Australian Government

Department of the Environment and Heritage
Australian Greenhouse Office

Successful Approaches to Reducing Greenhouse Gas Emissions from Australian Agriculture :

Minimising Loss of Valuable Resources

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This presentation will cover:

1. The operating environment for reducing emissions from agriculture in Australia
2. Approaches by the Australian Government: Harnessing multiple benefits
3. Promoting partnerships with Industry for win-win outcomes: *Greenhouse Challenge Plus for Agriculture*

PART 1

The Operating Environment for Reducing Emissions from Agriculture in Australia

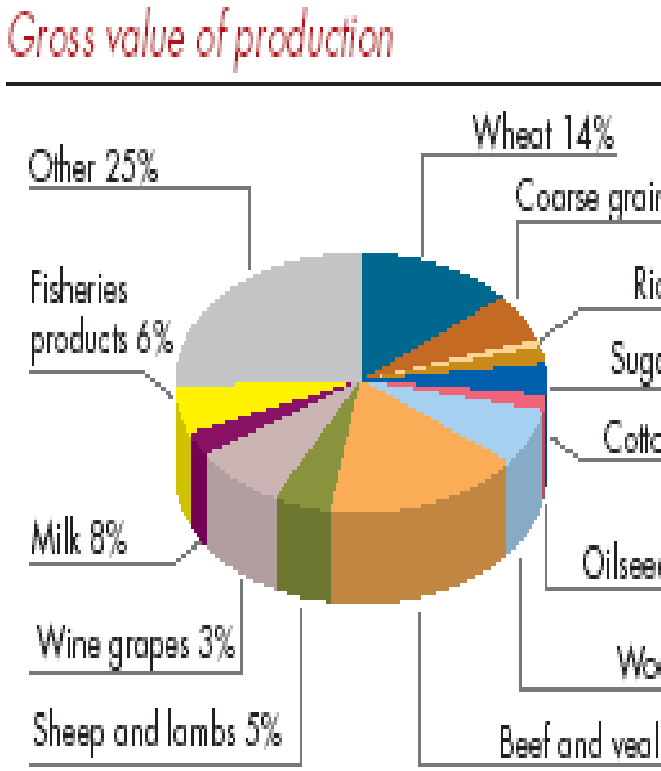
Agriculture in Australia

Like many countries:

Agriculture is a vital sector in Australia's economy

Plays a major role in global rural trade

Agriculture is the life-blood of regional prosperity and rural communities



Agriculture covers 60% of Australia's land mass
113,000 individual enterprises

But Australian Agriculture:

Is highly variable season-to-season

Is highly diverse - extensive range of different commodities for domestic and international markets

Operates across an enormous range of environments and climatic zones: tropical, hot & arid, temperate, cool & wet

