Phosphorus management of beef cattle in northern Australia

A joint initiative of:

Queensland Government  Northern Territory Government  Department of Agriculture and Food  MLA - Meat & Livestock Australia

Désirée Jackson
DAFF FutureBeef
Longreach
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?

Phosphorus status
- Acute deficiency
- Marginal deficiency or mixed
- Adequate (or unknown)
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
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 kg x 0.05 = 50 kg

- **Cost of P**
  - $750/50 kg = $15/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
Questions, comments?

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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
Economics of P feeding

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
Future research

- 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
Future research

• 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
To get a copy

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  – Email publications@mla.com.au

• Désirée Jackson
  – At Longreach DAFF office
More information

• Désirée Jackson
  07 46 501 223
  0409 062 692
  Desiree.Jackson@daff.qld.gov.au
  desireejackson@bigpond.com

• Contact your local beef extension officer – go to the FutureBeef website and click on “Contacts”
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