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Farming for the future in altered landscapes

Kevin Goss

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Landcare and Salinity Agenda: Two decades of involvement

- 1989 Landcare Australia Ltd
- 1995 WA Landcare Trust
- 1996 WA Salinity Action Plan
- 1998 PMSEIC report and presentation
- 2001 MDB Salinity Management Strategy
- 2004 National Dryland Salinity Program
- 2007 CRC Salinity ‘knowledge harvest’

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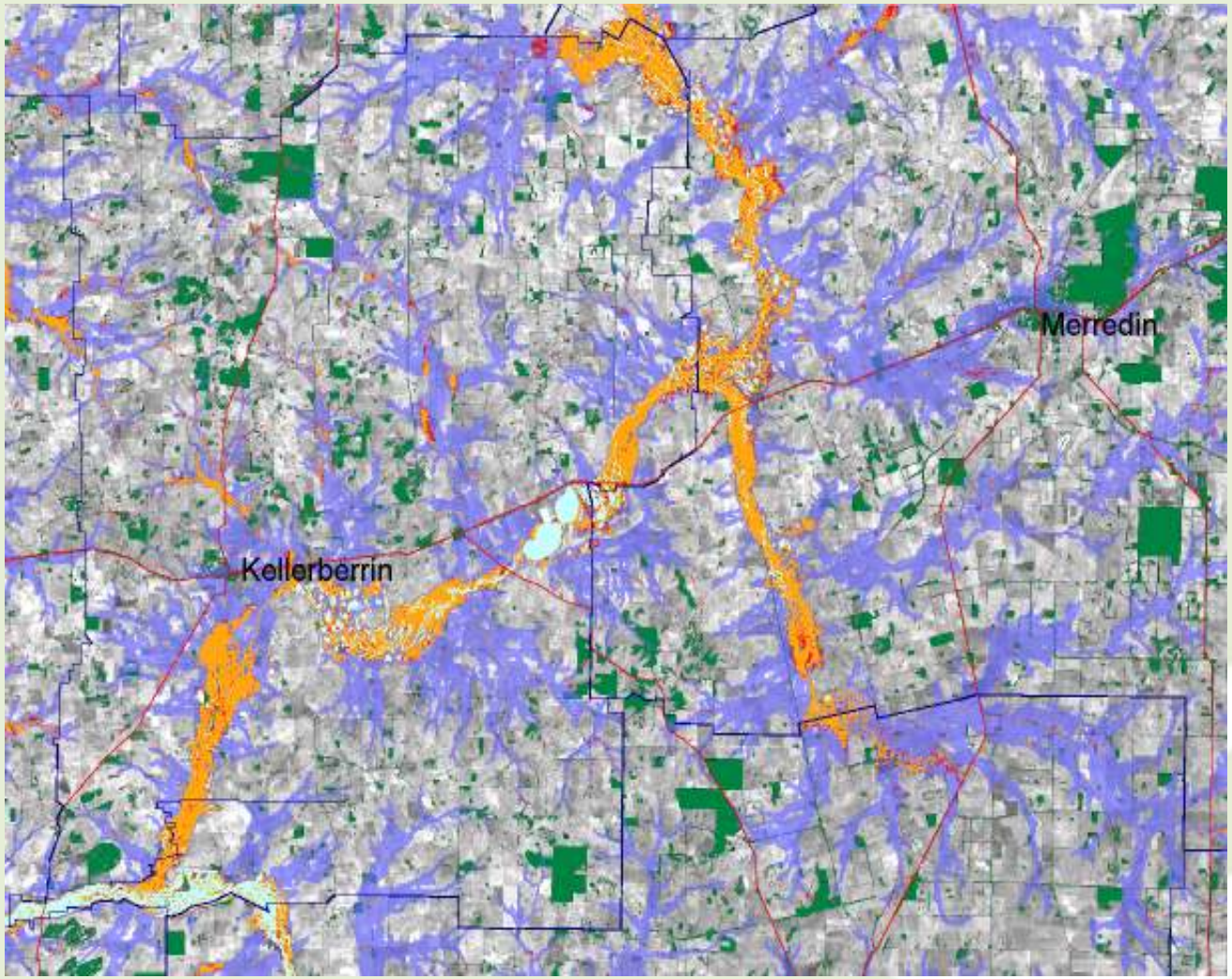
Salinity Hazard for Western Australia



