

Grain & Graze

The return on your investment

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Grain & Graze Objectives



1. *A 10% increase in profitability on 6,800 mixed farms.*



2. *Contribution to meeting catchment management targets in participating regions.*



3. *Increase in confidence and pride of mixed farmers.*





“The research question”



What is the best mix of crops, pastures and livestock to achieve the Grain & Graze triple bottom line goal?



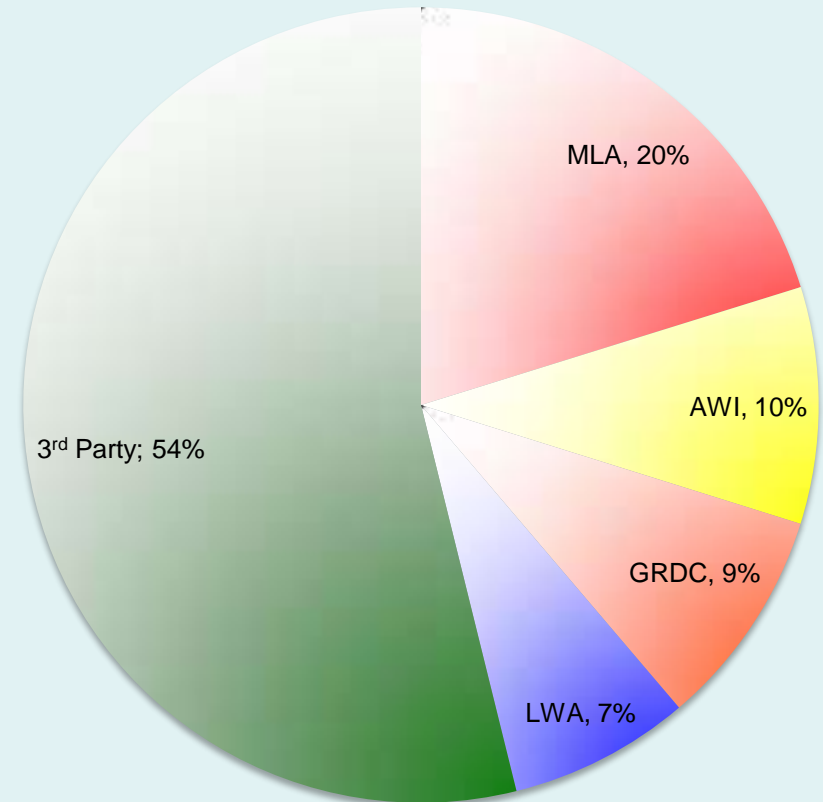


Total Investment

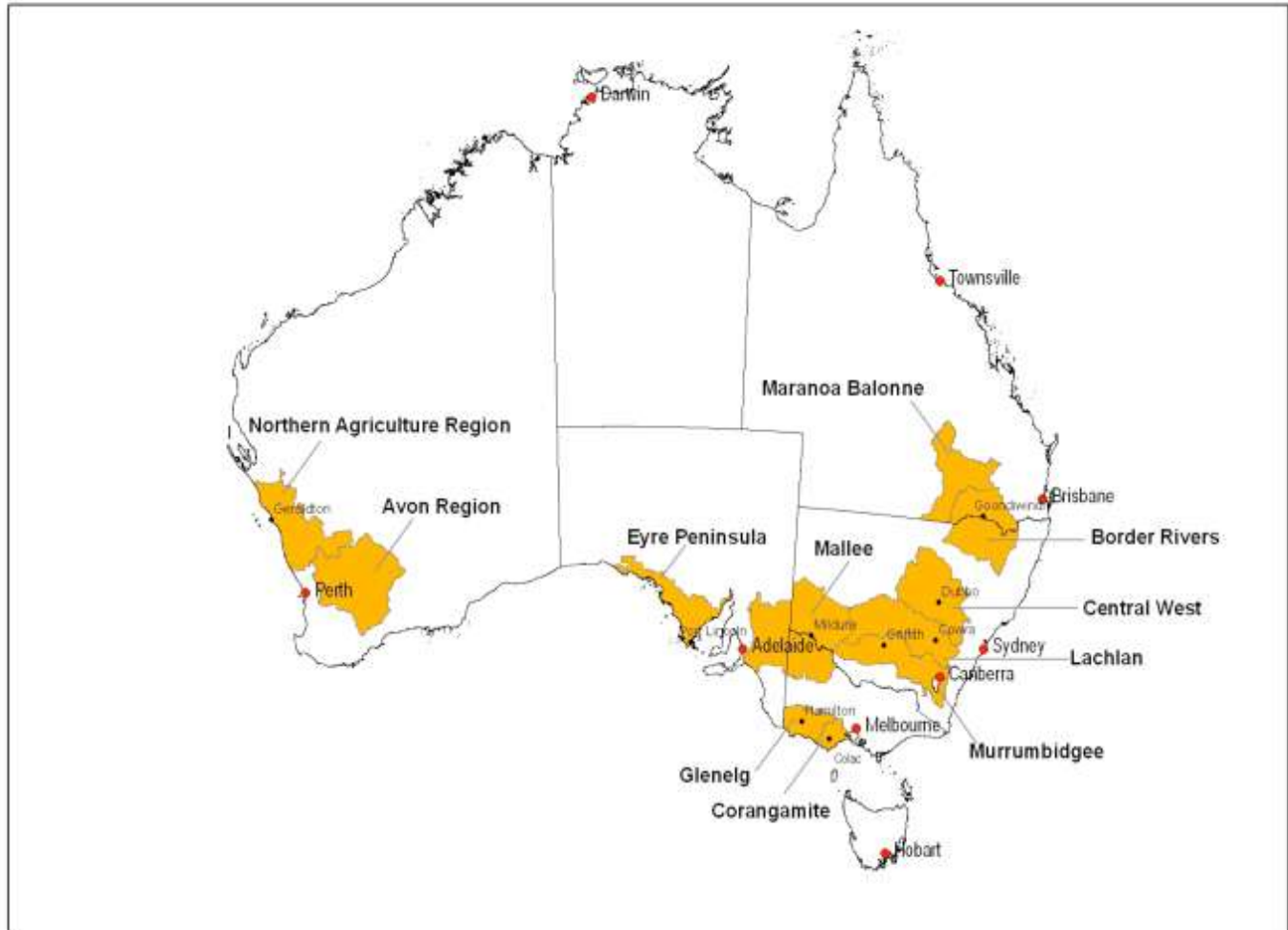
Total Investment

Source	Total
MLA	\$6,300,000
AWI	\$3,000,000
GRDC	\$2,785,000
LWA	\$2,300,000
3 rd Party	\$16,792,483
Total	\$31,177,483

