dramatic changes in its relationship with multinational companies. All the big Australian companies are now owned by overseas interests. This has had an impact on SIAA's thinking towards the production and sales of seed.

Considerable change to the seed industry was anticipated when Plant Breeders Rights (PBR) were introduced, and many of these changes have occurred. However, much privately owned seed was surprisingly slow to establish market share, although recently the market has demonstrated a willingness to accept the new varieties.

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<sup>1</sup> Somewhat less than 60% perennial ryegrass, with a noticeable swing to annual ryegrass, more than 40%

<sup>2</sup> A growing market

<sup>3</sup> Well up from the 100 tonnes previously

<sup>4</sup> Almost all grasses

A pleasing change in agriculture is the pastoralists' better understanding of the benefits of pasture improvement, and their willingness to improve agronomic practice such as sowing seed suitable to their properties and enterprise. Credit for this change is probably shared by many, including RIRDC, agronomists, and the companies who have increased their level of service, (better technical backup, an emphasis on seed quality, and more effective distribution). Associated with this improved understanding is the quite rapid adoption of seed coating, ensuring that the elements necessary for healthy seedling growth are adjacent to the young plants, with one major company reporting an increase in such sales of 50% in one year.

Pastoralists' improved ability to sow seed suitable to their environment and enterprise has been enhanced by the development of the Pasture Species Database which has replaced the 'Recommended List' which can be accessed on the internet at: <http://www.meu.unimelb.edu.au/grasslands/>

Although the total level of seed sales fell in recent times, it is now increasing. This trend is likely to continue, although this may be partially dependent on the economic performance of such commodities as beef, sheep, and wool. The overall value of seeds has increased and this trend is likely to continue.

The seed industry has become more structured, particularly since privately owned seed has captured a larger share of the market. The contractual arrangement between the grower and the seed owner has largely facilitated the more rigorous structure – the seed owner being responsible for the marketing of the seed in the vast majority of cases. Some people express concern that large corporate distributors are likely to attempt to dominate marketing to farmers and graziers, however, it is almost certain that regional companies will still play an important role in such sales.

The past five years have brought substantial changes for seed growers, particularly to the contractual arrangements referred to above. There has been diversity in ability to cope with these changes. Many seed growers initially welcomed the opportunity to grow seed for a seed company without having to worry about the marketing of the product. However, some are now questioning the value of the benefit to seed growers.

There has been an increased effort in the seed industry to make 'supply and demand' for seed more coincident. Success is dependent on the ability to predict which varieties consumers are going to buy, and how much of each variety will be needed. This is often determined by the performance of various commodities, and weather conditions. As can be seen, the task is far from easy. Care must be taken, particularly in an over supply situation, that the marketing risks are spread, and not just borne by seed growers. The decrease in numbers of professional and experienced seed growers has noticeably declined in the last five years, commonly estimated at 10% per annum.

A further concern for the seed industry is to maintain a satisfactory funding stream for Research and Development. There have been few changes since 1995 in the groups of plants which are levied and the areas where levied seed is grown.

# 5. Analysis of Strengths, Weaknesses, Opportunities and Threats

The results of a SWOT analysis, which was undertaken during the R&D workshop, of the pasture seeds industry are presented below: -

## Strengths

- Australia's geographic isolation
- An established and innovative industry
- A reliable supply of seed lines
- A developing national focus
- Adoption of integrated pest management systems
- A diverse range of climates
- International recognition
- A united seed industry committed to future prosperity of the Australian Seed Industry

## Weaknesses

- Maverick operators (marketing, QA and environmental)
- Lack of current information
- State borders and lack of mutual recognition
- A fragmented and geographically diverse industry
- Failure to communicate adoption of best practice
- Erratic demand, high costs and low prices
- Decreasing investment in plant breeding

## Opportunities

- Export potential
- Development of niche products
- Access to information from other regions
- A National Certification Scheme
- An expanding industry
- A wide range of species
- Under-utilised domestic market
- Shorter rotations
- International multiplication of seed
- Solving environmental problems in farming systems
- Utilisation of biotechnology (including GMOs)

## Threats

- Environmental considerations
- Declining terms of trade
- World trade
- Lack of suitable water
- Quarantine regulations
- Withdrawal of matching R&D funds
- Reliance on chemicals
- Managing GMO material
- Lack of experienced seed producers
- Availability of alternative grain legume crops
- Continued loss of human expertise from the Australian Seed Industry

## 6. Key Issues for the Industry

Key issues for the Australian pasture seed industry were discussed at some length at the RIRDC Pasture Seeds Five Year Plan Workshop held on 19 April 2002. Five key inter-related issues emerged as a result of these discussions and they became the basis for establishing R & D Strategies. Whilst it was agreed that all were important, Objective 1 (Communication of knowledge) was accorded highest priority. The other 4 Objectives were rated of equal importance.

