

# The Soil Phosphorous property report – through “FORAGE”

Queensland Government

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The Long Paddock

Home About Drought Declaration Drought & Climate Adaptation Southern Oscillation Index Climate Outlooks, Weather & Fire AussieGRASS Rainfall / Pasture **FORAGE** Rainfall Posters Queensland Future Climate SILO

9 Feb, 2025  
Average SOI value for the last 30 days  
**+10.48**

**Latest on Long Paddock**

- Updated:** The FORAGE Soil Phosphorus report now includes Gulf and Cape York regions
- New feature:** GeoPDF files are included for selected FORAGE report maps – which can be uploaded on devices such as tablets and mobile phones for onsite property applications
- Essential viewing:** SILO daily and cumulative rainfall totals mapped – For daily, weekly and fortnightly periods

**Climate risk information for rural Queensland**  
A Queensland Government initiative providing seasonal climate and pasture condition information to the rural community

SILO AussieGRASS **FORAGE** Webinars Active



**Grant Stone (and the Long Paddock Team)**

**\*Funding, sampling and analysis thanks: DCAP, REEF, DPI, DETSI & MLA\***

# 14 Individual FORAGE reports (currently)

FORAGE REPORT: EROSION

Overall soil erodibility  
Soils have been ranked into five broad categories of stability and erodibility. The tables on pages 2 and 3, you can determine the soils likely to be eroded.

Map 1 - Overall soil erodibility



Not assessed  
Very low erodibility  
Low erodibility  
DCDB

FORAGE REPORT: GROUND COVER - REGIONAL COMPARISON

http://www.longpaddock.qld.gov.au/forage 04/07/2023 Lot on Plan: None Label: soybeans

Land Type mapping, tables and data

Grazing Land Management (GLM) seasonal ground cover data derived from satellite imagery is compared with the surrounding area.

Rainfall & Pasture charts, tables and data

Ground Cover imagery and assessments

Seasonal Pasture Growth Alert analyses

Long Term Carrying Capacity estimates

Soil Phosphorus mapping and data tables

Fire Scar mapping and graphs

Erodible soils mapping

Foliage Projective Cover imagery and tables

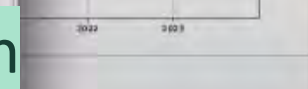
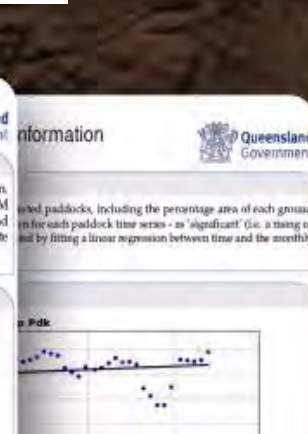
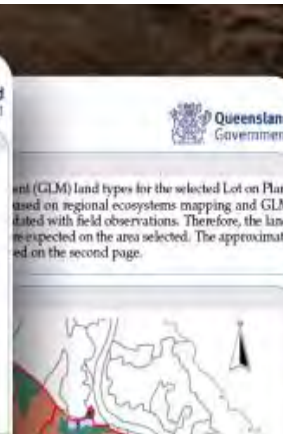
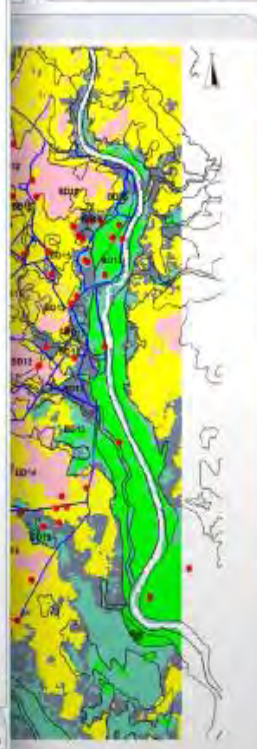
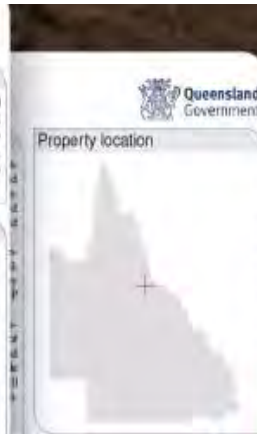
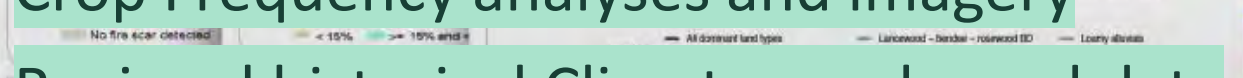
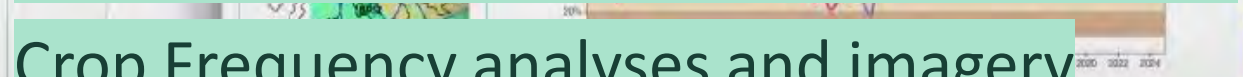
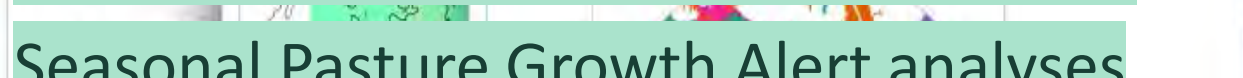
Crop Frequency analyses and imagery

