



# Phosphorus management of beef cattle in northern Australia



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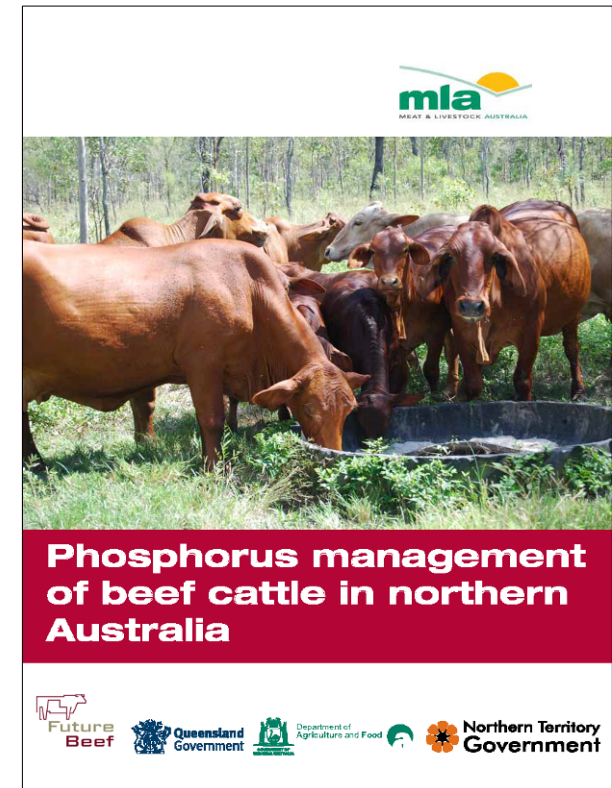
A joint initiative of:



# The book



- Initiated by MLA
- Compiled and written by:
  - **Queensland:** Désirée Jackson, Rob Dixon, Bill Holmes, Bernie English, Joe Rolfe and Rebecca Matthews
  - **Western Australia:** Peter Smith
  - **Northern Territory:** Neil MacDonald
- Edited by Ian Partridge
- Literature review by David Coates and Rob Dixon



# Aims of the book



- Latest recommendations
- Compile scientific and practical knowledge
- New methods for testing
- Regional producer case studies



# Why feed phosphorus?



- **Animal performance**
  - Growth
  - Fertility
  - Milk production
- **Acute deficiency**
  - Peg-leg
  - Poor body condition score
  - Botulism
- **Hidden effects**
  - Reduced feed intake
  - Poorer growth during the wet



# When to feed phosphorus?



- All year
- Ramp up during the wet
- Adjust phosphorus level in supplements



# Poll



If you are on P-deficient country, how often do you feed wet season phosphorus supplements?