Land Monitor project CSIRO and DAWA

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Re-considering Salinity Program

Current debate:

- Cases where salinity reversed but circumstances are unique
  - River Murray
  - Denmark River (WA)
  - Hunter River (NSW)
  - Barr Creek (Vic)
  - Few farmers (SALT magazine)
- Not yet profitable options at scale for farmers or governments
  - NDSP (2004)
  - CRC Salinity (2006)
- Threats revised downwards but still major damage
  - WA Wheatbelt
  - NSW Murray-Darling Basin

Key conclusions:

- Target high value assets
- If no profitable solutions, more technology development
- Integrate regional and other investments

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SALTCAP – saltland capability

- Saltland varies in capacity for productive & profitable use
- SALTCAP = paddock-scale tool assessing salinity, water-logging and structure to locate plants into saltland for greatest benefit

- SALTCAP 1.0 available from Dec. '07 with solutions for saltbush, tall wheatgrass & puccinellia systems

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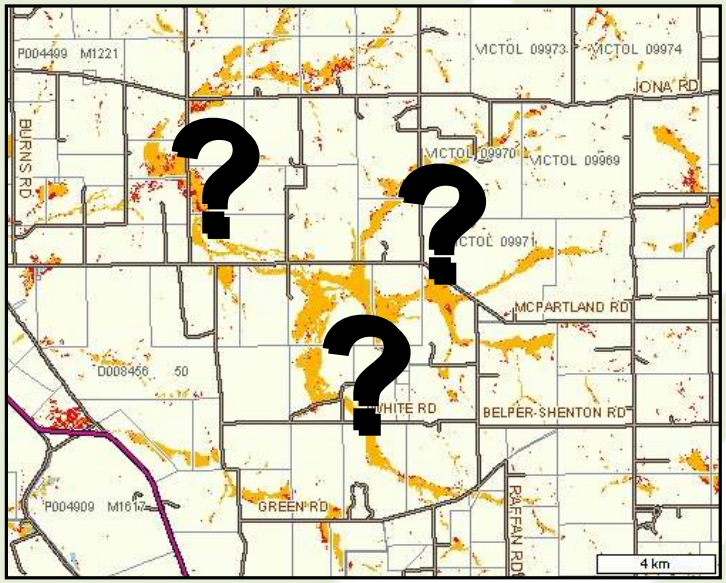
SALTDecide – integrating solutions

- Different catchments need different strategies (plants, engineering).
- How do we integrate options for maximum result
  - net economic benefit
  - environmental protection
  - less community conflict
- SALTDecide = tool to determine impacts ***in advance*** of intervention
  - salinity
  - groundwater levels
  - stream flows and loads



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SIF3 – better public expenditure on salinity

- Investment planning and decision tool for CMAs, NRM groups
- Matches best practice investment to type of asset at risk, and bio-physical and socio-economic criteria for catchments
- Draws on major body of research – from catchment hydro-geology, farm economics to social aspects
- Analysis for 60 catchments
- Working with two regions - Victoria, Western Australia