Regional historical Climate graphs and data

Drought Duration & Drought Assessment maps and information

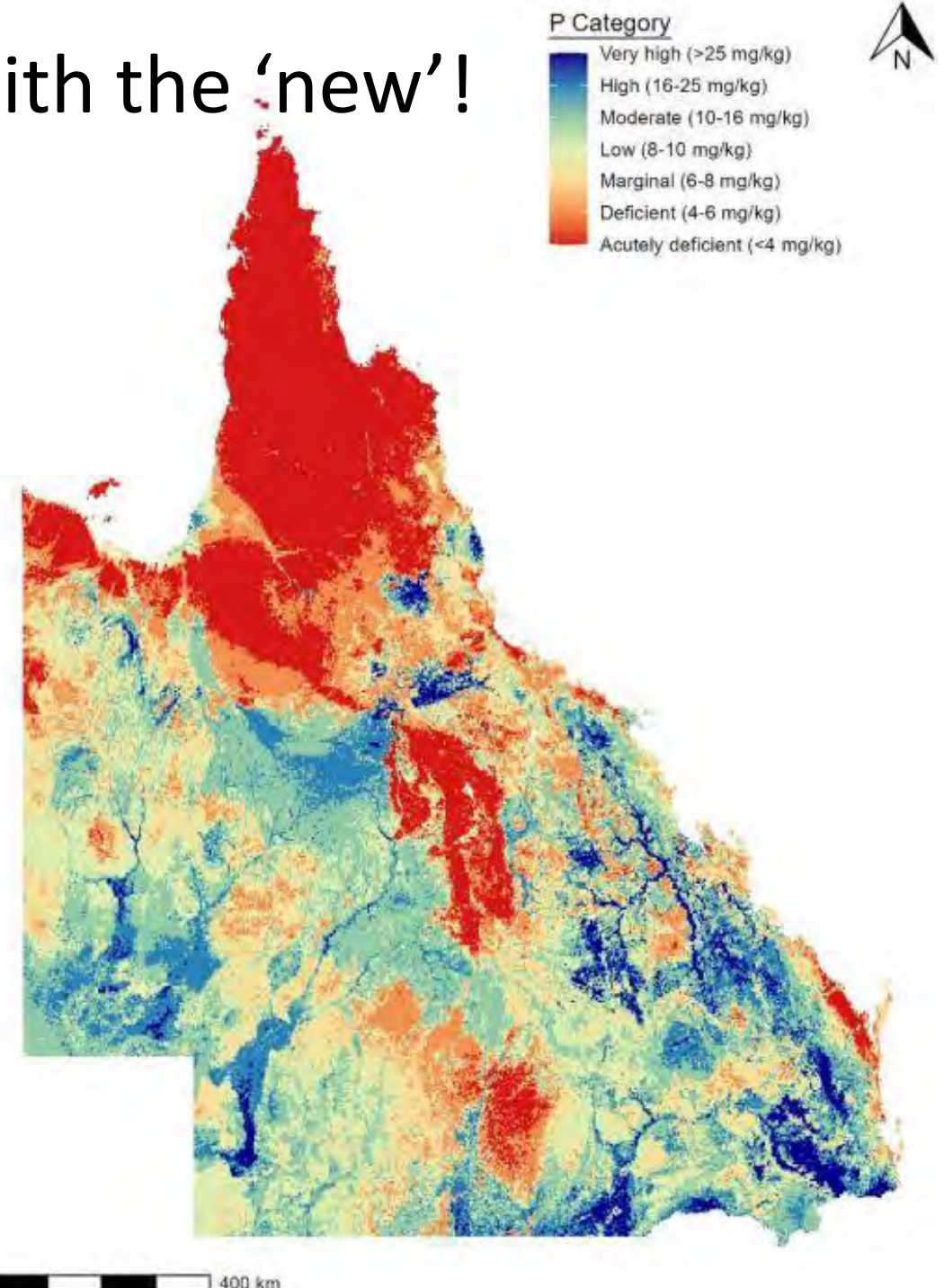
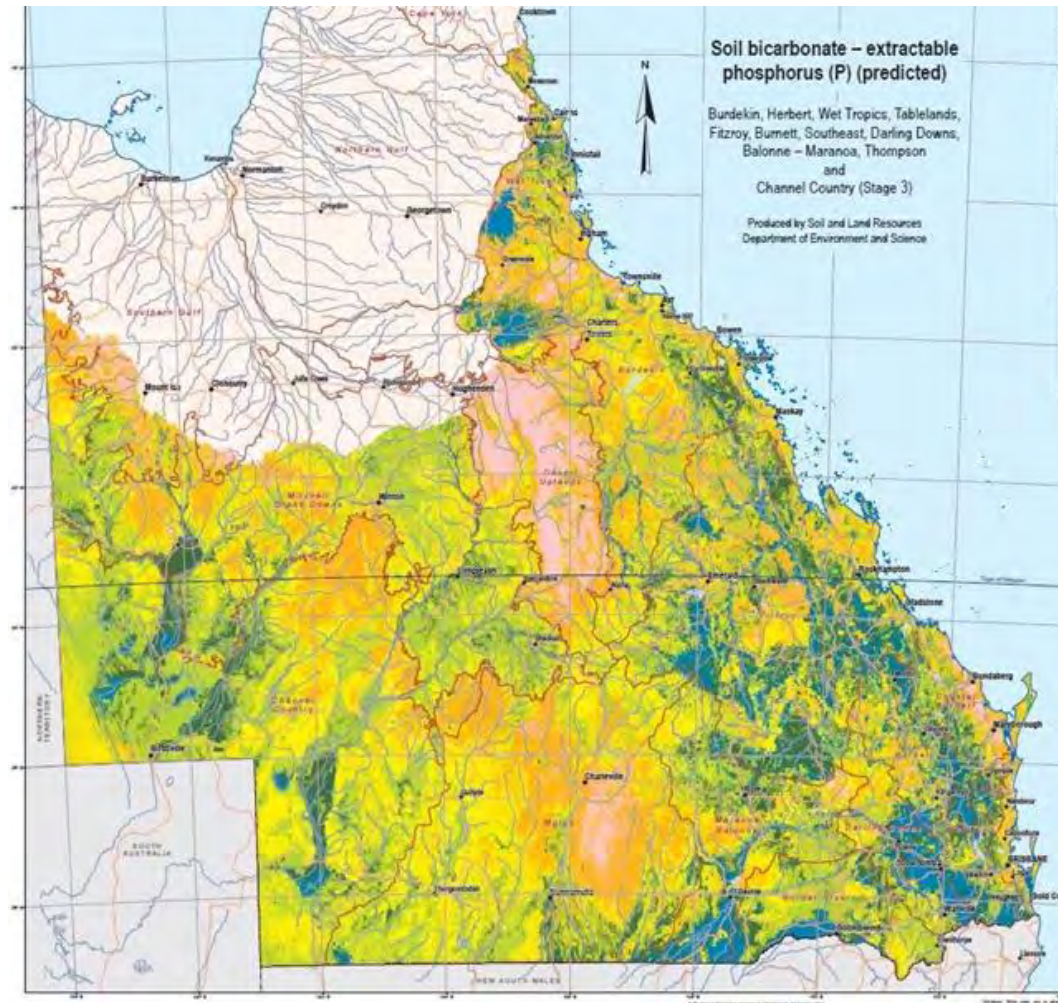
Introduction This report presents the Foliage Projective Cover (FPC) map 2019. If significant management changes and significant ownership changes are recorded, these will be disclosed on all the maps or translation of water. Therefore, all of the data is based on the FPC map 2019. Selected area compared with the local region.