### 1. **Communication of knowledge on the pasture seed industry to levy contributors, other user/consumers and R & D Corporations**

- Develop national database on Australian pasture seed industry, including R & D funded by RIRDC [RIRDC Research in progress reports are listed on ARRIP]
- Compile database of all levy contributors and other pasture seed growers and communicate directly with them showing value of RIRDC-funded R & D
- Establish website with up-to-date information on R & D
- Develop other avenues [e.g. RIRDC Newsletter, annual symposium] for communicating with other groups to promote achievements of pasture seed research funded by RIRDC
- Encourage national perspective for the industry
- Assist the assembly and dissemination of up-to-date statistics on the industry

### 2. **Seed Production to Maximise Yield, Quality and Processing Efficiency**

- Identify limits to maximising seed yield, quality and seed processing efficiency
- Analyse effects of constraints [genetic, environmental and management] on seed production and processing
- Improve understanding of management factors in maximising returns and minimising costs
- Develop best practice for growing, harvesting and processing pasture seeds

### **3. Development of New Products and Markets in Australia and Overseas**

- Market research to determine opportunities for marketing new products
- Identify difficulties in converting “unknown products” into commercially viable enterprises
- Make any technical requirements needed to develop markets
- Undertake trials to address and resolve any problems, using relevant R & D findings

### **4. Emerging sciences/technologies and risk assessment**

- Periodically [say every 5 years], review the developing sciences and technologies relevant to the seed industry
- Determine a process for evaluating these developments, identifying their implications and risks for the seed industry
- Develop and implement a recommended ‘actions statement’
- Store the information in an accessible database

### **5. Environmental Considerations in Sustainable Systems of Production**

- Co-ordinate with relevant authorities for up-to-date information and possible R & D funding
- Be aware of relevant legislation
- Develop best practice management strategies e.g. Integrated Pest Management, use of deep-rooted plants, management for water use efficiency, to reduce or resolve environmental degradation
- Establish a RIRDC ‘panel of experts’ to focus on important environmental issues [e.g. soil and water quality, build up of nitrogen, and irrigation management], highlighting their dangers to the environment and their relevance to the seed industry.

# 7. The Research and Development Program

The R & D program addresses the key industry issues of: -

- Lack of effective collection and dissemination of knowledge on the seed industry and support for effective adjustment to change
- Need for seed production technologies to maximise yield, quality and processing efficiency
- Need for environmental considerations in sustainable production systems
- Emerging sciences/technologies and risk assessment
- Development of new products and markets

All programs will focus on ensuring maximum adoption of research outcomes, this will include commercialisation where it is felt that this approach provides the most effective pathway for the seed industry to utilise research outcomes.

**OBJECTIVE ONE:     Improving the collection and dissemination of knowledge on the seed industry and support for effective adjustment to change.**

**Background**

The goal is to assemble and disseminate to various interest groups, knowledge on the Australian pasture seed industry, especially the value of R & D and to support the industry to effectively adjust to change.

**Strategies**

- Develop, in collaboration with industry, national database on the Australian pasture seed industry.
- Establish optimum methods of communication with interest groups.
- Support human capital development in the pasture seeds industry to ensure effective adjustment to change.
- Evaluation of institutional arrangements which govern the relationship between seed growers and other in the supply chain.

**Targets**

- Comprehensive and easily accessible database on the Australian pasture seed industry
- Improved flow of relevant information to the various interest groups.
- Pasture seed growers with improved capacity to adjust to change.

**Performance Indicators**

- Database developed and made accessible.
- Proportion of different interest groups better informed on the Australian pasture seed industry and on R & D in the industry, with reference to R&D Newsletter uptake, field day/grower meeting attendance and use of e-commerce training materials.
- Value of R&D appreciated by pasture seeds industry with consequent increases in industry contributions to R&D.
- Proportion of the industry able to adjust to change as reflected in improved marketing and diversification in seed production.
- Demonstrated improvement in communication and partnerships between seed growers, distributors and buyers ensuring suitable levels of competition and risk sharing.

## **OBJECTIVE TWO: Improved Seed Production Technologies to Maximise Yield, Quality and Processing Efficiency**

### **Background**

The goal is to identify the potential, and to improve the levels of pasture seed yields, quality and processing efficiency.

