

# The P message: improving phosphorus nutrition management with a new extension approach

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Photo contributions:  
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Mick Sullivan, DAF

@QldAgriculture  
@futurebeef  
#eatqld  
#beefextension

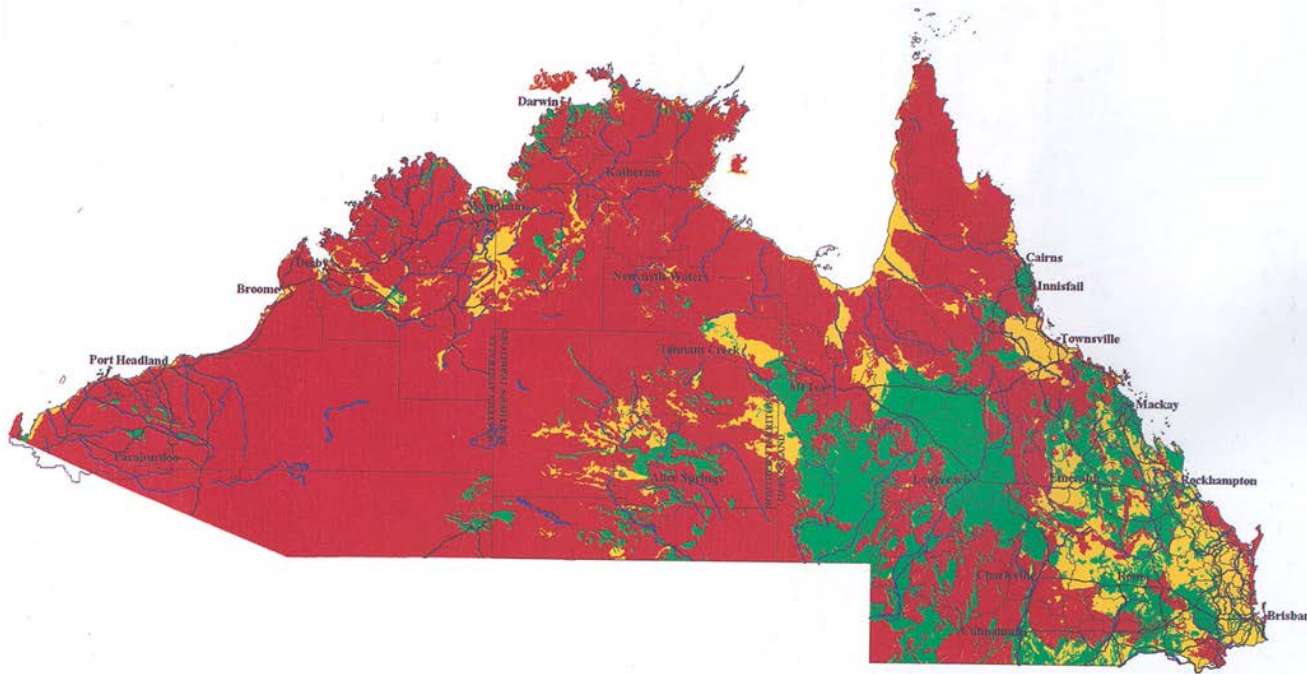
# Outline

Phosphorus nutrition is not  
a new issue  
but, we've got new  
information  
so let's get it out there!

Did it work...?



# Widespread issue



The extent of P deficiency in northern Australia

## Soil P:

Green = adequate

Yellow = marginal

Red = deficient

# Symptoms of P deficiency



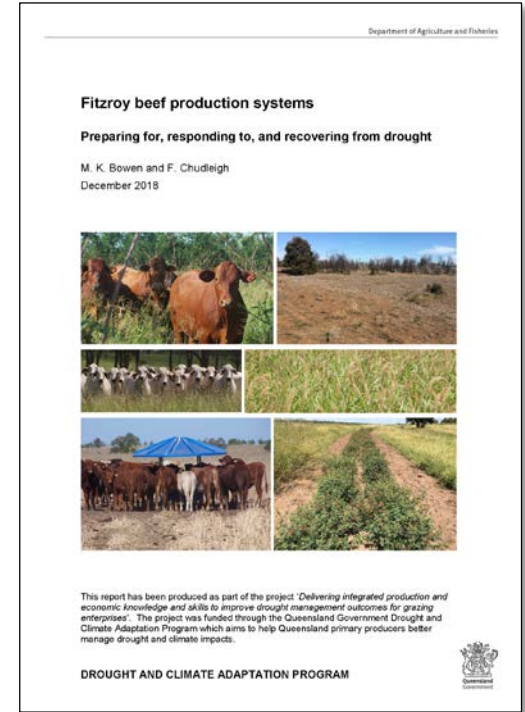
Big impact on  
productivity and  
profitability