Map 1 - Overall soil erodibility



So, it's out with the 'old' and ...

...in with the 'new'!



## Introduction

This report provides the inherent (i.e. natural soil with no phosphorus fertiliser treatment) 'plant available' soil phosphorus (P) concentration and the soil P categories for different Grazing Land Management (GLM) land types for the selected Lot(s) on Plan. The map below shows the indicative plant available P concentration, using digital soil mapping methods based on site data collected during soil surveys. The specific soil test used is bicarbonate extractable P ('Colwell-P'), measured in the unit of 'parts per million' (ppm), which is the same as mg/kg.

The status of soil P affects the P concentration in pastures which plays an essential role for conversion of grass to energy in livestock body, growth and the development of body tissues, development of foetus and production of milk in pregnant and lactating cows. Extremely low or very low available-P soils may result in low plant P and hence P deficiency in cattle. Symptoms of P deficiency include bone chewing, which also increases the risk of cattle contracting botulism.

This map of soil P is a guide to assist graziers to improve the efficiency of supplementation for livestock production, fertiliser application and legume development through improved awareness of soil P availability. The green dots on the map are the locations where soil samples have been collected and analysed for Colwell-P, and some of the samplings may date back to the 1960s. Note: while bicarbonate extractable P is a better measurement of biological availability than total P, it may still not indicate true plant availability in all cases. For example, in iron rich soils, P may be less available to plants than indicated by this analysis due to the P-binding nature of these soils.

## Property location



# The report: Page 1 – Soil P Map

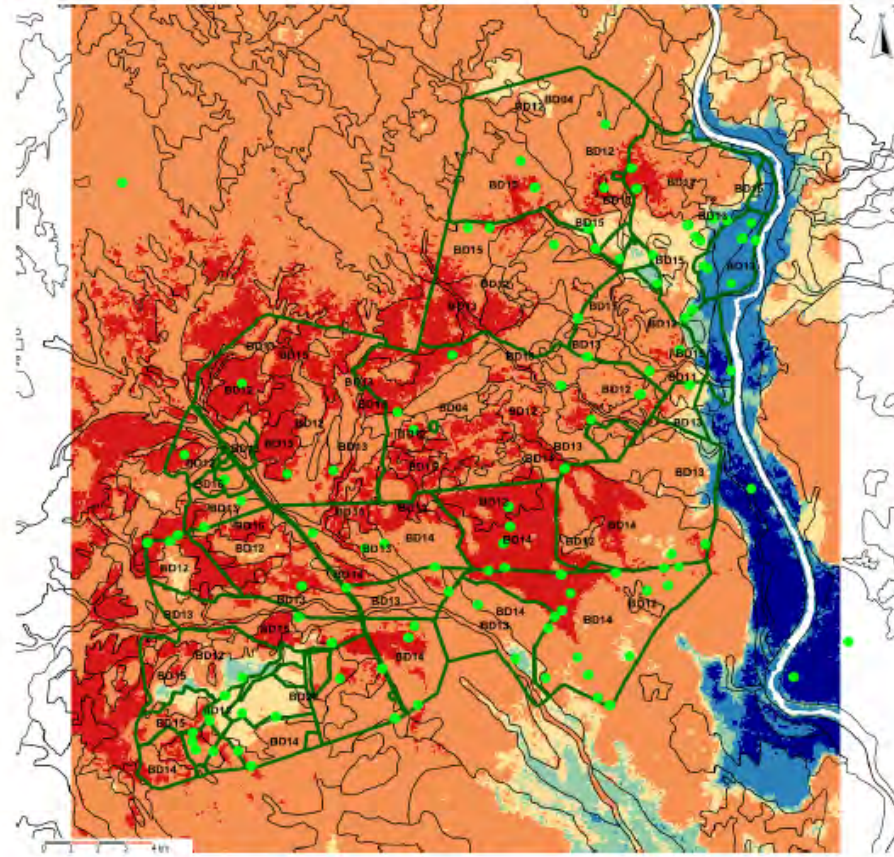
## Components:

- Title
- Introduction
- Location map
- Soil P Map
  - Seven categories
  - acutely deficient (0-4ppm) – very high (>25ppm)
  - soil P sample sites (continually adding)
  - GLM land types

## Use to:

- assess property Soil P status
- soil P sample sites
- spatial view of areas of land types
  - for - supplementation / stock allocation / legume potential

## Soil P Map (2024)



— Lot(s) on plan  
— Land Type

■ Acutely deficient (0-4ppm) ■ Deficient (4-6ppm) ■ Marginal (6-8ppm) ■ Low (8-10ppm) ■ Moderate (10-15ppm) ■ High (15-25ppm) ■ Very High (>25ppm) ● Soil P Site

# The report: Page 2 – Land type table

## FORAGE REPORT: INDICATIVE SOIL PHOSPHORUS (PROTOTYPE)

<http://www.longpaddock.qld.gov.au/forage> 10/02/2025 Property: None Label: spyglass



Queensland  
Government

### Soil P Categories for Land Types

This table shows the indicative areas (ha) and percentage of different soil P categories present for each GLM land type for the selected Lot(s) on Plan.