### **Strategies**

- Identify and analyse the constraints to the prosperity of the seed industry.
- Increase understanding of the effects of genetic, environmental and management factors on seed production and processing
- Improve the understanding of management factors in maximising returns and minimizing costs

### **Targets**

- Develop best practice for growing, harvesting and processing pasture seeds
- Increased range of useful pasture species for domestic use and export.

### **Performance Indicators**

- Development and adoption of innovative seed production technologies.
- Progress in development of best practice with consequent usage levels and productivity.
- Rate of adoption of best practice with demonstrated implementation of quality assurance systems for the industry.

## **OBJECTIVE THREE: Incorporating Environmental Considerations in Sustainable Production Systems**

### **Background**

The goal is to incorporate management practices which enable the development of production systems which are sustainable ecologically and economically

### **Strategies**

- Focus on important environmental issues relevant to the seed industry and determine priorities for R & D funding
- Cooperate with appropriate authorities and other interested bodies to obtain up-to-date technical and legal information and possible funding for high priority projects.
- Identify and prioritise the risks which may affect the sustainability of the pasture seeds industry.

### **Targets**

- Establish RIRDC 'panel of experts' to focus on issues [e.g. soil and water quality, irrigation management] with both implications for the seed industry and potentially damaging to the environment
- Comprehensive information on technical and legislative aspects of these factors enabling 'best practice' management to be developed.

### **Performance Indicators**

- Progress in identification and prioritization of risks affecting sustainability of the pasture seeds industry and improved management strategies to address environmental challenges.
- Rate of adoption of production systems which are sustainable economically and ecologically by producing more suitable seed varieties to address particular requirements.
- Level of improved understanding of constraints illustrated by an improved range of species for varying environmental conditions.

## **OBJECTIVE FOUR: Fostering Emerging Sciences / Technologies and Risk Assessment**

### **Background**

The goal is to ensure that the implications and risks of any newly emerging sciences or technologies are widely known in the seed industry.

### **Strategy**

- Determine and evaluate the potential effects on the seed industry of developing new sciences and technology
- Store information on new science and technologies in easily accessible data bank.
- Develop strategic plan to achieve background goal.

### **Targets**

- Draw up action statement for any implications or risks of new sciences/technologies
- Develop best management practice to optimise implications and minimise risks

### **Performance Indicators**

- Rate of adoption of measures [e.g. best management practice] to maximise benefits.
- Data on Australian and international scientific and technological improvements collected and disseminated to industry and other relevant parties.
- Level of producer/processor involvement in research projects and trials.
- Industry's contribution to necessary research.

## **OBJECTIVE FIVE: Encourage the Development of New Products and Markets**

### **Background**

The goal is to develop new products and markets in Australia and overseas for pasture seeds

### **Strategies**

- Undertake market research to determine opportunities for new products
- Determine products and market with potential for development

### **Targets**

- Define and propose solutions to technical and other problems [e.g. legal, IP constraints] potentially limiting to market growth
- Undertake trials to test proposed solutions

### **Performance Indicators**

- Levels of R&D undertaken.
- Identification of new products and markets.
- Market expansion in Australia and overseas with product diversification.
- Level of investment in new products

# Appendix 1

## Pasture Seeds Research & Development Advisory Committee at September 2002

**Chairperson:**

**Mrs. Penny Hendy**

Ph: (03) 5865 8312  
0409 658 312  
Fax: (03) 5865 8302  
geofpen@cni.com.au.

RMB 2708  
KATUNGA VIC 3640

**Mr Jock Kreitals**

Ph: (02) 6273 3000  
Fax: (02) 6273 3756  
jkreitals@grainscouncil.com

Grains Council of Australia  
PO Box E10  
KINGSTON ACT 2604  
(Level 2, NFF House, 14-16  
Brisbane Avenue BARTON 2600

**Mr David Pengelly**

Ph: (08) 8755 1736  
0419 845 973  
Fax: (08) 8755 3290  
pengelly@lm.net.au

PO Box 202  
KEITH SA 5267

**Mr Hugh Roberts**

Ph: (02) 69 421 184  
Fax: (02) 69 423 337

"Birralee"  
COOTAMUNDRA NSW 2590

**Prof Alec Lazenby**

Ph: (02) 6281 2890  
Fax: (02) 6281 0451  
alazenby@netspeed.com.au

63 Kitchener Street  
HUGHES ACT 2605

**Research Manager:**

**Dr Jeff Davis**

Ph: (02) 6272 4152  
Fax: (02) 6272 5877  
jeff.davis@rirdc.gov.au

Rural Industries R & D  
Corporation  
PO Box 4776  
KINGSTON ACT 2604  
(Level 1, AMA House, 42  
Macquarie Street BARTON ACT  
2600)