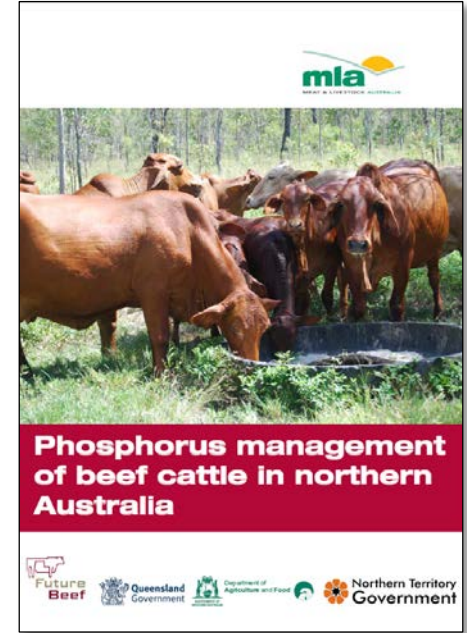
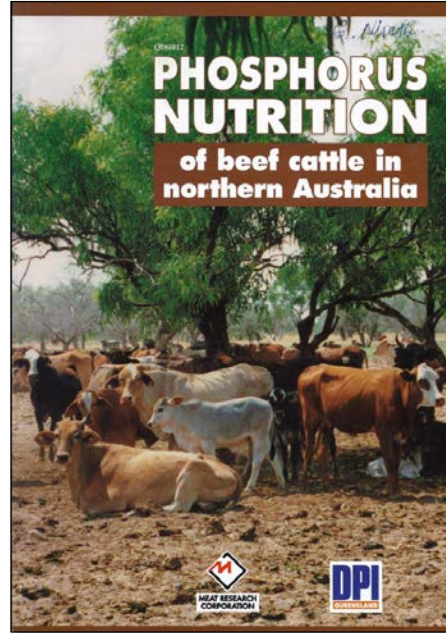
# Better science than ever before



\$



# Traditional extension



# New information – new extension



**September 2018**  
BeefConnect  
webinars



**February 2019**  
New FutureBeef  
webpage



**May 2018**  
Beef Australia



**October 2018**  
New tools for  
workshops



**May 2019**  
Social media video



**October 2019**  
Workshops  
& follow up

# Beef Australia seminars



**SOLD OUT**

- 2 seminars
- 340 people (officially)
- ✓ Large diverse audience
- ✓ Meet & greet







# Beef Connect webinars


Growth of steers in response to phosphorus in the diet

Simon Quigley, Peter Isherwood, John Milton, Matt Callaghan, Dennis Poppi




Create change

Kidman Springs Phosphorus Supplementation Project



NT DPIR – Tim Schatz





YouTube

- 4 webinars
- 1,067 views since September 2018
- ✓ Available any time
- ✓ Re-run on social media
- ✓ Bite-sized grabs


Better management of phosphorus nutrition of grazing cattle – an update & recent developments







Rob Dixon  
Queensland Alliance for Agriculture and Food Innovation (QAAFI),  
The University of Queensland  
(On behalf of a large team from UQ and QDAF)



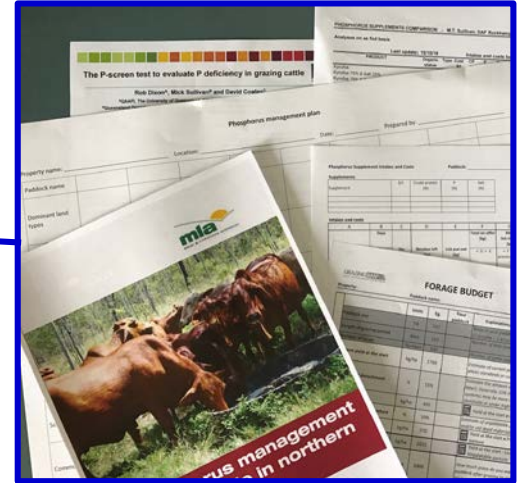
How do we identify and evaluate P deficiency?