- Always
- Frequently
- Sometimes
- Rarely
- Never

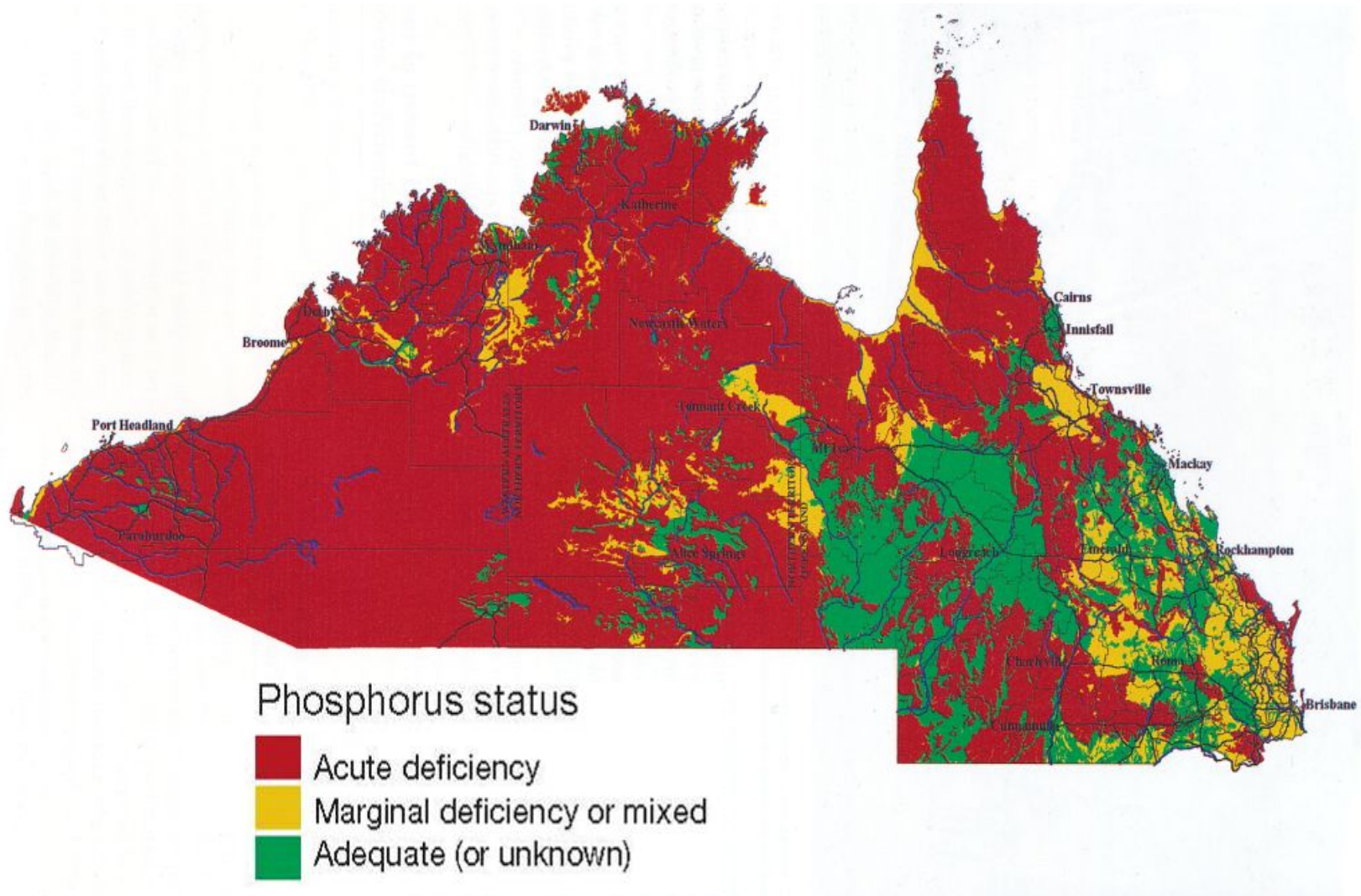
# What stock need P most?



- Young growing animals
- First-calf heifers
- Late-pregnant breeders
- Wet cows



# Who should feed P?





# Who should feed P?



- Soil analyses
  - 5 mg P or less: all cattle
  - 6-8 mg P: young breeders
  - More than 8 mg P: adequate
- Regional vegetation types
- Signs of P deficiency
- Local district records
- Local beef advisor
- Trial feeding



# Diagnostic tests



- **Soil**
  - Critical that it must be done correctly
- **Forage**
  - Little value
- **Blood**
  - End of wet season
  - Dry stock
- **Faeces**
  - Middle of wet season
  - Unsupplemented animals
  - P:Energy ratio

# Questions, comments?



Type your questions  
here anytime



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# How much P to feed?



## Depends on:

- Dietary factors
- Animal factors
- Desired level of production

# Animal P requirements



## Animal

- Likelihood of bone mobilisation
- Animal class
- Stage of production
- If growing – realistic level of growth



# Animal P requirements



## Diet

- Level of P in the diet
- Level of other nutrients
- Balance with other nutrients



# How much P in lick?



## Inclusion rate depends on:

- Level of intake required
- Predicted lick intake level
  - Palatability
  - Hardness