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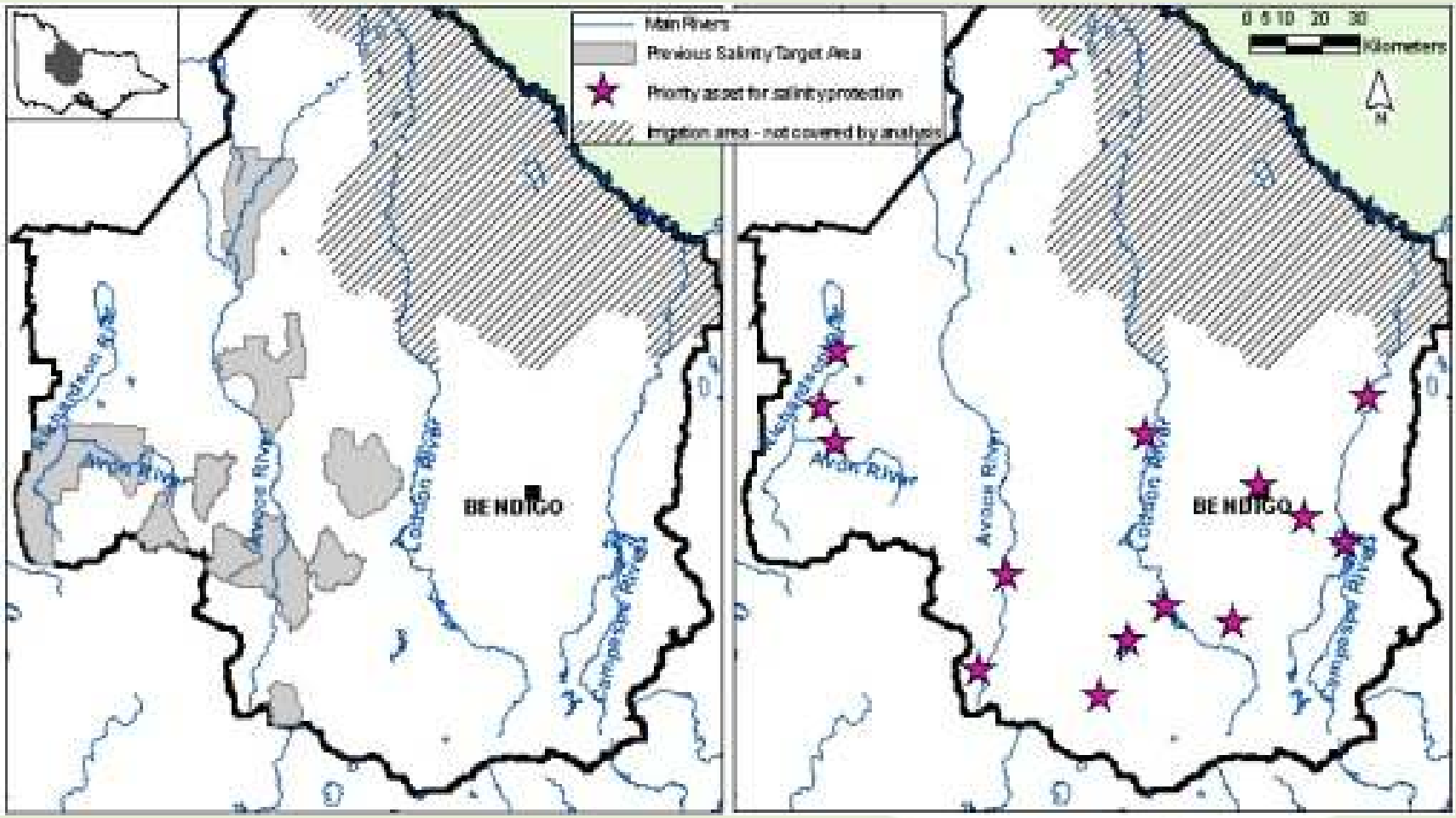
Major differences for NCCMA



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National Saltland Service

- Exchange for information about saltland solutions
- Different approaches for different learning styles
  - Web delivery ↔ field day delivery
  - Expert to farmer ↔ farmer to farmer
  - Training courses
- State of the art
  - available everywhere
  - participatory, attractive
  - authoritative, quirky
- Who?
  - CRC catalyst
  - Participants ready now – SGSL Producer Network, SPA, PURSL
  - Open house for new participants

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Geraldton 9 March 2007

Source: Tim Wiley


North Binnu 1 June 2007
Source: Tim Wiley


Binnu 2007
Source: Tim Wiley

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Perennial grass pasture & tagasaste