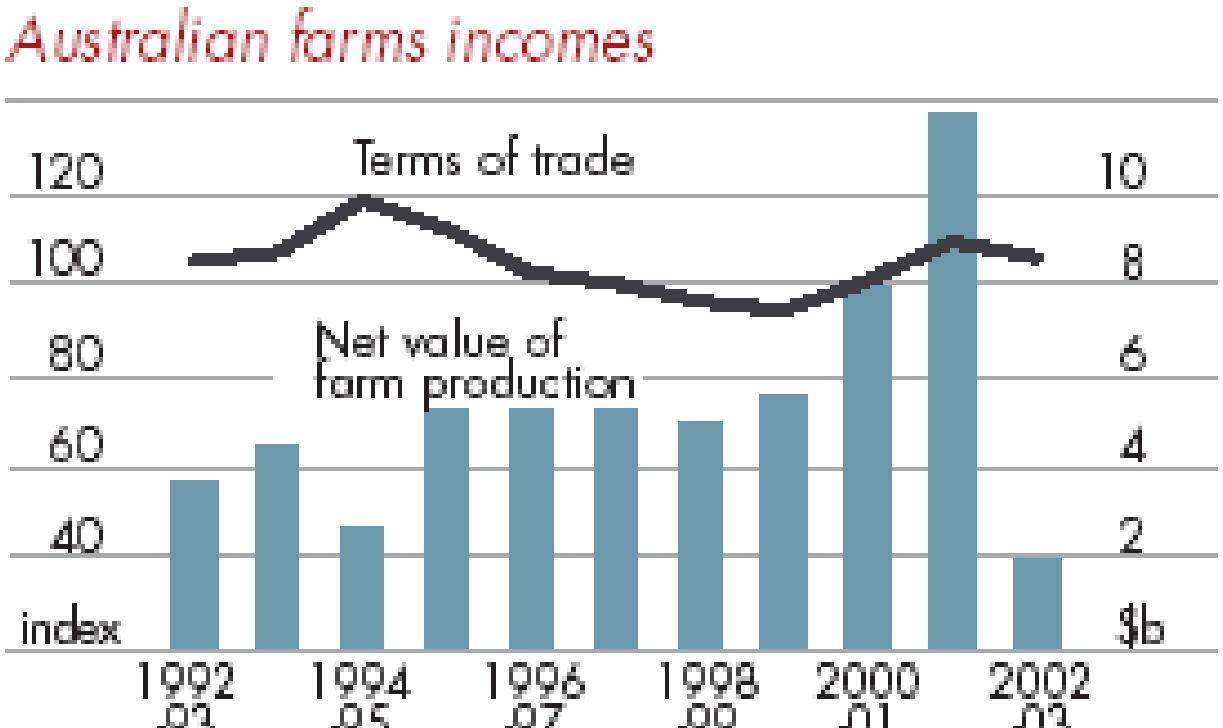
Is very young (less than 200 years) – there are still major structural changes and land-use changes within the developi industry

- Any system to manage greenhouse gas emissions needs to take this operating environment into account

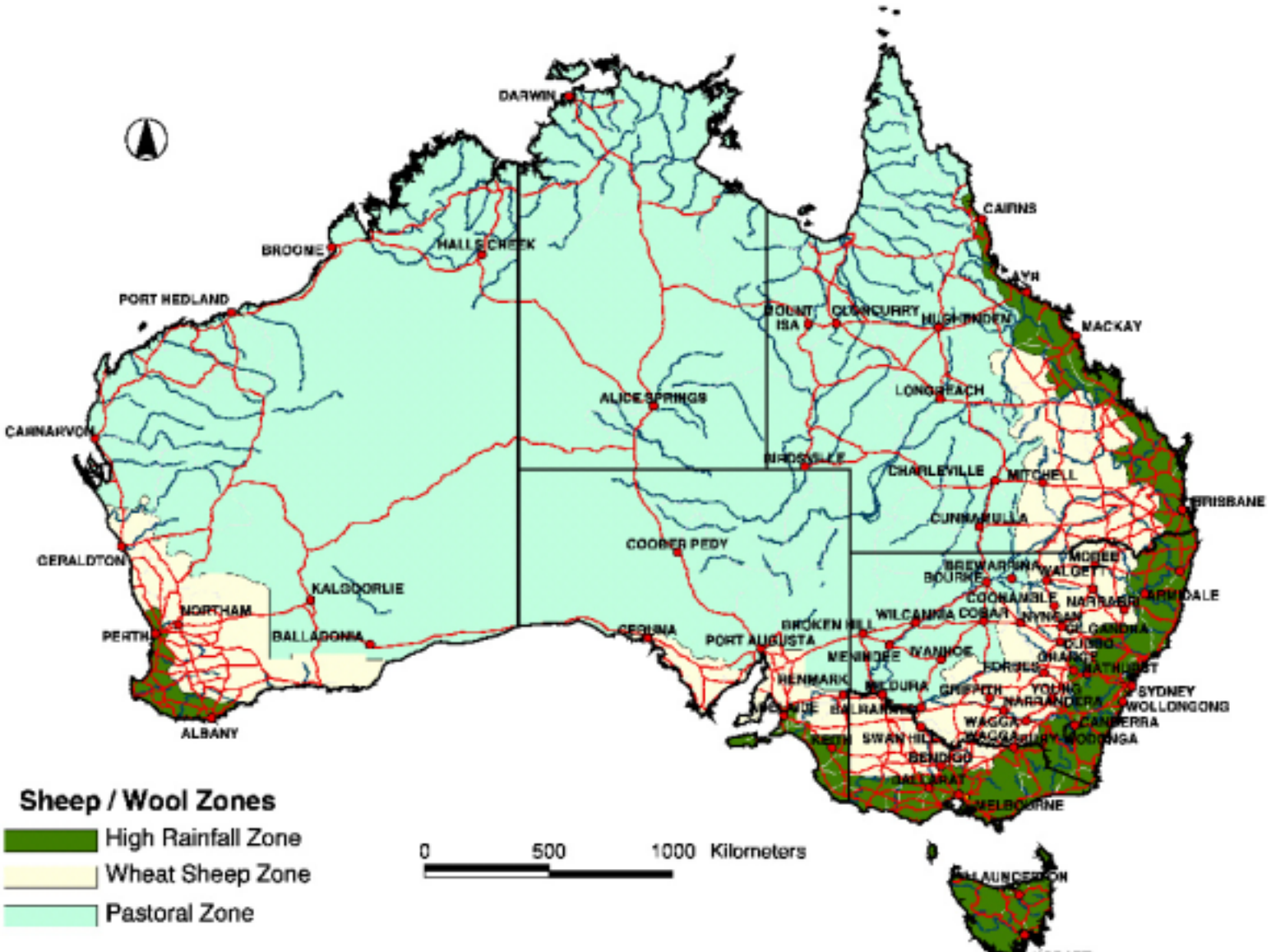
A quick snapshot .