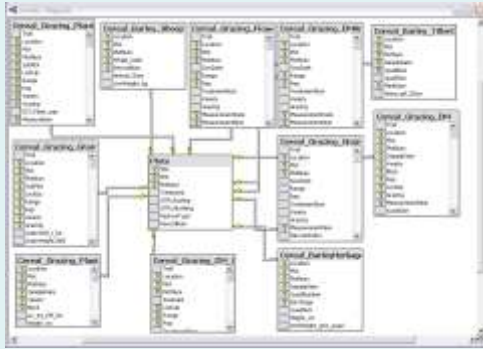
66 partners with equity



Grain & Graze Regions



Grain & Graze National Projects



National database



Feedbase management



Economic dimensions



Communication



Social dimensions



Biodiversity in Grain & Graze

Indicator	Grain	Grain	Grain	Grain	Grain	Grain	Grain	Grain	Grain	Grain
Total number of rural farming producers	22,675	2,454	1,802	2,728	2,228	1,281	2,228	2,228	2,228	2,228
% of producers aware of GRG	28	22	28	22	28	22	28	22	28	22
# of producers aware of GRG	74,000	535	794	600	1,000	1,131	2,228	1,198	2,728	600
% of producers aware of GRG	3	2	3	2	3	2	3	2	3	2
Total number of participants	2,000	100	100	100	100	100	100	100	100	100
% of participants who have adopted or are planning to adopt GRG best practice	20	20	20	20	20	20	20	20	20	20
% of producers who have adopted or are planning to adopt GRG best practice	10	10	10	10	10	10	10	10	10	10
% of producers who have adopted or are planning to adopt GRG best practice	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
% of producers who have adopted or are planning to adopt GRG best practice	50	50	50	50	50	50	50	50	50	50
% of participants who have adopted or are planning to adopt GRG best practice	50	50	50	50	50	50	50	50	50	50
% of participants who have adopted or are planning to adopt GRG best practice	50	50	50	50	50	50	50	50	50	50

Monitoring & evaluation

The practice change model

27,000 farmers aware

8,500 farmers seeking information

4,400 farmers actively engaged

1,800 farmers adopting

Decision to seek further opportunities to improve the farming system

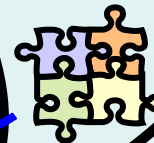
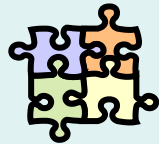
Decision to seek further information about the practice change