# Types of licks

- Loose licks
- Blocks
- Water medication
- Fortified energy supplements

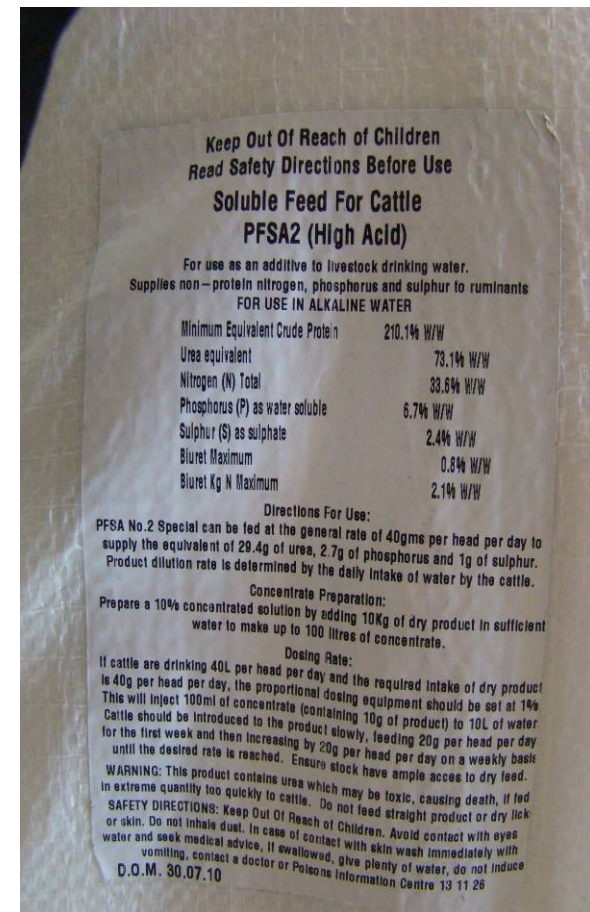




# Calculating lick costs



- **Cost of the supplement**  
\$750/tonne
- **P content of supplement**  
5%
- **Weight of P/tonne of supplement**  
 $1000 \text{ kg} \times 0.05 = 50 \text{ kg}$
- **Cost of P**  
 $\$750/50 \text{ kg} = \$15/\text{kg P}$   
or 1.5 cents/g P



# Other lick ingredients

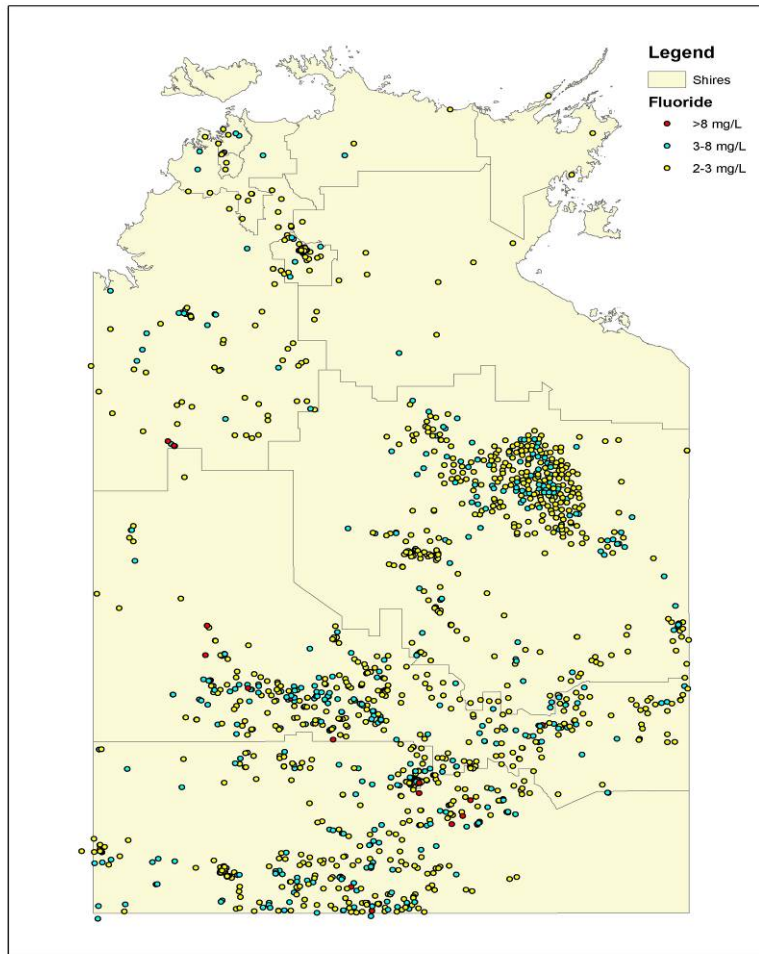
- Phosphorus
- Salt
- GranAm
- Lime
- Cement
- Molasses or protein meal



