



# Barley Technical Symposium

September 2011





## Presentation format

- National Grains RD&E Strategy background and drivers
- GRDC's response to the National Grains RD&E Strategy
- Australian Barley at the crossroads?



# PRIMARY INDUSTRIES MINISTERIAL COUNCIL (PIMC)

## **The National Research Development & Extension Framework**

- greater cooperation between the commonwealth and states
- avoid unnecessary duplication and fragmentation

**Research – International / National  
Development – National / Regional  
Extension – Regional / Local**

# State Departments of Agriculture were set up >100 years ago

- Self-sufficient and independent
- Developed expertise in all fields relevant to their jurisdictions

CSIRO

Universities

Private Sector

GRDC

# The PIMC/PISC RD&E Framework



## STRATEGIES

- Beef
- Cotton
- Dairy
- Fisheries
- Forests
- **Grains**
- Horticulture
- Pork
- Poultry
- Sheep meat
- Wine
- Wool
  
- New Industries
- Animal Biosecurity
- Animal Welfare
- Biofuels
- Climate Change
- Food
- Plant Biosecurity
- Water

## LEADERSHIP

- R&D Corp
- PISC Agency
- Industry Body

## ORGANISATION COMMITMENT

- MAJOR
- SUPPORT
- LINK





# The Australian Grains Industry

- 35 million tonnes
- 20 million hectares
- \$9 billion GVP
- **\$385 million RD&E**

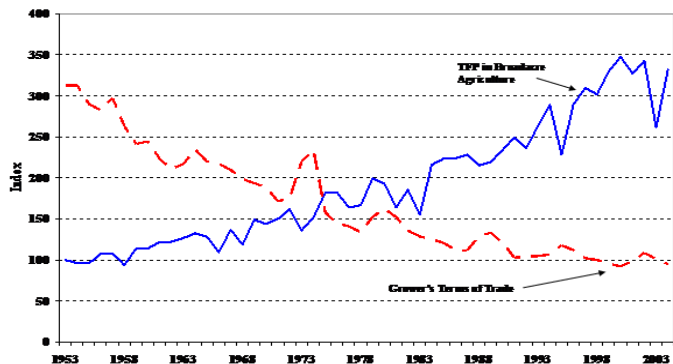


Export

Domestic  
food & feed



# Grains Environment



Challenging profit and production environment

Complex systems with multiple inputs



Location of Research

Regional



National

Changing provision of Development and Extension

Public



PRIVATE



# The Process

## Situation analysis

- National, Global

## Drivers for change

- Industry, RD&E

## RD&E Priorities

- Industry, Government

## Current RD&E investment

- Public, Private

## RD&E capability audit

- Expertise, Infrastructure

## Options for Change

- Opportunities, Risks

## Implementation

- Joint strategic planning

## Working Group

- GRDC
- DAFWA
- SARDI
- DPIVic
- NSW DPI
- DEEDI
- CSIRO
- Universities
- DAFF
- GPA