The categories are classified based on soil P concentrations and include: Acutely Deficient (0-4ppm); Deficient (4-6ppm); Marginal (6-8ppm); Low (8-10ppm); Moderate (10-16ppm); High (16-25ppm); and Very High (>25ppm).

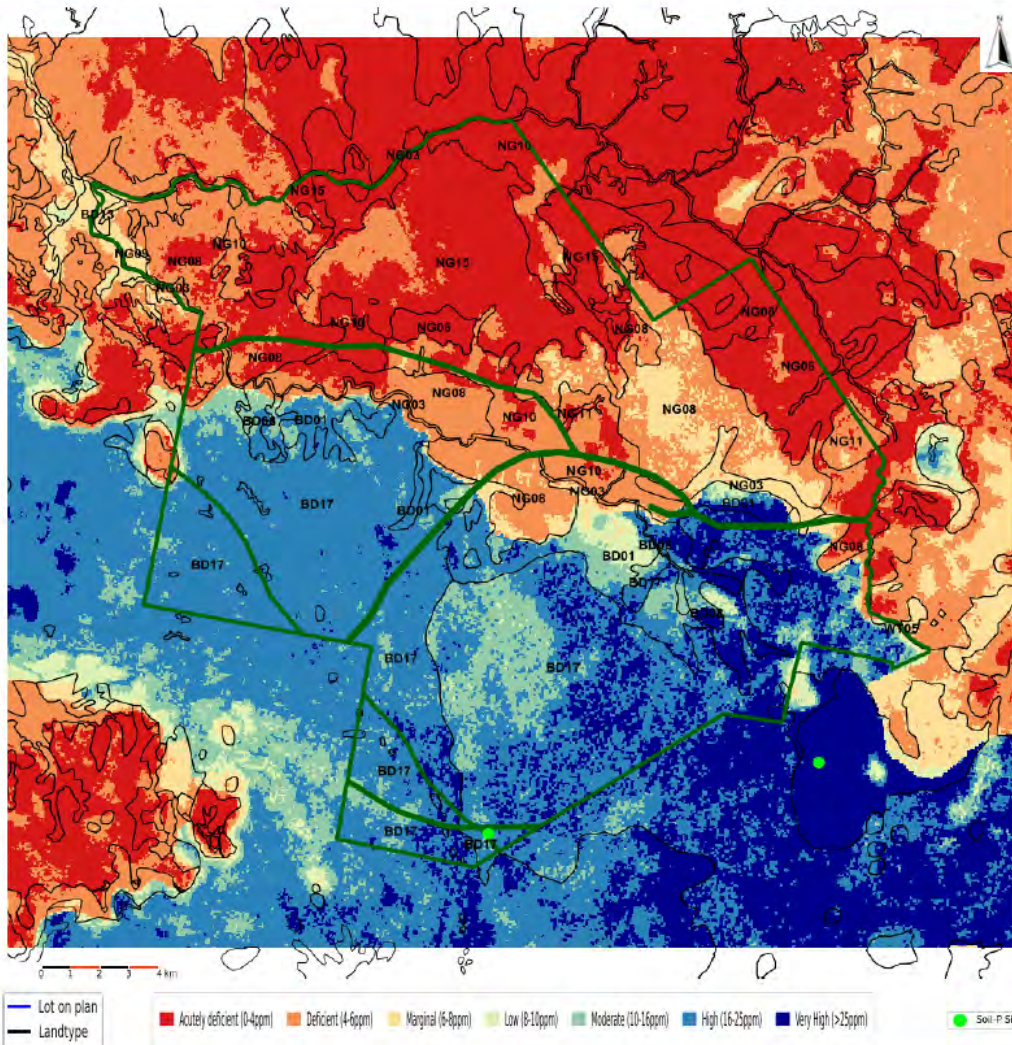
Land type code and name	Area (ha)	Acutely Deficient (ha) (%)	Deficient (ha) (%)	Marginal (ha) (%)	Low (ha) (%)	Moderate (ha) (%)	High (ha) (%)	Very High (ha) (%)
BD12 - Lancewood - bende - ro	10,513	5,714 (54.3)	3,968 (37.7)	548 (5.2)	101 (<1)	156 (1.5)	25 (<1)	<1 (<1)
BD14 - Narrow-leaved ironbark	8,524	4,617 (54.2)	3,756 (44.1)	132 (1.5)	10 (<1)	9 (<1)	<1 (<1)	<1 (<1)
BD15 - Narrow-leaved ironbark	8,404	4,300 (51.2)	2,719 (32.4)	882 (10.5)	32 (<1)	251 (3.0)	209 (2.5)	10 (<1)
BD13 - Loamy alluvials	7,411	1,315 (17.7)	4,228 (57.1)	221 (3.0)	50 (<1)	252 (3.4)	1,207 (16.3)	138 (1.9)
BD04 - Box and napunyah	1,154	21 (1.8)	1,042 (90.3)	61 (5.3)	5 (<1)	17 (1.5)	8 (<1)	<1 (<1)
BD20 - Yellowjacket with other	791	120 (15.2)	557 (70.4)	113 (14.3)	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)
BD16 - Ranges	358	138 (38.5)	220 (61.5)	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)
BD11 - Goldfields country - re	200	<1 (<1)	99 (49.4)	65 (32.5)	2 (1.0)	5 (2.5)	29 (14.3)	<1 (<1)
AL10 - Wetland	7	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)	7 (100.0)	<1 (<1)
AL09 - Water	5	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)
BD05 - Box country BD	2	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)	<1 (<1)
<b>Total</b>	<b>37,370</b>	<b>16,225 (43.4)</b>	<b>16,589 (44.4)</b>	<b>2,022 (5.4)</b>	<b>202 (0.5)</b>	<b>690 (1.8)</b>	<b>1,485 (4.0)</b>	<b>148 (0.4)</b>