Source: Tim Wiley


Source: Tim Wiley

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Perennial grass pasture

Source: Tim Wiley

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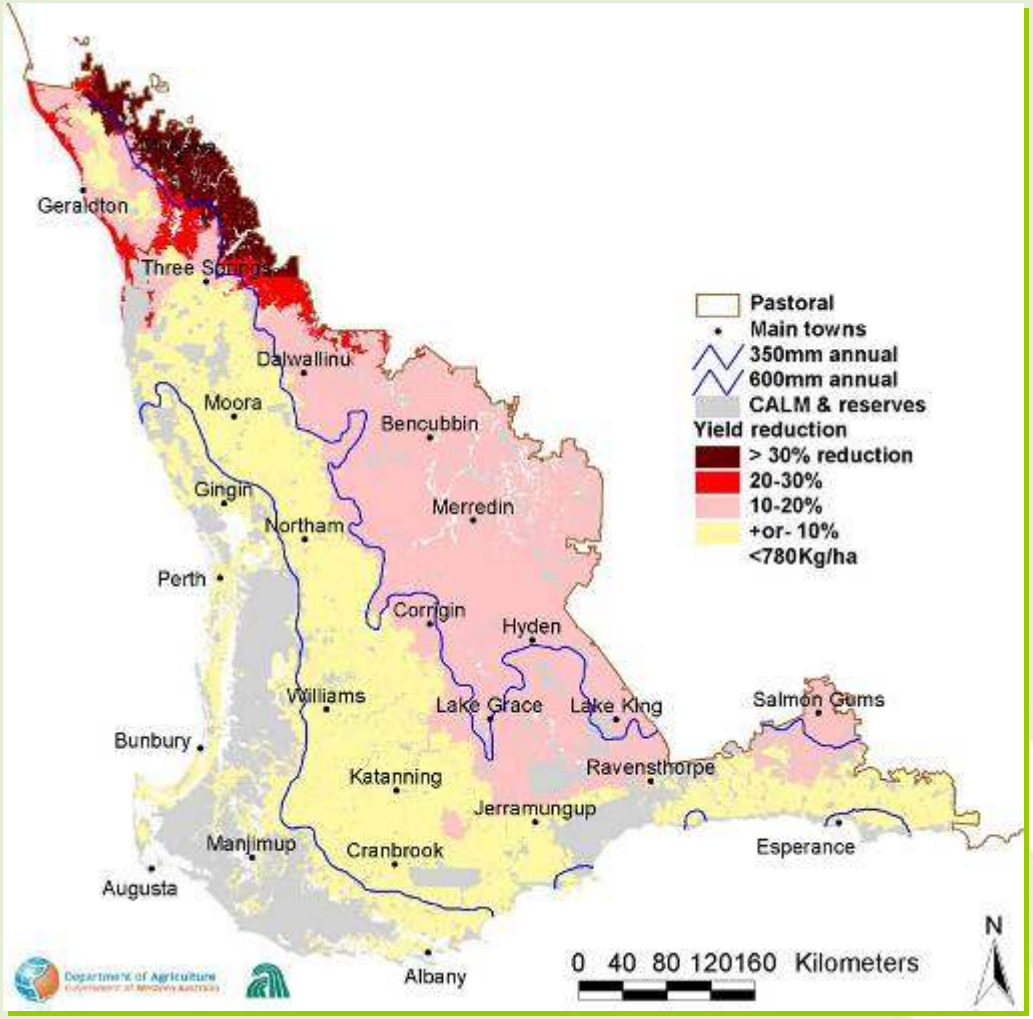
Vulnerability of crop production



Projected wheat crop in WA under the 2050 climate change scenario

Source: DAFWA & AGO

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Mulla Mulla

Source: Tim Wiley

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Enrich – new, low rainfall grazing system

- Drought and grazing tolerant forages
- 30% increase in stocking rate
- New selections, indigenous and overseas plants
- Nutritional matching to livestock needs
- Self-medication, beneficial natural compounds
- $20 million net present value to Australia

Rhagodia preissii

Bituminaria bituminosa

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Our vision

Transform Australian agriculture and rural landscapes by developing and applying

Profitable Perennials™ technologies

- *to innovative farming systems*
- *and new regional industries*

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Our outcomes

Farming systems, cultivars and technologies that will …

- Increase productivity of existing industries
- Develop new woody crop industries
- Reduce dryland salinity, conserve biodiversity and water resources
- Adapt to drought