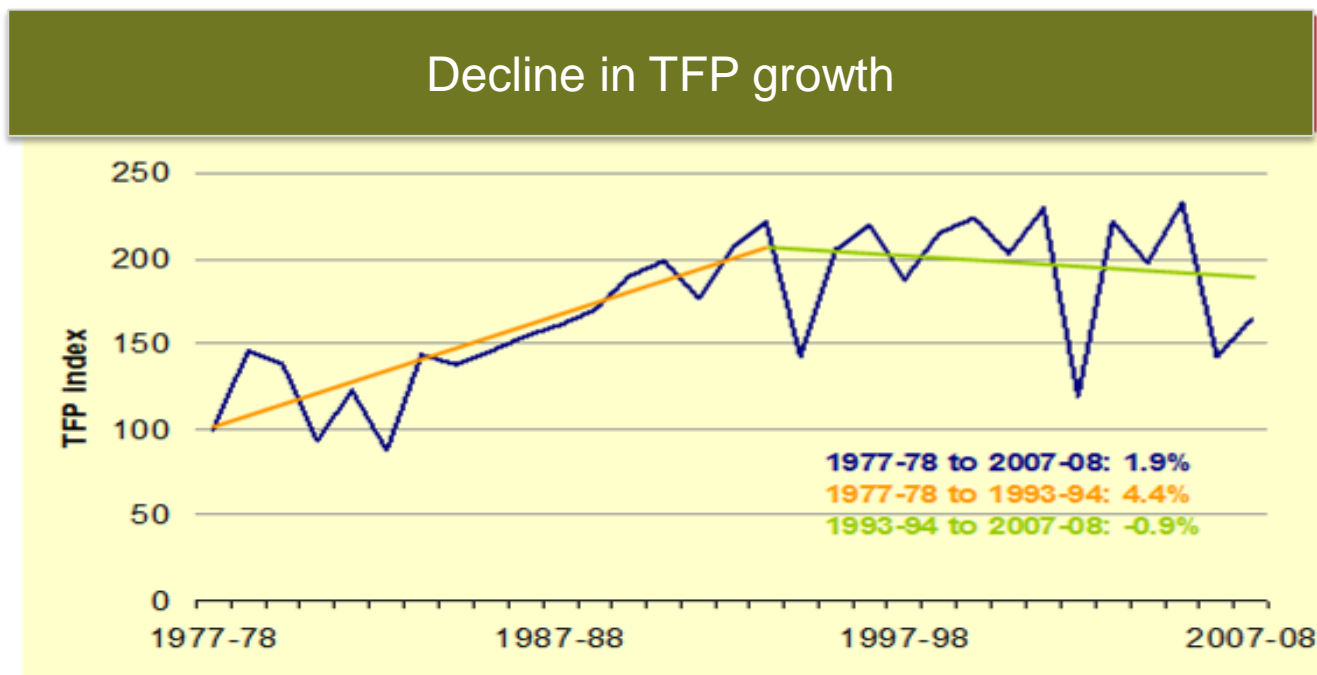
## Drivers for change

### Industry environment

- global food security issues
- growing market opportunities in Asia
- increased global competition
- de-regulation of marketing and consolidation of supply chain
- growers total factor productivity (TFP) declining.