- Soil P Categories (ppm)
- land types areas (ha)
- Categories x area and percentage of different soil P categories present
- Use to:
  - rank country/areas
  - assess areas of land types to supplement / allocate stock

Relative Uncertainty of Soil P Data

The indicative soil P map on page one is generated using complex digital mapping techniques. The map below indicates the 'relative' uncertainty of

Soil P Map (2024)



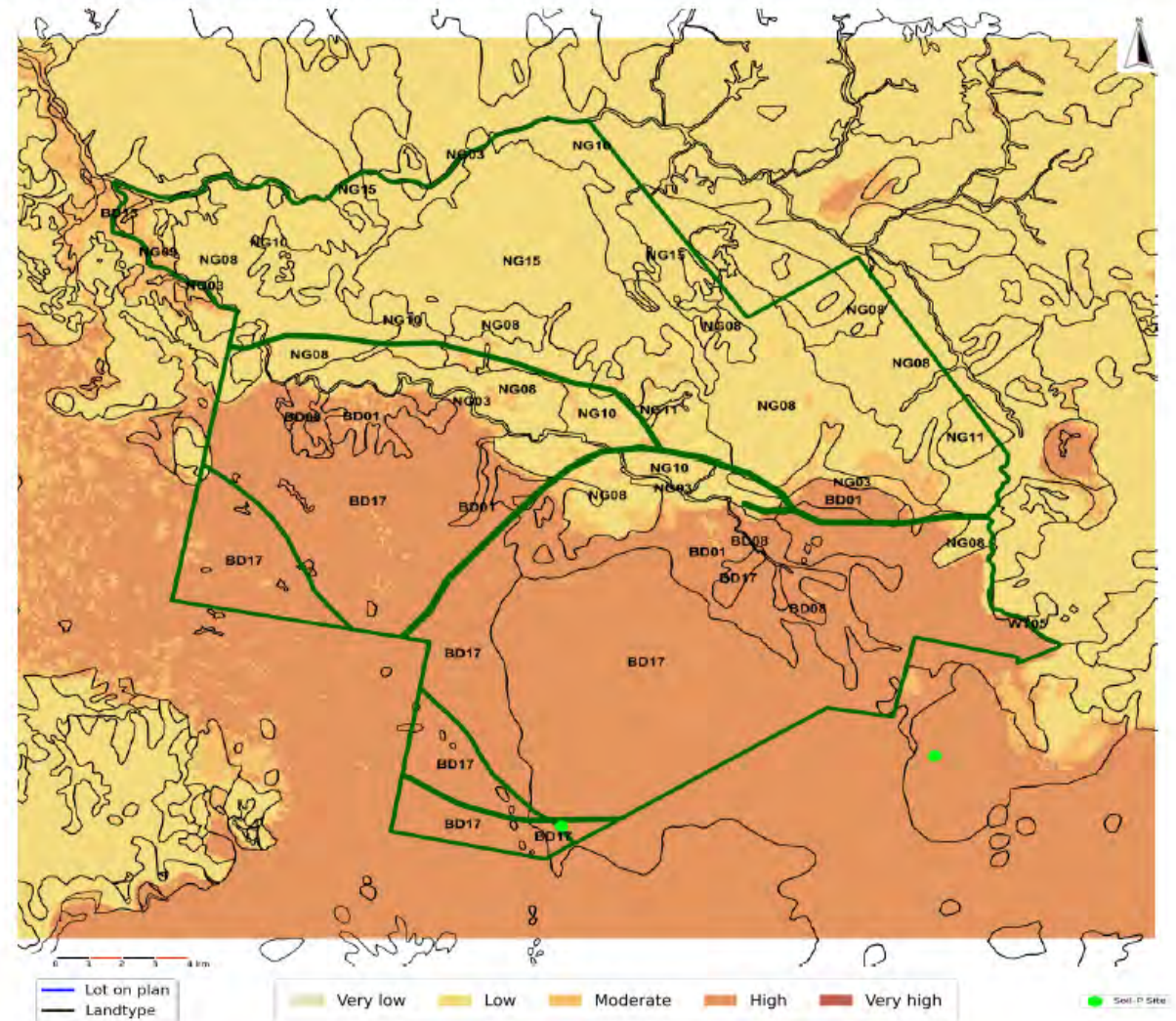
Meat & Livestock Australia. FutureBeef: Phosphorus supplementation of cattle in northern Australia. [https://www.mla.com.au/globalassets/mla-corporate/research-and-development/program-areas/livestock-production/mla-phosphorus-management-of-beef-cattle-in-northern-australia---2nd-edition\\_v19.pdf](https://www.mla.com.au/globalassets/mla-corporate/research-and-development/program-areas/livestock-production/mla-phosphorus-management-of-beef-cattle-in-northern-australia---2nd-edition_v19.pdf)