High Season-to-Season Variability

- A land of ‘droughts and flooding rains’ and the occasional good season in between
- During the 2002-03 drought, the value of agricultural production fell 77%



Range of Environments



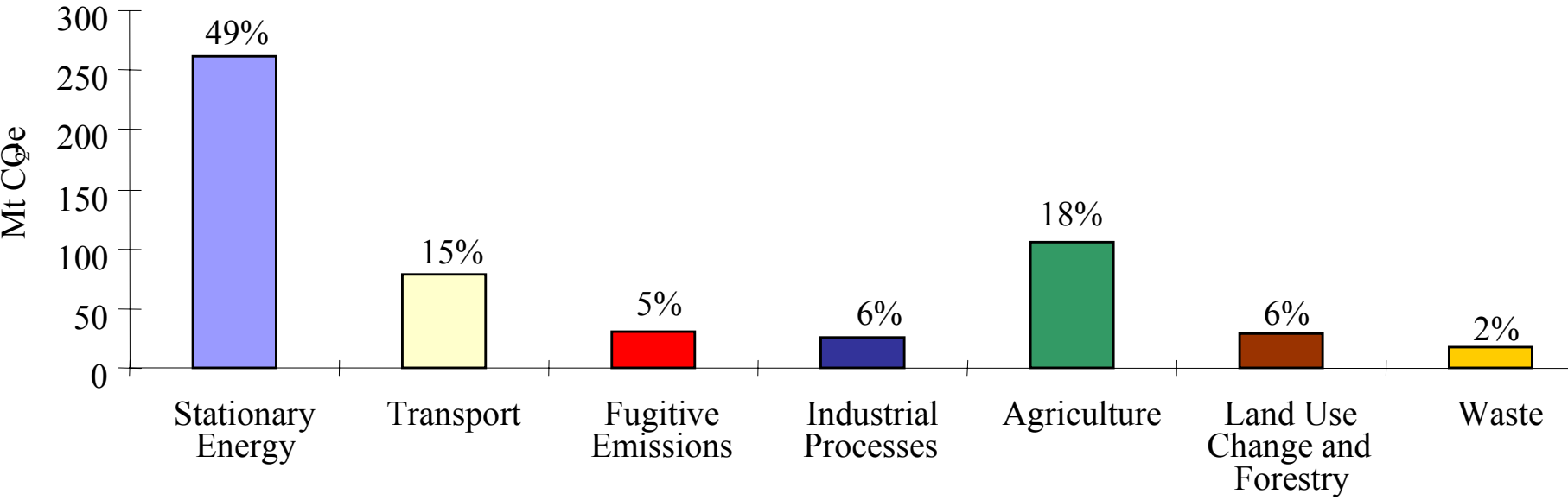
Range of Industries





Grains	Wheat is the major crop – 24 Mt pa (*70% expor*
Meat	World's largest beef exporter (27 million cattle) Second largest sheep meat producer
Wool	World's largest producer of wool; 120 million sheep and one-third of world production
Horticulture	Wide range of annual and perennial fruits and vegetables; $2 billion wine export pa
Dairy	11 billion litres milk produced pa