## This got us really focussed ...



Source: ABARES



## Drivers for Change

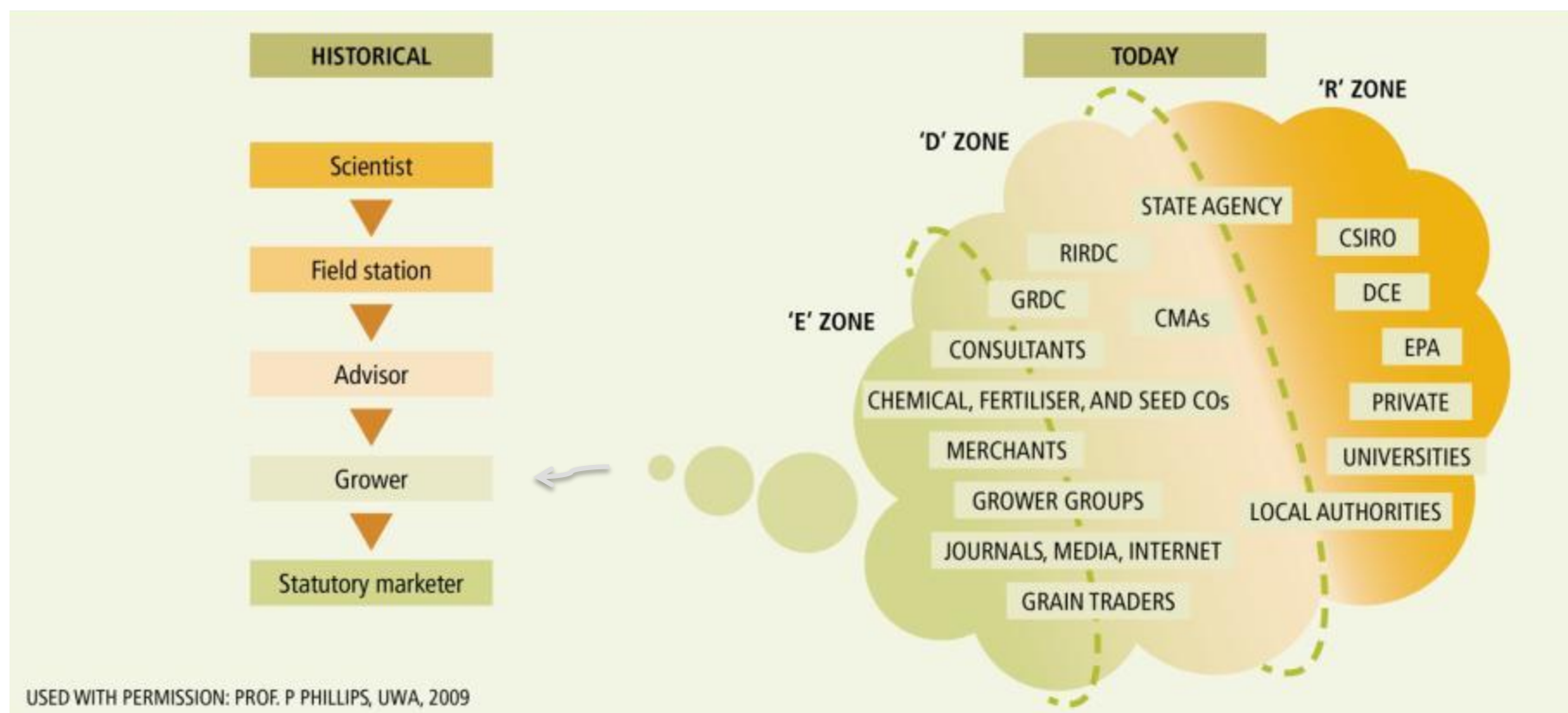
### RD&E environment

- ongoing pressure on public funding
  - public good, industry good, private good
- NRM and climate change have become priorities for public sector research
- ageing workforce and infrastructure
- privatisation & globalisation of grains RD&E
  - multinational biotech, consultants, grower groups





## Changing face of grains RD&E





## Aligning the priorities of industry and government

Industry & Government Priorities	Improved Varieties	Improved Practices	Supply Chain Innovation & Market Competitiveness	Farm Business & Industry Capability
<b>Productivity</b> <b>Markets</b> <b>Biosecurity</b> <b>Climate Variability</b> <b>NRM</b> <b>Regional Development</b> <b>Industry Capacity</b>	Access to new genetics and varieties with better on-farm performance and enhanced market competitiveness.	Practices that increase farm productivity and profitability whilst maintaining the resource base and product integrity.	Knowledge access and connections to improve the competitiveness and efficiency of the sector.	Accelerate innovation to increase farm business and sector viability.

# Strategy 1



## Build on existing national collaboration

- greater cooperation, communication and **active management** between RD&E providers
- common impact evaluation assessment methods
- reducing transactional costs in managing RD&E



## Strategy 2



### More effective relationship models for engagement between public & private sector investment

- Effective partnerships with multinational bioscience companies partnering in strategic grains research
- Efficient extension through arrangements with consultants, agribusiness, & farming systems/ grower groups
- Value-adding opportunities for domestic & export grains

## Strategy 3



Implement agency roles within 'Major - Support - Link' national RD&E framework

- **National Research Programs**  
(critical mass to deliver national & regional outcomes)
- **National Centres of Research Capability**  
(critical infrastructure & scientists; links to access international research capacity)
- **Regional Networks of Applied RD&E**  
(support farming systems, improved practices, & adoption of national research outcomes)

## Strategy 4



### National capability building for human & physical infrastructure:

- **On-going access to a committed scientific workforce** in the public and private sector;
- **Identifying specific skill shortages** – education & training
- **Succession planning** for public and private sector needs



# Strategy 5



## Alignment of **stakeholder priorities** & **RD&E portfolio** allocation

- **Broader industry input** and joint planning & priority setting for RD&E
- More cost effective processes to review priorities & performance
  - annual forum
  - 5 year RD&E Plan



## Major – Support - Link

- Genetic resources (crops, pastures)
- Genetic improvement (wheat, barley, coarse grains, pulses, oilseeds)
- Crop Protection (weeds, diseases, pests)
- Agronomy (decision support, water-use-efficiency, tillage & seeding, precision agriculture)
- Farming Systems (rotations, livestock integration, bio-economic modelling)
- Soils & Crop Nutrition (soil constraints, fertilizer management, N fixation)
- Climate Change (emissions, sequestration, forecasting, adaptation)
- Farm Business (productivity and profitability drivers)
- Post-farm gate (market intelligence, storage & hygiene, variety classification, product development)
- Biometrics/ Bioinformatics