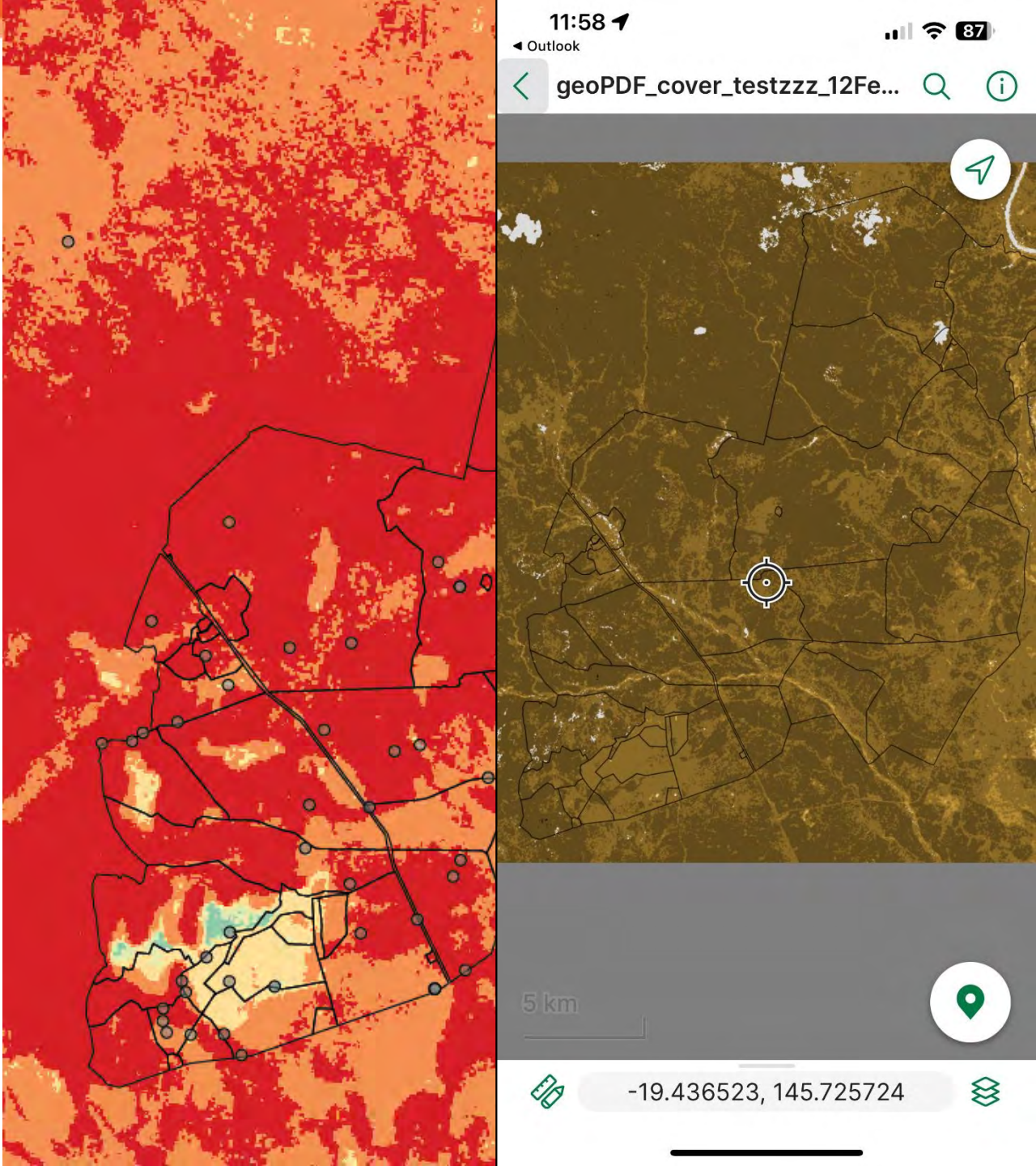
Meat & Livestock Australia. Phosphorus hub. <https://www.mla.com.au/research-and-development/livestock-production/livestock-nutrition/phosphorus-hub/>

Meat & Livestock Australia. (2024) B.GBP0063 - Phosphorus Map of Queensland Grazing Lands 2. <https://www.mla.com.au/research-and-development/reports/2025/b.gbp.0063-phosphorus-map-of-queensland-grazing-lands-2/>

# Page 3 - Soil P 'Uncertainty Map'

Map of Relative Soil P Data Uncertainty (2024)





## Geo-PDF accessory file

- Same map as page 1:
  - Soil P x categories
  - Soil P sample sites
  - Paddocks
  - Need an application (e.g. Avenza map App)
- Use Geo-PDF file to:
  - assess 'on-ground' property/paddock areas
  - identify extra sample sites
  - available with other FORAGE report maps (e.g. Ground cover, FPC-Woody cover, Fire Scar)
- Note:
  - no legend
  - suggest using hard copy / pdf report



Q MyFORAGE

ONLINE MAPPING TOOL





**FORAGE**

- About FORAGE
- MyFORAGE
- FORAGE (Lot/Plan)
- Report Examples**
  - Indicative Soil Phosphorus Report
  - Long-Term Carrying Capacity Report (prototype)
  - Pasture Growth Alert Report
  - Indicative Land Type Report
  - Rainfall and Pasture Report
  - Ground Cover Report
  - Ground Cover - Regional Comparison Report
  - Drought Duration Report
  - Drought Assessment Information
  - Foliage Projective Cover Report
  - Fire Scar Report
  - Regional Climate Projections Report
  - Erodible Soils Report
  - Crop Frequency Report
  - Satellite Imagery
- Subscription service
- Awareness Videos
  - Understanding Percentiles and Teriles in Climate and P
- Webinar Videos

Home / FORAGE / FORAGE (Lot/Plan)