Greenhouse Gas Emissions from Agriculture



- High proportion of national emissions: 18% cf EU ~10%; US ~5.5%
- Note national accounting using IPCC methods for agriculture exclu
  - Pre-farm and post-farm emissions with food and fibre industries
  - Energy and transport associated with agriculture
  - Land use change (clearing) and Forestry
- If all these included, Australian agriculture closer to 40% of emissio

Managing emissions from agriculture needs whole life cycle appro

Consider the two main emissions from Australian agriculture

Methane

- 68% of Australia's methane comes from agriculture
- 14% of Australia's total emissions (same as total transport!)
- 95% from rumen emissions; 5% manure management (intensive livestock)

Nitrous Oxide

- 77% of Australia's nitrous oxide comes from agriculture
- 5% of Australia's total emissions
- 69% from agricultural soils; 26% savannah burning; 5% manure management

PART 2

Approaches by the Australian Government:

Harnessing Multiple Benefits

Coordinated Programmes to Address Climate Change in Regional Australia

Addressing both:

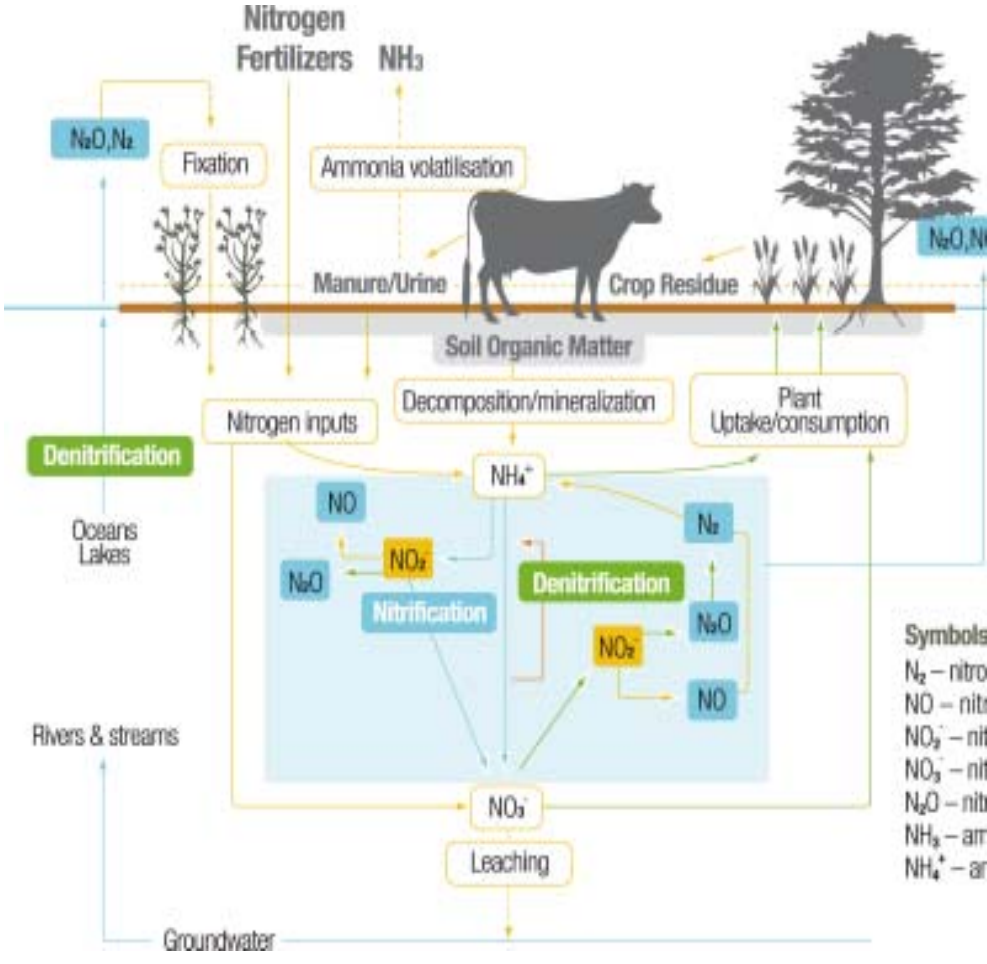
- ***Reductions in greenhouse gas emissions***
- ***Adaptation to climate change***