Seeking 5-year rolling commitments

# MAJOR

## Defining “MAJOR – SUPPORT – LINK”

MAJOR ORGANISATIONS WILL-

- TAKE A LEAD ROLE IN PROVIDING SIGNIFICANT R&D EFFORT
- DEMONSTRATE LONG TERM COMMITMENT > 5YRS-
- COMMIT TO SUBSTANTIAL FUNDING OF NECESSARY CAPACITY IN HUMAN RESOURCES AND INFRASTRUCTURE
- COMMITMENT TO WORK WITH SUPPORT AND LINK PROVIDERS



# SUPPORT

## **Defining “MAJOR – SUPPORT – LINK”**

**SUPPORT-** ORGANISATIONS WILL DEMONSTRATE COMMITMENT TO-

- SIGNIFICANT FUNDING OF HUMAN RESOURCES AND INFRASTRUCTURE IN A REGIONAL CAPACITY
- WORK CLOSELY WITH MAJOR PROVIDERS TO PREVENT UNNECESSARY DUPLICATION
- A SUPPORT ROLE IN THE MEDIUM TERM (3 TO 5 YEAR) WITH A REGIONAL FOCUS
- COLLABORATION WITH LINK PROVIDERS

# LINK

## Defining “MAJOR – SUPPORT – LINK”

### LINK- ORGANISATIONS –

- WILL COMMIT RESOURCES TO COLLATE AND DISEMINATE INFORMATION FROM MAJOR AND SUPPORT ORGANISATIONS ON A REGIONAL AND LOCAL LEVEL
- FUNDING CAPABILITY OF RESOURCES MAY BE SUBJECT TO NEGOTIATION



## National research programs

some examples ...

- Australian Cereal Rust Control Program
- Australian Herbicide Resistance Initiative
- Pulse Breeding Australia
- NVT
- Managing Climate Variability Program



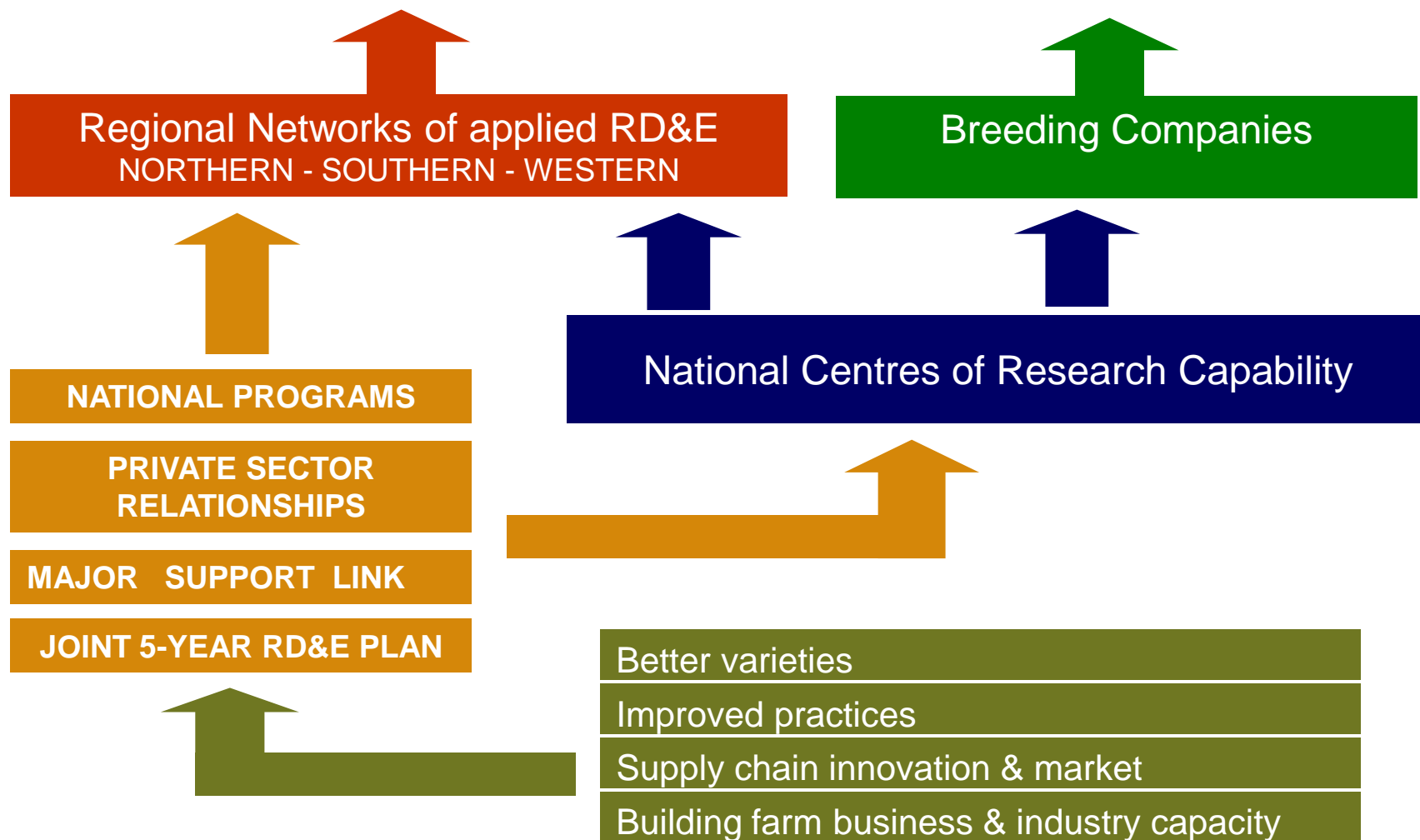
## National Centres of Research Capability