### FORAGE (Lot/Plan)

#### Select FORAGE report(s)

Indicative Soil Phosphorus x

#### Specify location using lot on plan

**Submit Result**

FORAGE report request(s) submitted successfully

Indicative Soil Phosphorus - ✓

Close



### Delivery information

\*Email   Label

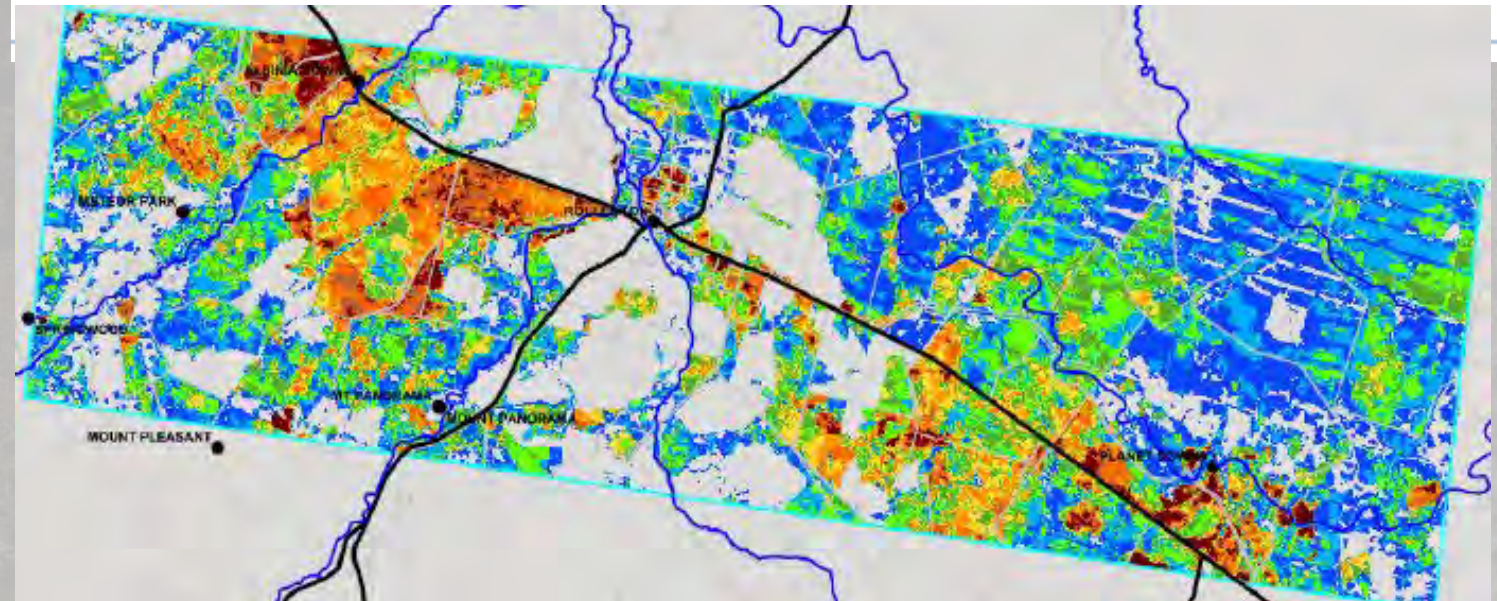
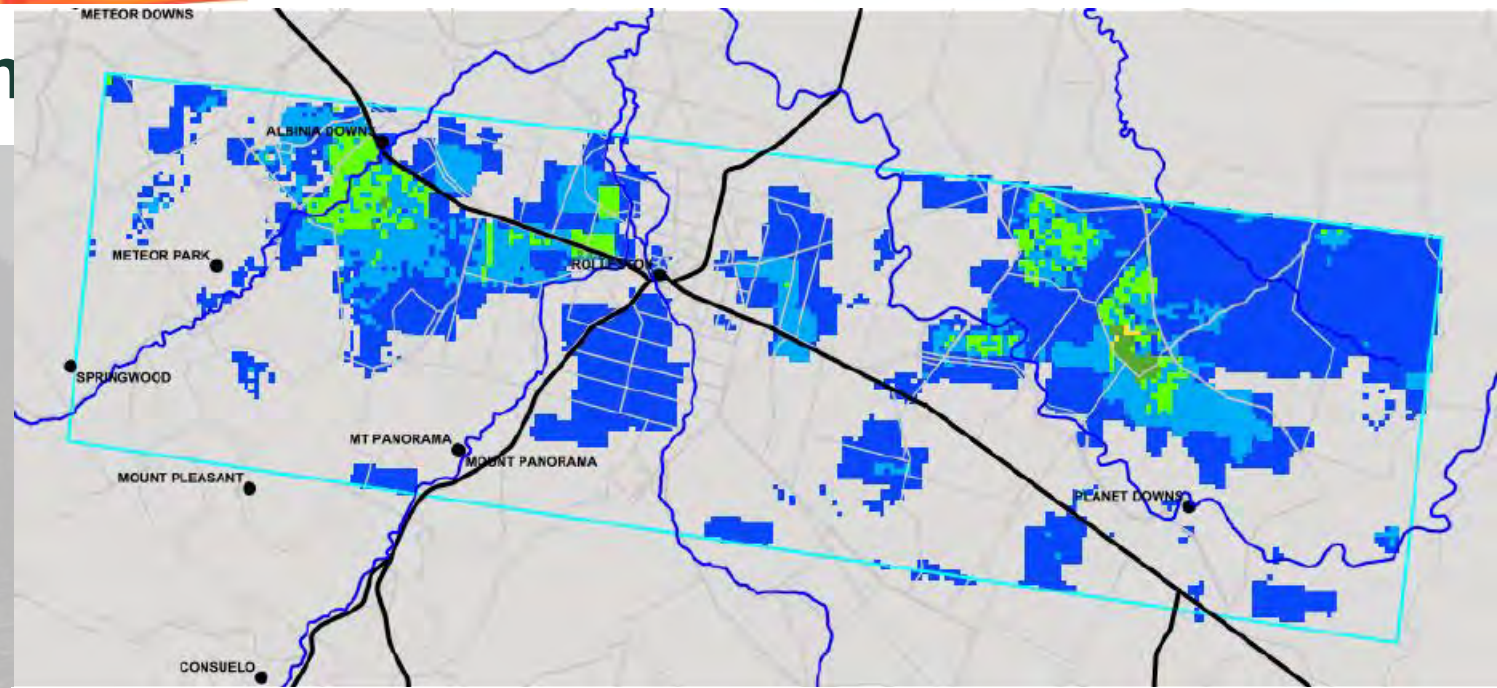
Submit

## Soil P report progress (to date)

- First Release Dec 2022
- Reports requested (to date) = 2,500
- Oct-Dec 2024 = 390
- Customer focus – 70 report requests held – now delivered
- for awareness – request a new report
- Soil P information – inc. new DCAP Factsheets
  - “Evaluating grazing management strategies to improve drought resilience - Improving land condition and P supplementation”.
  - “Over-sowing native pasture with stylo and applying adequate phosphorus to deficient soil can improve profitability”.