- Australian Climate Change Science Programme
- National Adaptation Programme
- Greenhouse Action in Regional Australia
- Greenhouse Challenge Plus for Agriculture
- Emissions Measurement and Analysis
- National Carbon Accounting System
- International Partnerships Programme

And progressively building climate change into all Government initiatives

Nitrous Oxide

- Large losses of fertiliser nitrogen:
  - 15-50% rain-fed systems
  - 40-70% intensive systems
- Nitrous oxide emissions represent a <u>loss of productive resources</u>



Multiple Benefits of Reducing Nitrous Oxide Emissions

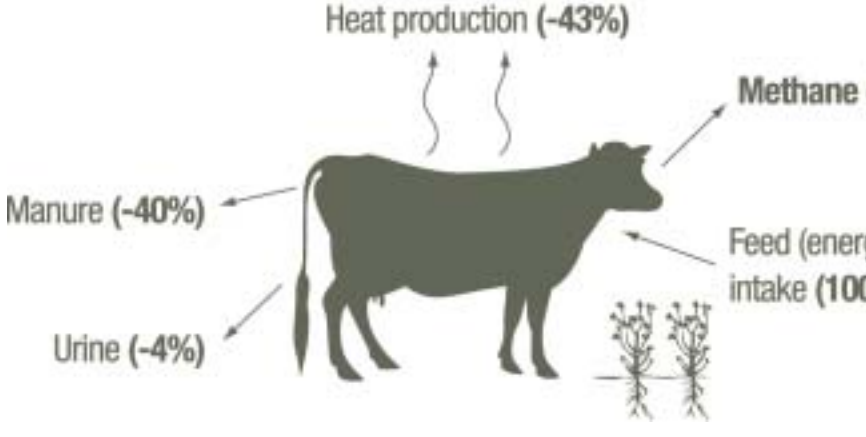
So the Australian Government approach:

- Focus on Improving Efficiency of Nitrogen Use
  - Increase productivity and profit
  - Reduce nitrogen runoff and leaching
  - AND reduce nitrous oxide emissions at the same time –

Working in partnership wit
agricultural industries to cre
win-win outcomes

Methane

- A similar story in the livestock industries
  - 10% of total productivity lost as methane
  - Major cost to industry
  - Opportunities for production gains alongside environmental benefits



Multiple Benefits of Reducing Methane Emissions

The Australian Government approach:

- Focus on Improving Efficiency of Feed Conversion
  - ➢ Increase productivity and profit
  - ➢ Reduce waste in the livestock industries
  - ➢ AND reduce methane emissions at the same time

Working in partnership wi
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Also Reducing Carbon Dioxide Emissio

The Australian Government approach:

- Focus on Building Soil Carbon and Increasing Fuel/Ener Efficiency (e.g. minimum till, continuous vegetation cov
- ➢ Increase soil organic matter for productivity gain
- ➢ Reduce fuel and energy costs
- ➢ AND reduce carbon dioxide emissions at the same time_

Working in partnership wit agricultural industries to cre win-win outcomes

Improving Vegetation Management

The Australian Government approach:

- Focus on Improving Vegetation Management
  - Reduced salinity & erosion
  - Enhanced biodiversity
  - Shelter for livestock & crops
  - AND sequester carbon at the same time

Vegetation management provides win-win outcomes

PART 3

Promoting Partnerships with Industry for Win-Win Outcomes:

Greenhouse Challenge Plus for Agriculture

Greenhouse Challenge Plus

- Australian Government programme for partnership with industry.
- Working together to:
  - Provide information products and tools on best practice
  - Implement actions to reduce greenhouse gas emissions
  - Increase resource-use efficiency
  - Integrate greenhouse gas management into business decision-making
  - Improve reporting of greenhouse gas emissions benefits

Greenhouse Challenge Plus for Agriculture

ocus on developing and/or building into nvironment **M**anagement **S**ystems

- Nitrogen use efficiency
- Feed conversion efficiency
- Management of soil organic matter
- Fuel and energy use efficiency
- Improved vegetation management

EMS

Frameworks for managing risks and achieving multiple benefits

Greenhouse Challenge Plus for Agriculture: R&D to Developing Technical Solutions

- Partnerships with industry and research providers to improve best management practice – for instance

- Nitrous Oxide:
  Improved management using life cycle analysis for:
  Wheat, Maize, Cotton, Sugar

- Methane:
  Advanced technologies in
  - Modifying rumen ecolog
  - Feed utilisation
  - Animal genetics

Examples from Industry

Environmental Best Practice on Farms (Victoria)

Victoria
The Place To Be

ctivities related to greenhouse gas emission reduction included:

- Energy Use Efficiency
  - Choice of farm equipment; Design, layout and construction on farm Efficient operations
- Reducing Nitrous Oxide Emissions
  - Nitrogen management; Soil management; Water management
- Reducing Methane Emissions
  - Stock management; Effluent waste management
- Carbon Sequestration
  - Managing vegetation

Examples from Industry

Yalumba Wines

- Whole-of-property approach to continuous improvement in good viticultural practice
- Greenhouse gas emissions addressed through:
  - Nutrient management
  - Energy efficiency
  - Soil management
  - Vegetation management

Examples from Industry

Australian Rice Growers

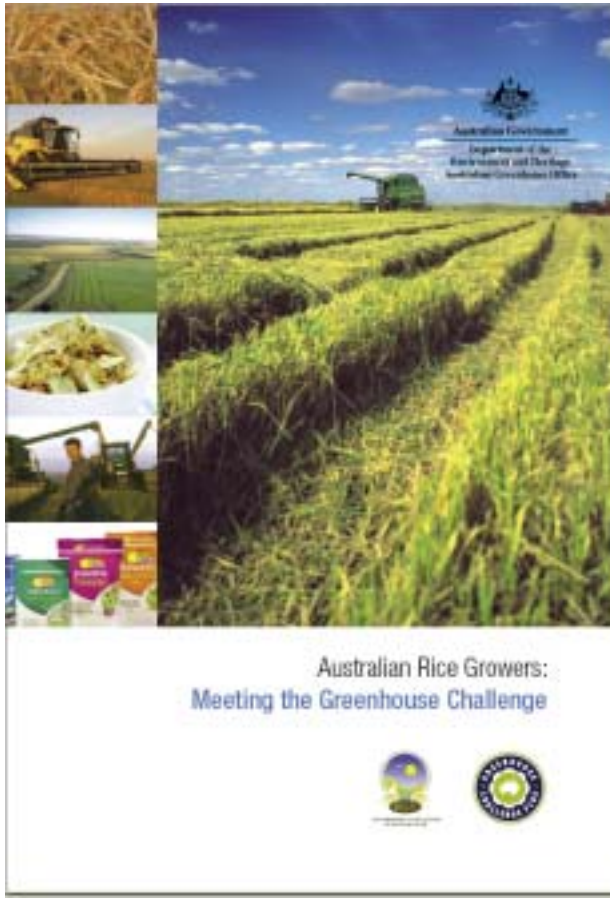
Comprehensive industry-wide EMS

RICEGROWERS' ASSOCIATION OF AUSTRALIA INC

Emissions management focuses on:

- Irrigation
- Nitrogen
- Soil
- Stubble
- Vegetation
- Energy efficiency
- Waste management:

  Reduce, Reuse, Recycle



Summary:

- Agriculture is significant source of Greenhouse G emissions – but opportunities are available to redu these
- Need to take account of differing circumstances
  - Range of climates, environments and industries
- Optimal approach is to pursue multiple benefits
- Work in partnership with industry to provide tangible benefits.


Thank you