<b>The Waite Campus</b> <i>Adelaide</i>	<ul style="list-style-type: none"> <li>• Biotechnology wheat and barley</li> <li>• Wheat and barley grain quality and biochemistry</li> <li>• Soil fertility, plant nutrition, cereal pathology (field to molecular aspects)</li> </ul>
<b>CSIRO</b> <i>Canberra</i>	<ul style="list-style-type: none"> <li>• Biotechnology wheat, legumes and oilseeds</li> <li>• Wheat pre-breeding (quality and productivity traits)</li> </ul>
<b>AgriBio</b> <i>Melbourne</i>	<ul style="list-style-type: none"> <li>• Biotechnology wheat and pasture species</li> <li>• Germplasm improvement (wheat, barley, pulses and canola)</li> </ul>
<b>Australian Export Grain Innovation Centre</b> <i>Perth</i>	<ul style="list-style-type: none"> <li>• Economic analysis</li> <li>• Strategic market intelligence</li> <li>• Cereal grain quality/functionality</li> <li>• Grain storage and product integrity</li> </ul>
<b>QAAFI — an Institute of UQ</b> <i>Brisbane</i>	<ul style="list-style-type: none"> <li>• Systems research and modelling</li> <li>• Grain foods quality and functionality</li> <li>• Integrated crop management</li> </ul>