Communication, network and learning processes to support decisions

Decision to build the practice change into the farm operation

Tactics: Group facilitation, Trialling, Training, Mentoring & Communication

Numbers in boxes = what we achieved

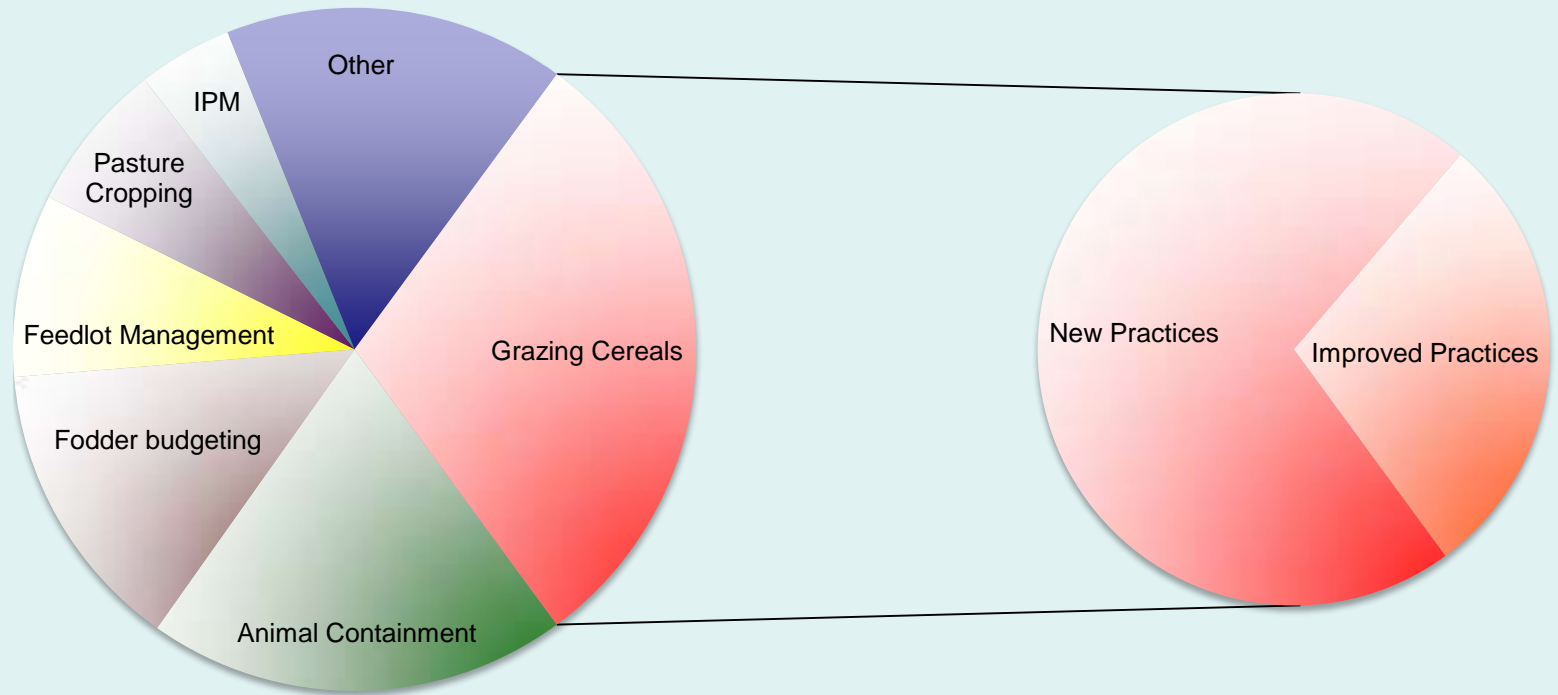


Farm Practice Change

Exploration & Trialling

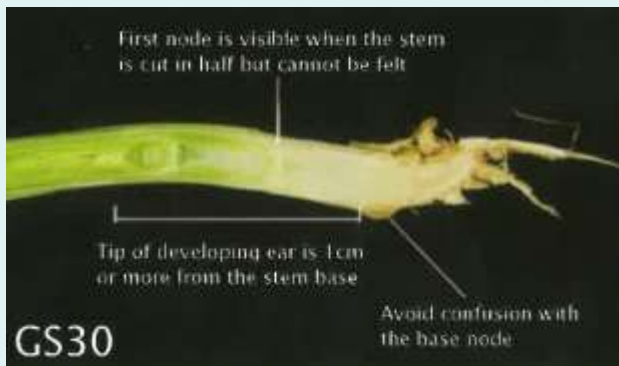
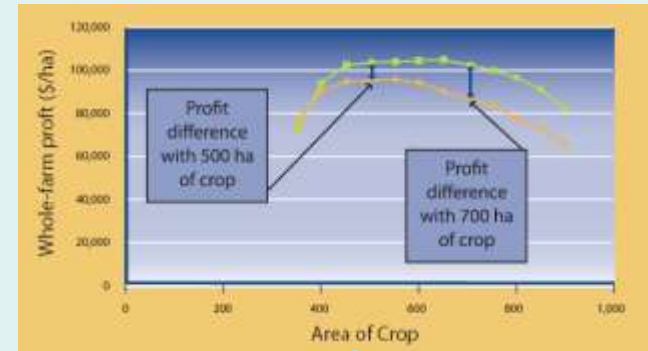


Key Farm Practices Adopted



“Over 95% of practices adopted have a discernible NRM benefit.” (National Evaluation Project, 2008)