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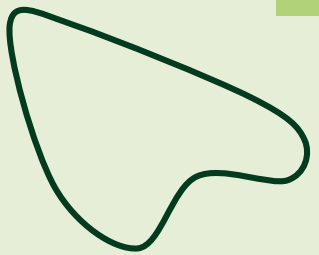
Technologies adopted on large scale

Target zones

- **60 m ha** southern temperate Australia
  - **25 m ha** high rainfall
  - **35 m ha** crop-livestock



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Technologies adopted on large scale

Adoption targets

7.3 m ha innovative farming systems, better perennials for livestock and crop production

850,000 ha salt tolerant farming systems

100,000 ha new woody crops

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EverGraze
More livestock from perennials

High performance, drought hardy grazing system

- Prime Lamb production on perennial pastures
  - 50% more profitable with recharge control
    - Improved genetics, ovulation and lambing %
      - Lambing nursery, better growth & survival

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EverGraze - pasture diversity

Lucerne 22%
Summer/autumn

Tall fescue 22%
Winter/spring/
summer

Kikuyu 26%
Summer/autumn

Setaria/panic 5%
Summer/autumn

Chicory 25%
Spring/summer

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Where can this science take us?

Creating new commercial perennial plants	PastureSearch
Designing new farming systems	Enrich EverGraze Sustainable Saline Grazing
Creating new industries	Salt tolerant wheat New woody crops
Managing resources in catchments	Natural resource management investment framework

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Agribusiness is getting involved

- Proposed accredited and non-accredited training (EverTrain)
- Agribusiness, leading farmers, consultants and extension clients
- Track record:
  - about 1,600 trained (700 Landmark staff)
  - 67 workshops, 120 training days
- Conservation and land management, production agriculture

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Our industry participants

Industry & commercial

- Meat & Livestock Australia
- Grains R&D Corporation
- Australian Wool Innovation
- Landmark – An AWB Company

- Kondinin Group
- Enecon
- Renewable Oil Co.
- Oil Mallee Co.
- North Central CMA

Research & extension

- Primary industry agencies – NSW, WA, Vic & SA
- Natural resource & conservation agencies – WA, SA & NSW