## Total Factor Productivity Growth > 2.5% per annum





## Implementation Committee members

**Dr Jeremy Burdon, CSIRO**

**Dr Paul Grieve, QPIF**

**Mr John Harvey, GRDC**

**Mr Geoff Honey, GTA**

**Prof. Roger Leigh, ACDA**

**Mr Ray Marshall, GPA WA**

**Prof. Pauline Mooney, SARDI**

**Mr Des Naughton, DAFF**

**Mr Wayne Newton, GPA QLD**

**Mr John Oliver, NSW DPI**

**Mr Mark Pedlar, NARG**

**Dr Mark Sweetingham, DAFWA**

**Mr Andrew Weidemann, GPA VIC**

**Dr Ragini Wheatcroft, DPIVIC**

**Executive Officer: [Kerry.Regan@agric.wa.gov.au](mailto:Kerry.Regan@agric.wa.gov.au)**



# ***Implementation Challenges***

***.... do we want it to work?***

**State Agencies and GRDC have to change the way they currently do their business.**

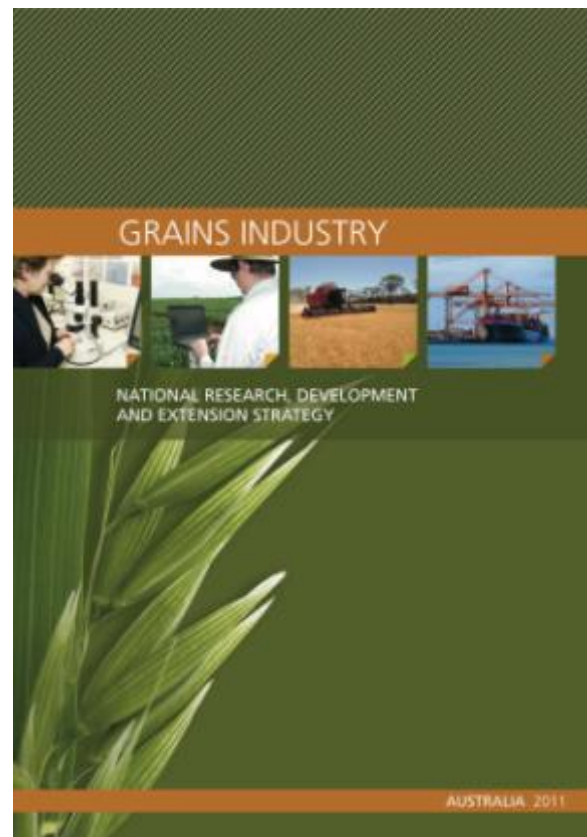