Adoption case studies – Grazing Cereals



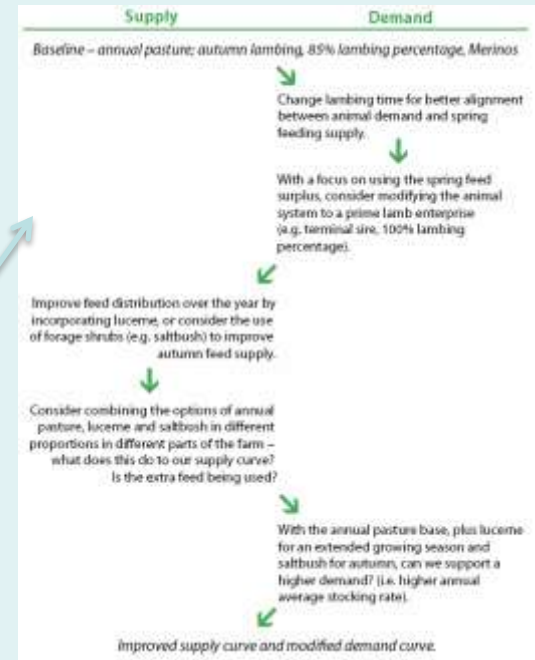
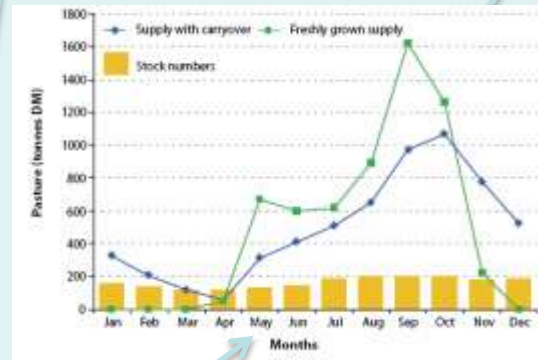
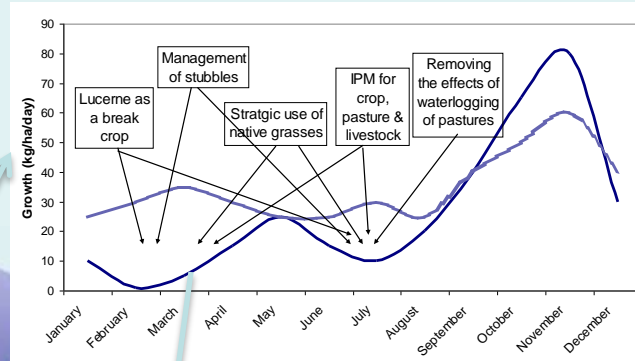
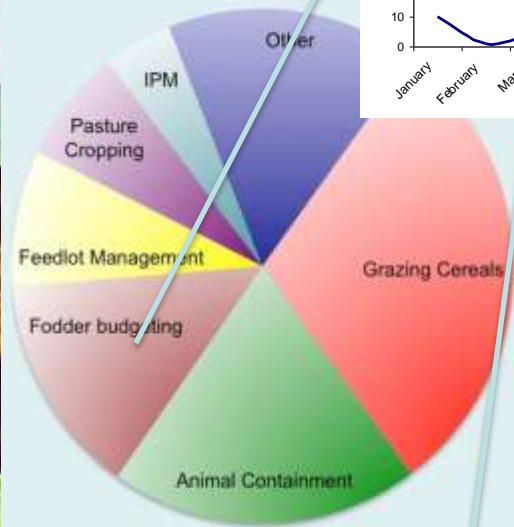
Benefits (production)

- Fill winter feedgap
- Avoid off-loading stock
- Opportunity to punt or trade stock

Benefits (nrm)

- Spell pasture areas of farm
- Weed control

Adoption case studies – Feed budgeting



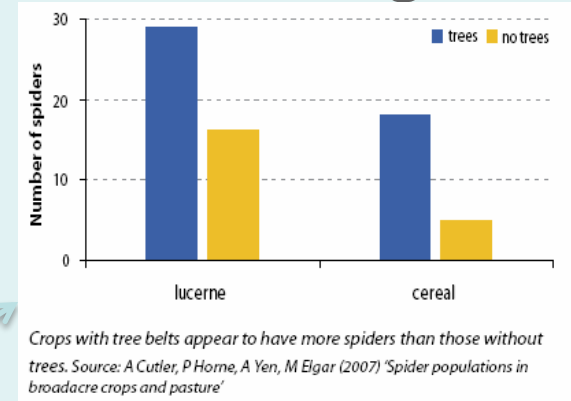
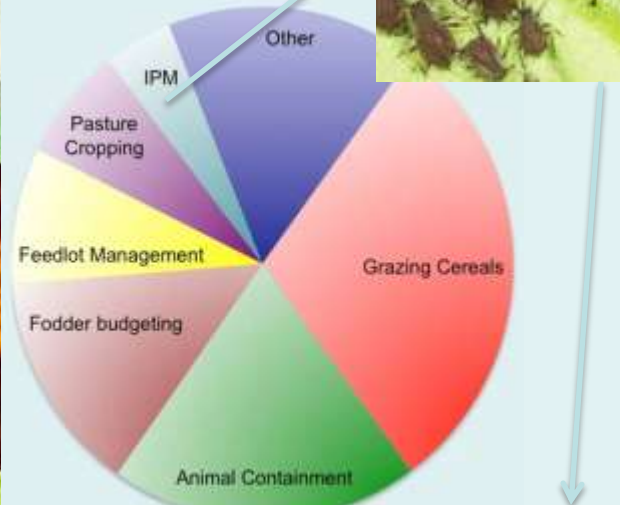
Benefits (production)