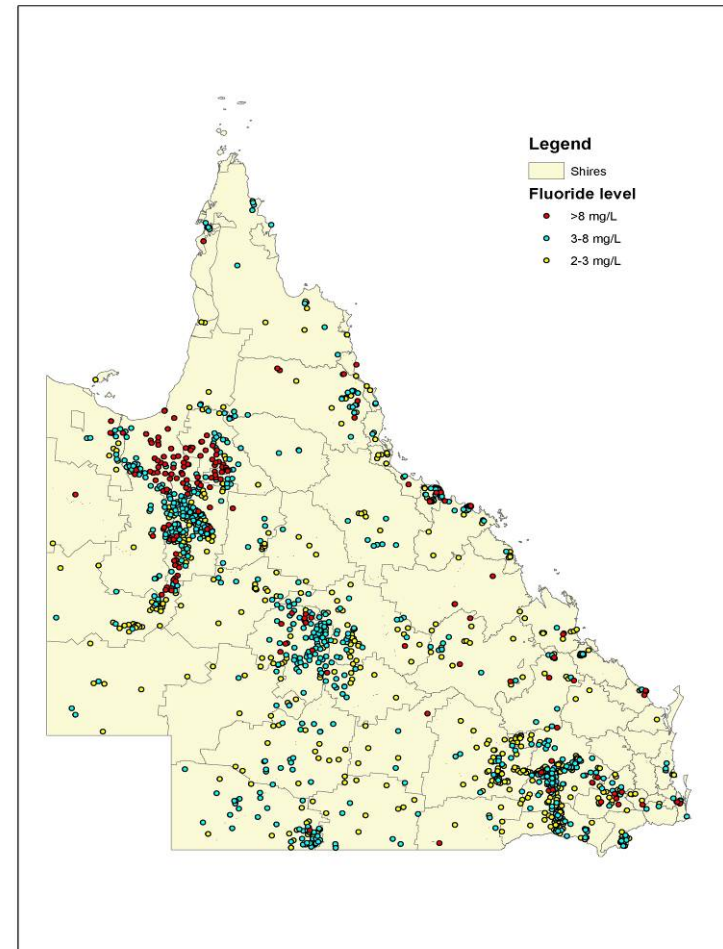
# Fluoride



## NT bore fluoride levels



## Qld bore fluoride levels



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# Poll



When the price of phosphorus increased, did this affect your feeding of P supplements to your cattle?

- Yes
- No
- Maybe

# Economics of P feeding



- Supplementary feeding P provides a good return even with significant P price rises
- Case studies showed the return/AE increased between 12-23%
- Acutely deficient country – failure to provide P will make an enterprise unprofitable
- Economic return depends on:
  - Other aspects of management
  - Running costs
  - Productive capacity of country

## Croydon example

- Acutely P deficient
- Stock fed dry season supplements
- **Wet season P feeding versus nil P feeding**
- 10% lower AE in herd fed wet season P
- Steers turned off a year earlier
- Additional labour
- Additional vehicle costs for feeding
- Capital expenditure

# Economics of P feeding



## Gross Margin/Adult Equivalent

No wet season P    \$ 57.15

Wet season P        \$103.26



# Maximizing economic benefits



- Botulism vaccination
- Matching calving with diet quality
- Selling off surplus cows
- Foetal aging and segregation
- Early weaning
- Culling non-performers – lick costs
- Matching animal requirements with paddock diet quality

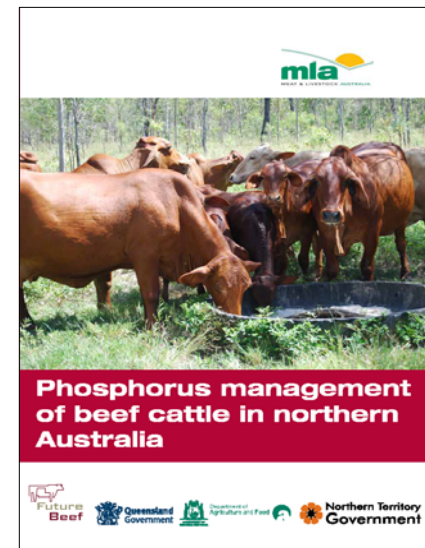
- Determining the effects of P supplementation on faecal P levels
- Improving the knowledge of the carry-over effects
- Efficacy of dry season supplementation on bone repletion in breeders

- Prediction of P intake from faecal measurements
- On-property demonstration sites
- Further work to identify the key drivers that will motivate producers to implement P supplementation

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