**Implementation elements have to become embedded in the routine processes of State Agencies and GRDC.**

**Universities have to specialise and Commonwealth policy makers have to review how they are funded to avoid an incentive to compete rather than collaborate.**



# How is GRDC responding?

**Participating in the development and implementation of the  
Grains Industry National RD&E Strategy**





# Major Regional and National Nodes



# Regional Cropping Solution Networks





## Regional Cropping Solution Networks

Linkages between growers, GRDC and the National R,D&E strategy.

Capturing grower's local and regional priorities

Rapid and targeted response to local and regional priorities

*also*

Input to National strategies

Delivering the outcomes of regional and national R&D





## Regional Cropping Solution Networks – GRDC Facilitators

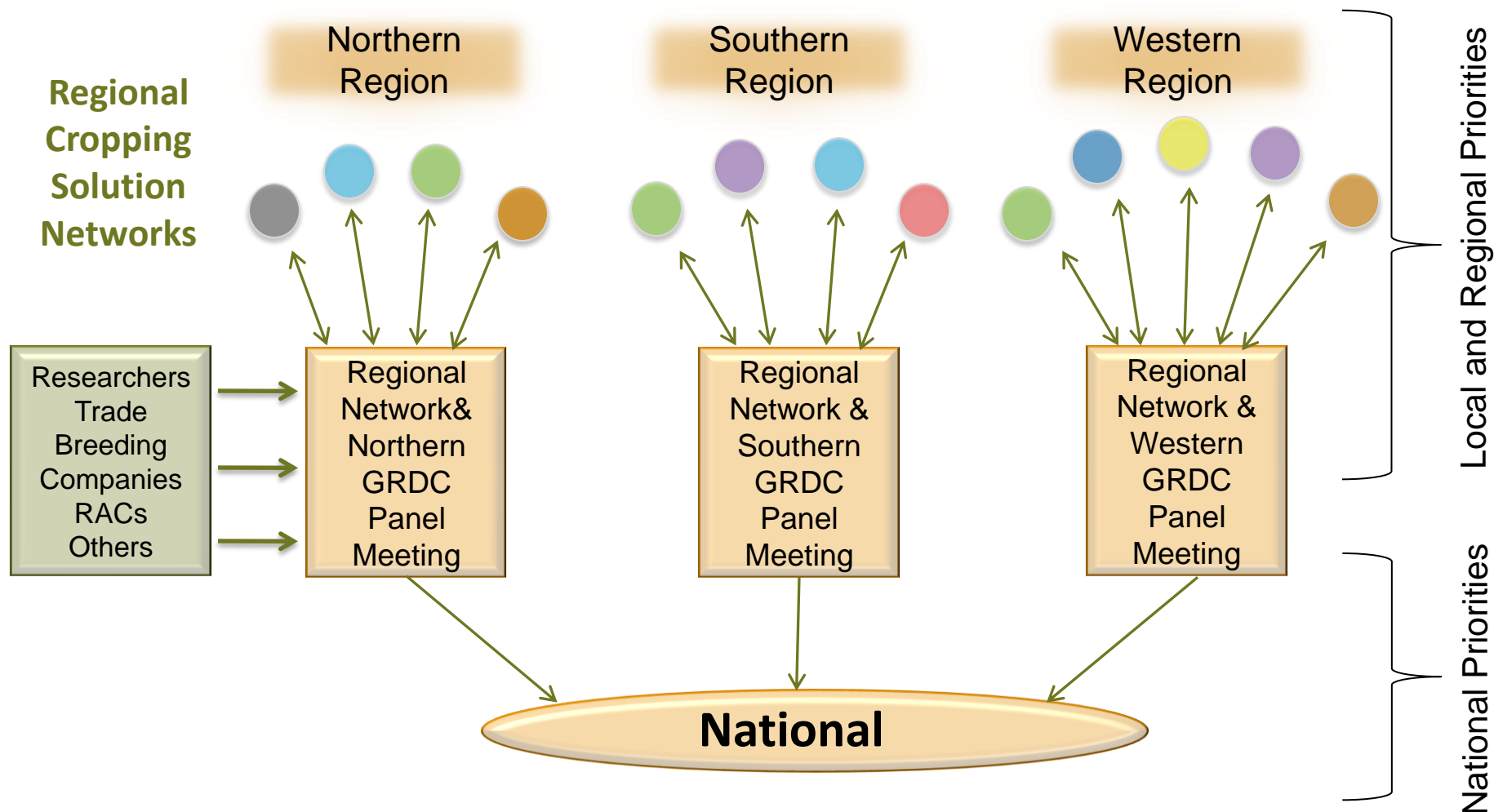
Provide targeted facilitation/coordination support to help growers and their advisers to;