- Maximising safe pasture utilisation
- Reducing uncertainty
- Providing adaptive capacity

Benefits (nrm)

- Prevention of overgrazing/erosion
- Matching land use and capability

Adoption case studies – Integrated Pest Management



- Benefits (production)**
- Reduced cost of production
 - Improved soil health (soil biota)
 - Break insect resistance cycle
- Benefits (nrm)**
- Reduced chemical externalities
 - Habitat protection

Some common pests of crops and pastures and beneficial species that prey on them.		
Common pests of crops and pastures	Type	Beneficials that help control the pest
Aphids	Transient	Brown lacewings (<i>Micromus tasmaniae</i>), Ladybird beetles (<i>Harmonia</i> , <i>Coccinella</i> , <i>Hippodamia</i>), Parasitic wasps (<i>Aphidius</i> species)
Black headed cockchafer	Resident	Carabid beetles (<i>F. Carabidae</i>)
Blue oat mite	Resident	Predatory mites (<i>Bdellidae</i> and other species), Native earwigs (<i>Lobdora truncata</i>), Possibly predatory beetles (<i>Carabidae</i>) and true bugs (various <i>Hemiptera</i>)
Diamondback moth	Transient	Damselfly bugs (<i>Nabis kirbergi</i>), Parasitic wasps (many species), Ladybird beetles (<i>Harmonia</i> , <i>Coccinella</i> , <i>Hippodamia</i>)
European earwigs	Resident	Carabid beetles (<i>Geocoptus</i>)
Heliothis caterpillars	Transient	Damselfly bugs (<i>Nabis kirbergi</i>), Shield bugs (<i>Oechalia schiffenbergi</i>), Parasitic wasps (many species)
Lucerne flea	Resident	Predatory mites (<i>Bdellidae</i> and other species), Native earwigs (<i>Lobdora truncata</i>)
Red legged earth mite	Resident	Predatory mites (<i>Bdellidae</i> and other species), Native earwigs (<i>Lobdora truncata</i>)
Rutherglen bugs	Transient	No known beneficial predators
Slugs (<i>Deroceras reticulatum</i> , <i>Melax galeatus</i>)	Resident	Carabid beetles (<i>Rhytisternus</i> , <i>Notonotus</i>)
Wireworm, false wireworm	Resident	Carabid beetles (<i>F. Carabidae</i>)

Social insights and outcomes

- ✓ We have learnt that traditional extension does not suit complex mixed farming:
 - every complex decision is unique, tends to be made by the farming family, and take into account a lot of unmeasurable factors.
- ✓ We have learnt how to help people make complex decisions acknowledging key social factors:
 - that as there are too many things to consider, mixed farmers will establish principles and boundaries which guide decisions
 - past experience is important for establishing these principles, however if the future is changing, farmers will be try to establish new principles.
 - story telling is important to assist with making confident decisions in a complex environment. Story telling helps establish principles.
 - intuition and gut feeling are important.
 - where possible, it can be helpful to provide whatever objective information is available to paint a picture which can be discussed through story telling.
- ✓ We have learnt that pride is not always a good social indicator of a program's success
- ✓ 83% of program participants valued the activities they were engaged in and would attend more.
- ✓ At least 1800 participants are more confident in making mixed farming decisions.