Research & education

- CSIRO
- Universities – WA, Charles Sturt, Melbourne & Adelaide

FFI Associates

- Evergreen Farmers
- Oil Mallee Association
- Saltland Pastures Association

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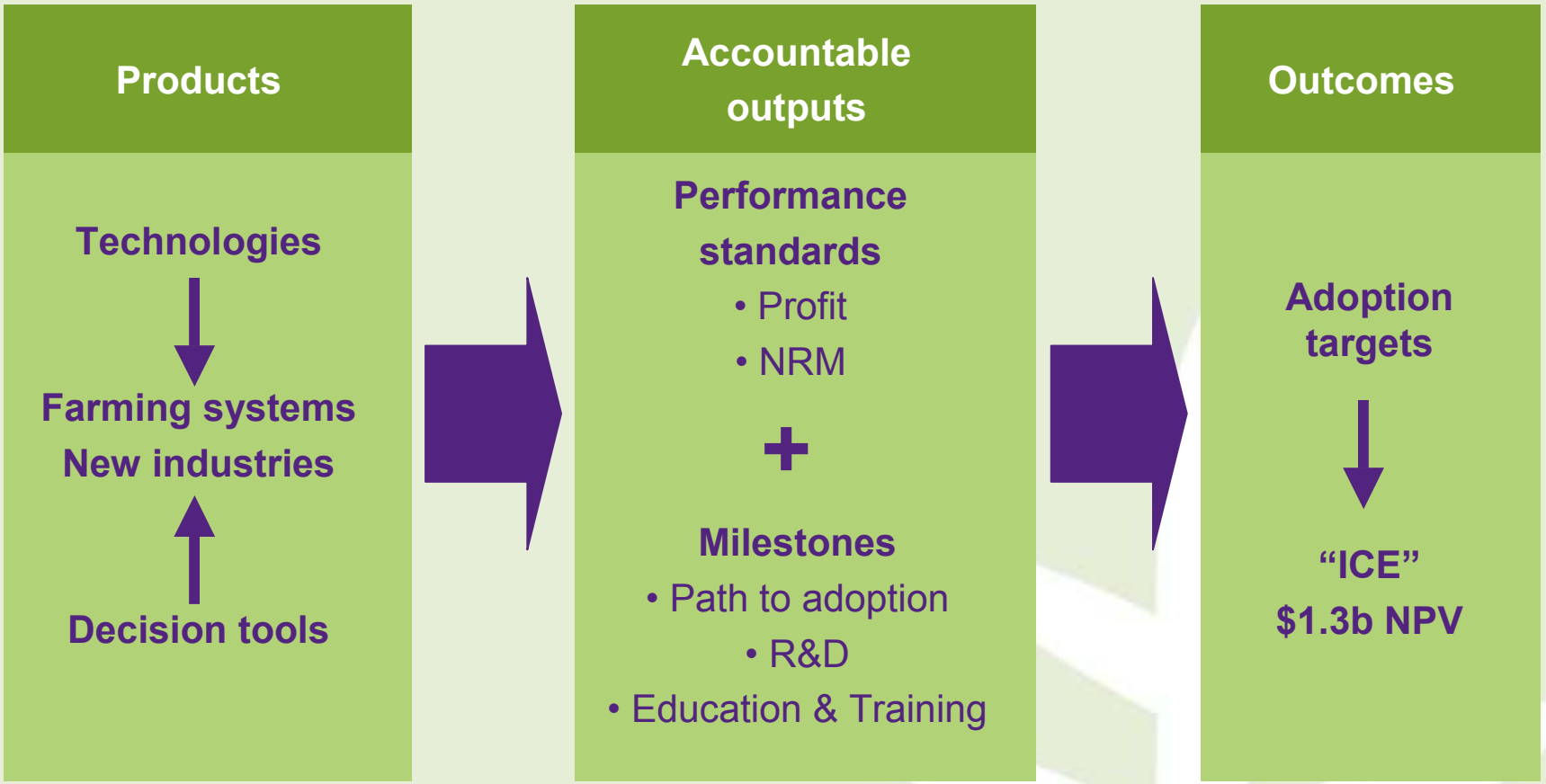
FFI achieving outcomes - accountability



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Past Estimates of Net Benefits and Costs

Net benefits

- $716 M NPV additional profits to farmers
  - WA salinity management program (SIF)
- $80 M NPV reduction in salinity costs to farmers
  - from NDSP investment $24 M over 5 years (CIE)

Total costs

- $476 M/year ($4 billion NPV) in WA
- $305 M/year in Murray-Darling Basin

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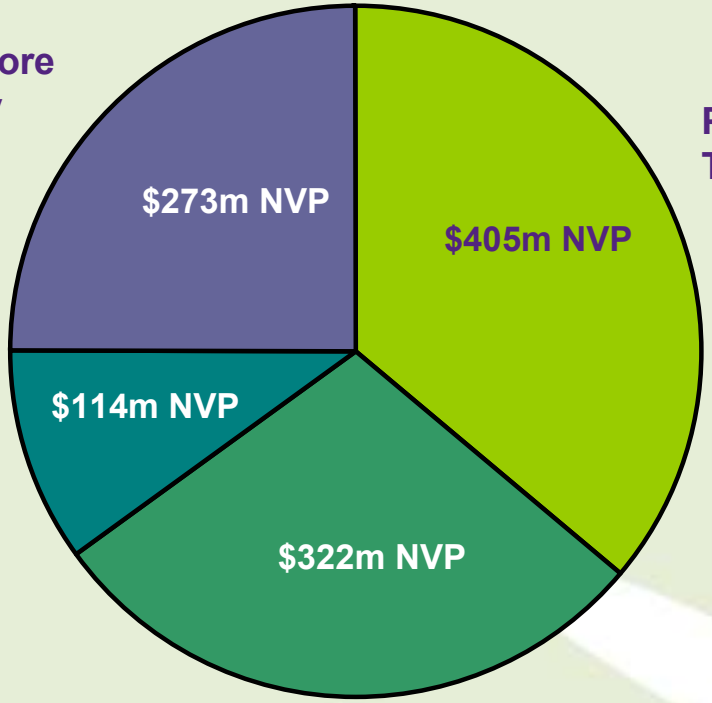
The business case – CRC Salinity BCA's