- better identify local farming systems priorities
- establish the critical or commercial question/s,
- have input into the activity needed to answer the identified question/s, and
- disseminate appropriate extension and communication information across the different regions.



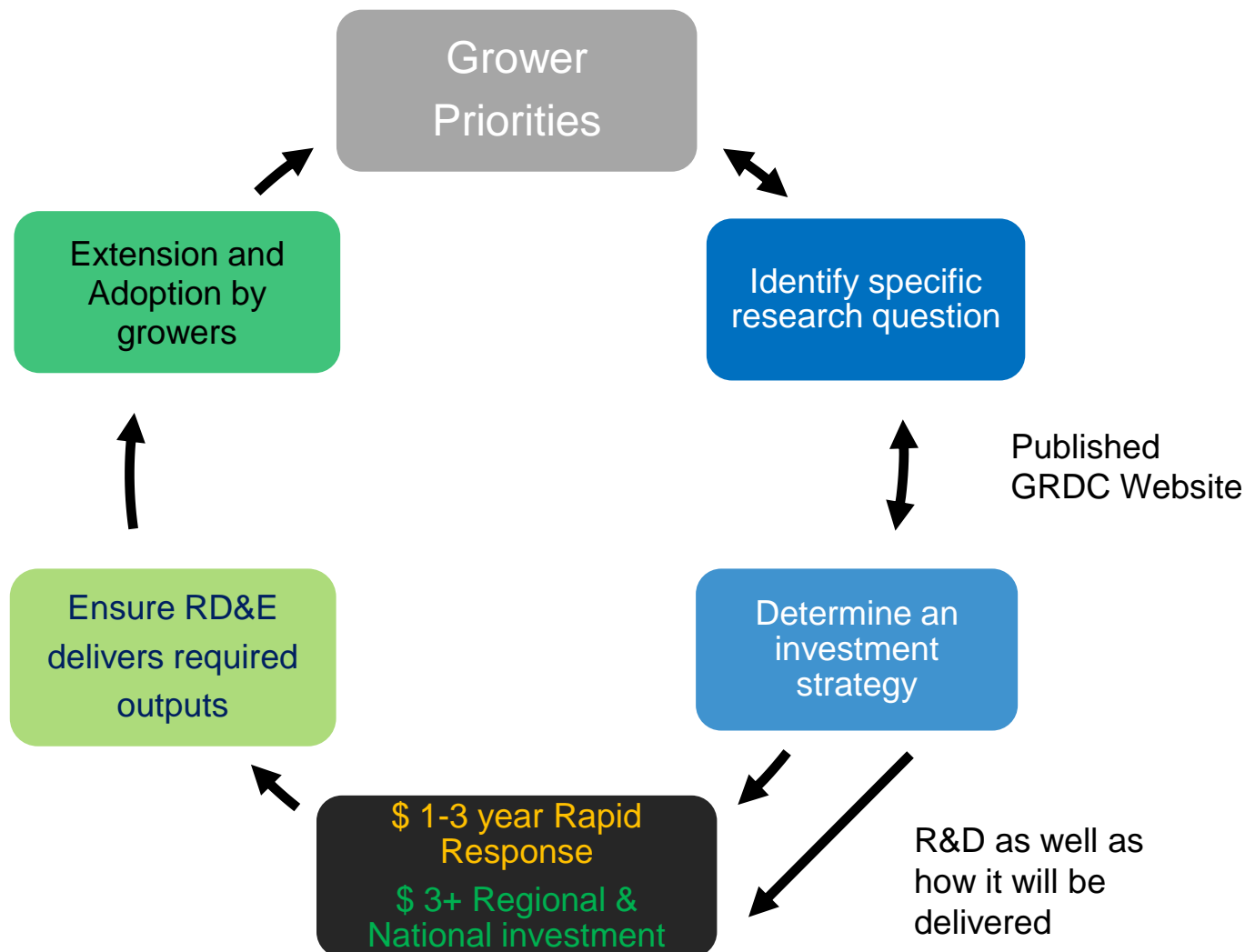


# Grains Industry R,D&E Network





# Investment Process to Address Priorities





## Your GRDC working with you

- Actively listening and engaging with growers, researchers and the broader grains industry
- Delivering on R,D&E needs and priorities.
- Increased the opportunity for growers to influence the R, D and E agenda.
- Collaborators are well informed about GRDC investments and activities and help target the delivery of GRDC products and services.
- More simple and transparent investment processes



## Barley Investments in 2010-11

Category	Investments	\$\$\$
Industry	8	0.2M
Agronomy	3	1.0M
Breeding	4	3.2M
Pre-Breeding	25	4.5M
• Abiotic		• 1.1M
• Biotic		• 1.0M
• Quality		• 0.9M
• Other		• 1.5M





## New Barley Investments in 2011-12

Three of the eight new projects in the Varieties portfolio were in barley pre-breeding research:

- 1 abiotic (acid soils) \$200,000 pa
- 1 biotic (NFNB) \$200,000 pa
- 1 quality (malt extract) \$350,000 pa



# Barley at the Cross Roads

## Transition from public to commercial breeding

- Increasing reliance of End Point Royalties (EPRs) to fund breeding
- Grower levies will support:

Pre-competitive pre-breeding research

Agronomy

Farming systems



## Opportunities

- Commercially viable breeding programs
- Access to private investment and technology
- Enhanced competition in breeding
- Commercial incentives to perform via the adoption/disadoption of varieties



## Challenges Ahead

Effective interphase between pre-breeding and commercial breeding

- Research priority setting
- Information exchange
- Technology transfer

Faster adoption of new varieties

- EPR varieties in 2009-10:
  - Barley 43.4% (national average)
  - Wheat 71.3% (national average)

Source: EPR Steering Committee





## Challenges Ahead

### EPR Leakage

- Feed grains sector:

Opportunistic buyer

Commodity based

Poor culture of variety declaration

- 30-40% of grain trade at eastern seaboard does not record variety names at delivery

Source: GRDC's Online Business Radio, released 12 Sept 2011

- Yet

69% of national barley production is for feed use

Feed barley makes up about 25% of Australian animal feed grain consumption

Source: John Spragg, "Feedgrain Update Report 2009"



Efficient and defensible variety accreditation system

→ Barley Australia Forum Thursday 22 September

Effective communication across industry sectors

- Future of the Australian Barley Technical Symposium?
- Future of the Barley Advisory Committee?



# Thank you