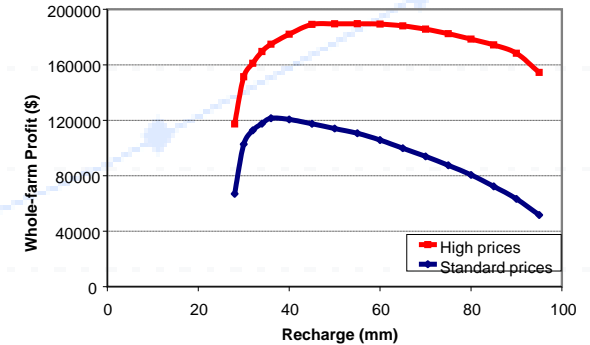


Economic insights and outcomes

✓ We learnt there is no unique relationship between sustainability and enterprise mix:

With increased cropping area:

- ☞ Recharge ↑
- ☞ Nitrate leaching ↓ ↑
- ☞ Soil carbon ↓ ↑
- ☞ Ground cover ↓ ↑
- ☞ CO2 emissions ↓



✓ Achieving significant gains in NRM is costly; so needs to be targeted

✓ Production risk is not a major influence on farmers' decision making

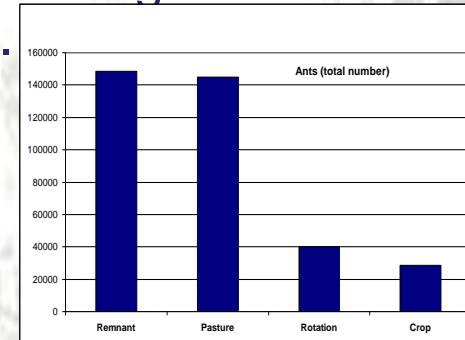
✓ A number of strategies improve farm profit under specific conditions

Region	Avon	BR	CWL	CGH	EP	Mallee	MB	Murr.	N Ag
Profit increase	2%	8%	7%	4%	10%	6%	12%	19%	3%

Cropping %

Environmental insights and outcomes

- ✓ We have learnt there a relationship between farm scale measures of biodiversity and agricultural production.
- ✓ We have learnt that the type and intensity of agricultural management influences biodiversity on farms.



- ✓ We have learnt that all farms can improve biodiversity outcomes even with small changes to management.
- ✓ Integrated pest management has application across broad-acre mixed farms.
- ✓ We have confirmed that there can be trade-offs between managing different NRM issues, and this has serious catchment management implications
- ✓ 95% of practices adopted by program participants have an NRM benefit, with soil health and erosion prevention being the major benefit.





“The research question”



What is the best mix of crops, pastures and livestock to achieve the Grain & Graze triple bottom line goal?



“It’s kinda complex!”



It’s not the mix that counts, but the flexibility to change the mix as required. There is no one right system from an economic, production, social or environmental perspective.





Benefit Cost Results to Investors

	MLA	AWI	GRDC	LWA
Total investment (\$, 2007/08)	\$6,059,210	\$2,794,449	\$2,668,653	\$2,137,298
Benefit attribution (%)	34%	35%	12%	19%
Benefit attribution (\$, 2007/08)	\$13,525,134	\$13,922,932	\$4,773,577	\$7,558,163
BCR*	2.23	4.98	1.79	3.54

* Based on conservative scenario

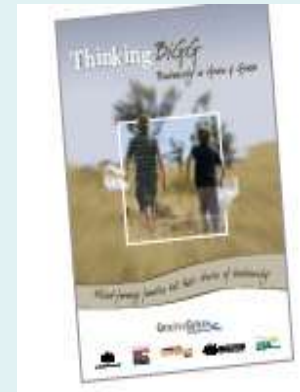
The BCR of *R&D Corporation investment* = 3:1