Mick Sullivan  
Department of Agriculture and Fisheries  
Rockhampton



# On-ground workshops



- 4 workshop in October 2018
- 162 attendees
- 89% intended to make a change

- ✓ Prepare for the wet season
- ✓ Practical tools
- ✓ Real examples

# FutureBeef website

FutureBeef Knowledge centre articles Phosphorus supplementation of cattle in northern Australia

**Phosphorus supplementation of cattle in northern Australia**

Phosphorus deficiency is a major problem for grazing cattle in much of northern Australia because of the low soil phosphorus levels in many soils. Whilst phosphorus (P) is important in all bodily processes, the major impact of P deficiency in cattle is a significant reduction in appetite. This results in lower pasture intake and consequently lower energy and protein intake.

The reduction in nutrient intake affects the breeder's ability to maintain body condition, resulting in lower weaning rates and increased mortality. Milk production is also reduced leading to lower weaning weights. In growing cattle, the lower nutrient intake produces lower growth rates. All of these impacts have serious consequences for production and profitability.

Other symptoms of deficiency include bone chewing (increases in blood urea nitrogen (BUN)), chewing of other objects (rocks, wire, etc.), stiff gait, peg leg and bone breakages.

Watch these webinars for more information on P in breeders and growing cattle:

- Managing and using body phosphorus reserves in breeders
- Growth of steers in response to phosphorus in the diet
- Quantifying the benefit of phosphorus supplementation – Kidman Springs research results

**How to diagnose P deficiency**

It is important to know if a specific mob or paddock is P deficient and if it will respond to P supplementation. There are a variety of ways to assess whether a paddock or a production system is P deficient.

1. Observation – symptoms of P deficiency in cattle are described above.
2. Soil and pasture tests – soil and land type mapping and information can give an indication of the potential for a P deficiency. See the Land types of Queensland page for more information. Soil and pasture tests can determine the P concentration in the soil and plants, however they are of limited value because most grazing paddocks contain a mixture of soils and land types. The selective grazing of cattle means that simply testing the available plants is not representative of the diet consumed.
3. Blood – the 'P-screen' test is currently the most reliable method of assessing the P status of a mob of cattle. This test cannot be used on breeders, therefore samples from growing cattle (not lactating or pregnant) running in the breeder paddock are used to assess the breeder mob. Testing is undertaken at the end of the wet season while growing cattle are still gaining weight and not on P supplements.

**Managing P intake**

It is important to know the P supplement requirements of the classes of cattle at different times of the year on the producer's land types. More information on cattle P supplement requirements can be found in the "Phosphorus management of beef cattle in northern Australia, PDF 2.2 MB" handbook.

Feeding P in the wet season can be challenging. To achieve target intakes, time has to be invested in identifying the most suitable P source and supplement combinations, and the timing of P supplements.

Good supplementation records are critical to ensure target P intakes are achieved and for managing the cost of supplementation. Download our Lick Intake calculator (Excel spreadsheet, 200 KB).

**Economics**

Economic analyses and producer case studies demonstrate that P supplements can be a very cost-effective strategy for beef businesses. More information on the latest P economics and the benefits modelled for beef businesses in central Queensland can be found in an article written by Dr Maree Blowen (DAF Principal Research Scientist) and Fred Chadleigh (DAF Principal Economist), "Improving beef business performance with phosphorus supplementation".

A research project at the Victoria River Research Station (Kidman Springs) has shown a 300% return on investment of over 300% over the period of 2017-2018 due to increased reconception rates in the supplemented heifers and heavier weaners produced by those females. Read more about the "Effect of phosphorus supplementation on Brahman females at Kidman Springs" project.

**Help with managing P**

Our FutureBeef staff are here to help! Contact your local extension officer to talk about your Phosphorus management plan (Word document, 200 KB), or watch this short clip demonstrating how DAF staff and resources have helped other beef producers develop a cost effective strategic P supplementation program using P blood testing and property land type mapping.



- Live since February 2019
- 848 views
- ✓ Access help in the wet season

# Social media video



- 6 minutes
- Live in May 2019
- 413 views

- ✓ Dry season reminder
- ✓ Practical messages
- ✓ Champion grazier
- ✓ Call to action

# Ready for the next wet season

- Follow up with workshop participants from 2018
- More workshops in Oct-Nov 2019 in more locations across Qld



# New information – new extension



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**Social media**

**@QldAgriculture**

**@futurebeef**

**#eatqld**

**#beefextension**