Benefit from more effective policy

Practices to manage recharge
Target adoption: 7.4m ha

Practices to adapt to discharge
Target adoption: 850 000 ha

Benefit from salinity containment
Salinity prevented or delayed: 1.6m ha

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Revised National Policy

- Principles for future salinity investment
  - Costs to benefits
  - Public benefits
  - Target investments to assets
  - Limited information
  - Selection of policy tools
  - Research
  - Multiple benefits
- Science evidence provided by CRC Salinity
- Backed by investment decision tool (SIF3)

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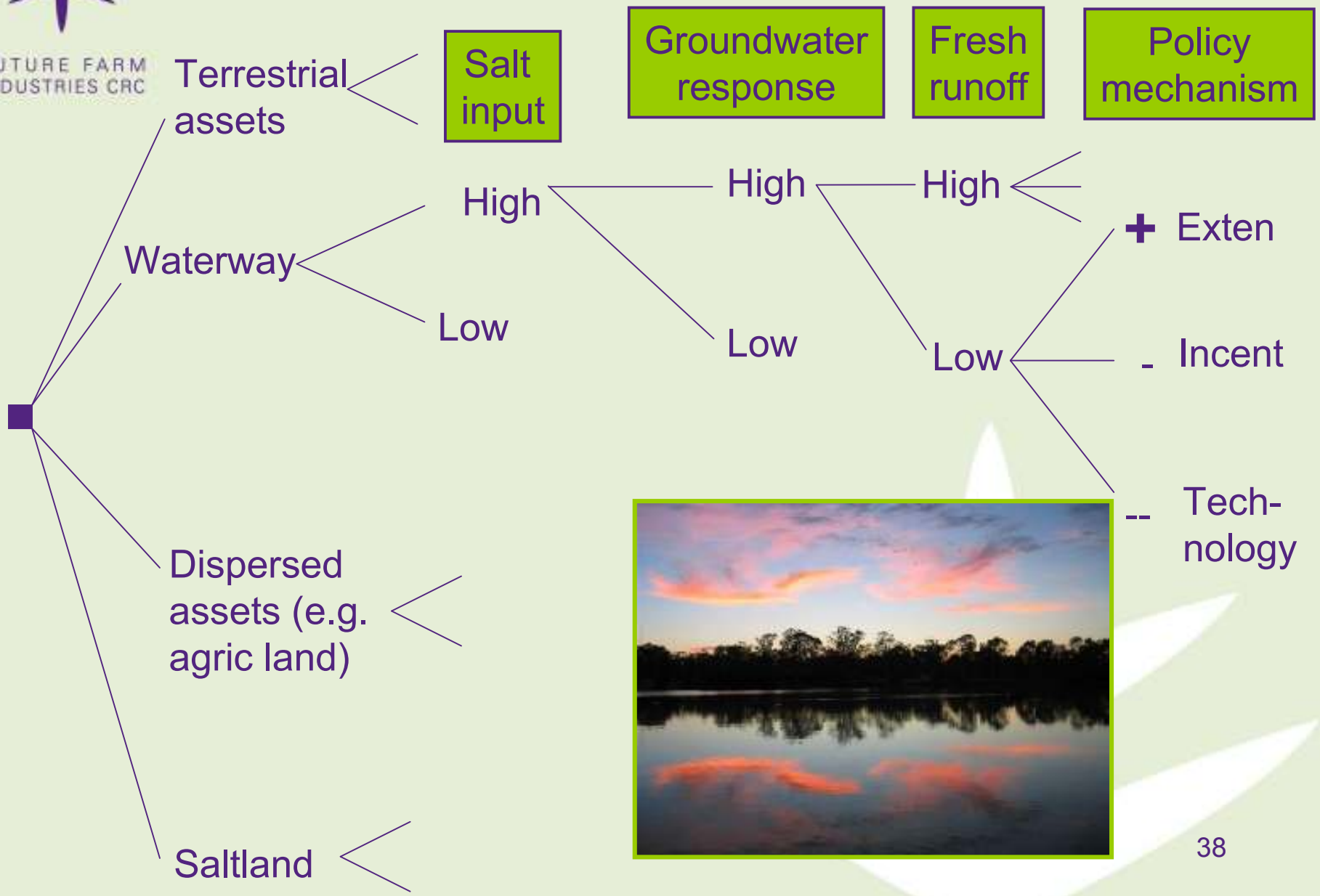