The BCR of total leveraged *investment* = 1.28:1

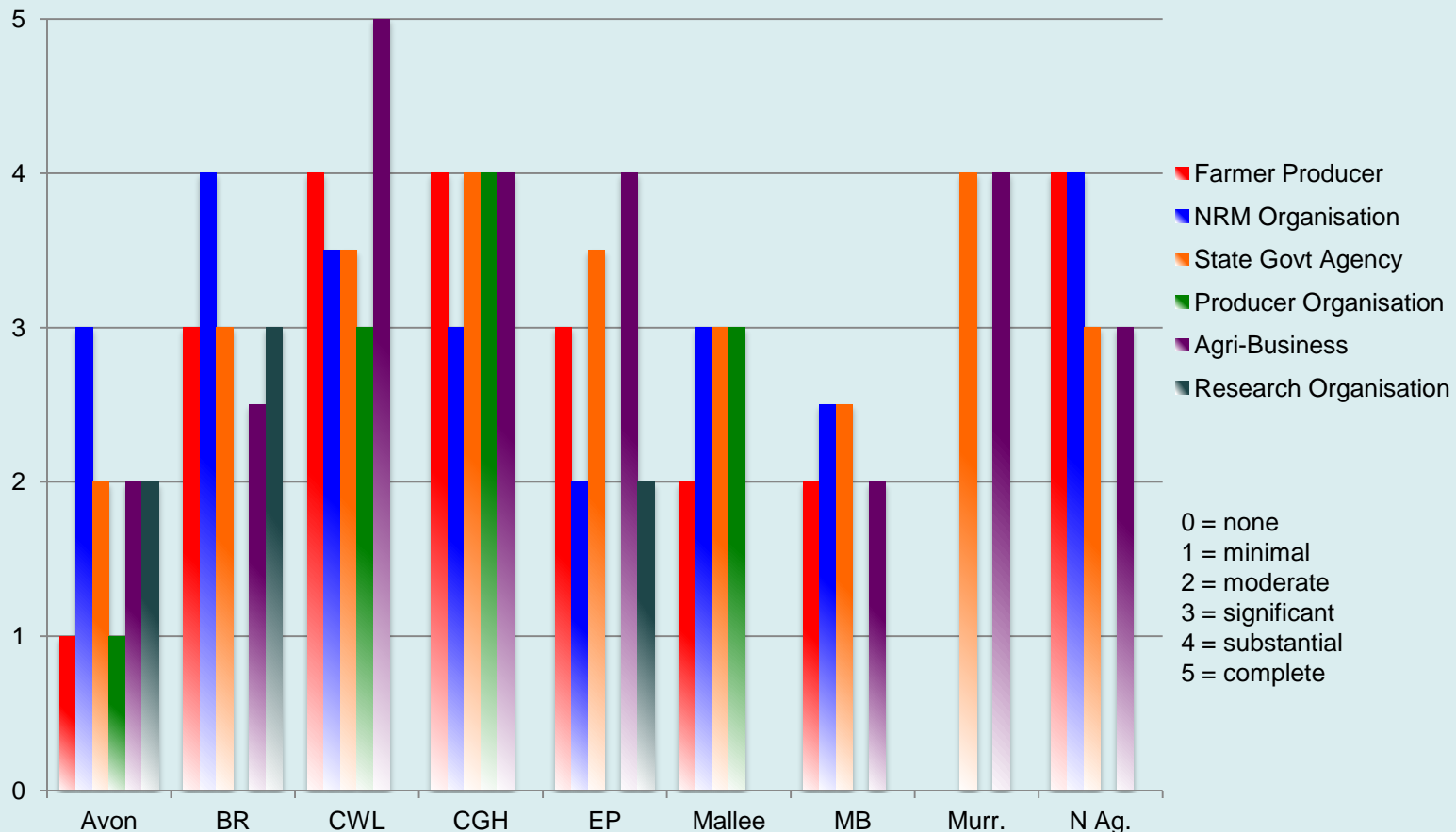
This does not take into account environmental benefits

Summary of outputs and outcomes

- 278 demonstrations and trials
- 180 training courses
- >4,000 active participants
- >8,000 total participants
- >1,800 adopting (incl. making a decision not to adopt)
- ~200 publications, tools, manuals
- National database of R&D data
- A Banksia Award nomination
- 20 regions hungry for more to join up for phase II



Regional stakeholder response to achievement of expectations



Regional stakeholder response to achievement of expectations