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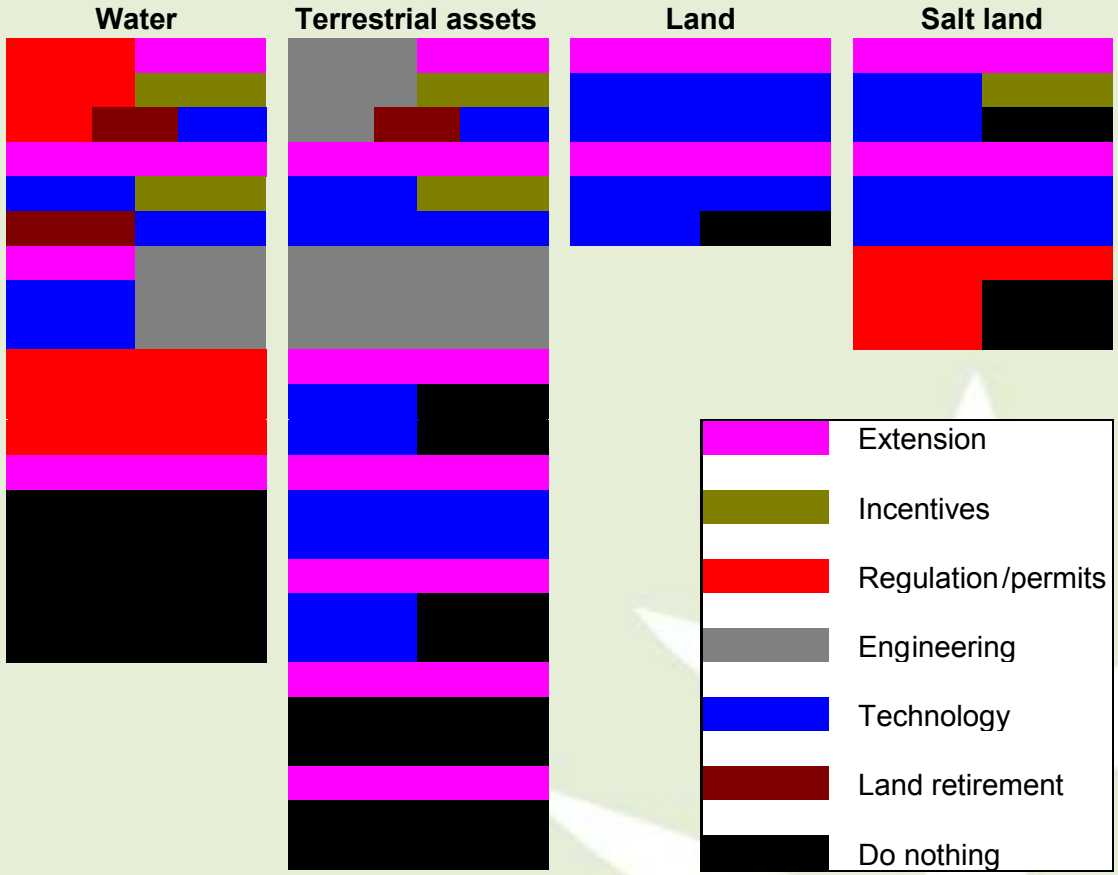
Recommended responses in all scenarios



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Major differences for NCCMA