<https://www.longpaddock.qld.gov.au/forage/report-information/indicative-soil-phosphorus/>

# What's new and



- Water Points added to map imagery
  - Ground cover and LTCC reports
- Fire Scar report
  - 1987-2017 resolution upgrade
  - Landsat data (30m) replaces Modis (1 km)
  - More historical fires now visible; and
  - Smaller fires now mapped


# What's new and in-devel

- Crop frequency report now includes individual
  - Summer – 'banana', 'cotton', 'sugarcane' and 'other'
  - Winter – 'cereal crop' and 'chickpea'
  - Satellite images ( twice yearly); and
  - Time-series plot of the proportion of area cropped
  - Expanded area (Qld only)
- Seasonal Forage budget report (in dev.)
  - Current biomass/forecast of growth
  - Indication of sustainable stocking potential
  - A.I. analyses + Field program: 4 x property sites (CQ & NQ)
- Constant up-keep and improvement...
  - ... to deliver the best quality information!

February (left) and September (right) images for 2015

## FORAGE REPORT: INDICATIVE SEASONAL FORAGE BUDGET (DRAFT)

<http://www.longpaddock.qld.gov.au/forage> 16/11/2023 Lot on Plan: 8PT49,15PT41,14PT41,20PT279,19PT etc. Label: bon accord



### Introduction

This report presents, for the selected Lot(s) on Plan, the forage budgeting information for the user specified grazing period and livestock numbers. The forage budgeting estimation is made using the GRASP model by calculating the pasture growth, detachment, trampling and amount eaten components by livestock for the grazing period. Only up to six months (starting from current month) forage budgeting information is available due to the limitations in the rainfall forecasting method used in this report. Pasture growth and other features for the grazing period are modelled using a forecast of rainfall based on an SOI phase-like system. A minimum amount biomass is reserved to maintain the minimum ground cover which the user has specified. If a current property average pasture yield was provided when the report was requested, then it was used to reset the modelled yield. Kagaroo numbers are considered in the forage budget estimation. Safe utilisation of pasture is not considered in calculating the available feed for livestock consumption. The forage budgeting information presented in this report is recommended to be used by considering the on-ground pasture availability, adequate ground cover and feed for drought reserve.

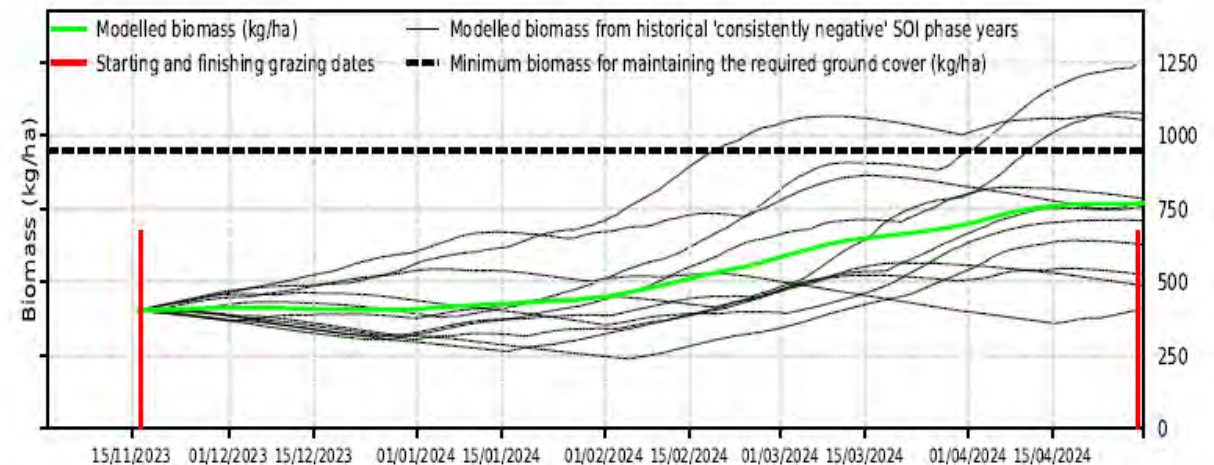
### Seasonal budget information

- Total land area: 5660 (ha)
- User provided current property average pasture yield: 400 (kg/ha)
- User provided minimum ground cover at end of grazing period: None%
- User provided residue yield at end of grazing period: 950.0 (kg/ha)
- User provided total stocking numbers in adult equivalent: 960 (AE)
- Grazing period: 16 Nov 2023 to 30 Apr 2024, 166 days
- Can the pasture support grazing of 960 (AE) during the grazing period? No

### Location map



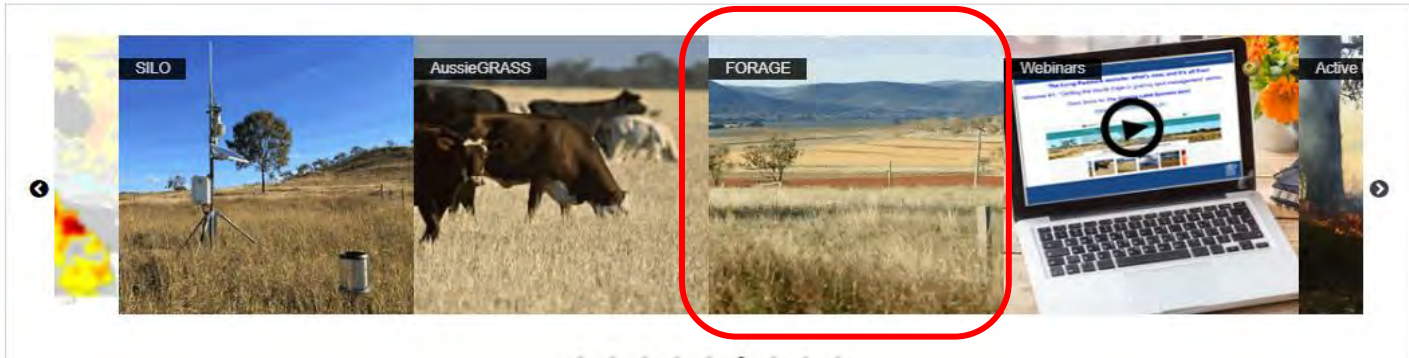
### Pasture biomass change during the grazing period



# So, to request a FORAGE Soil Phosphorous property report...



**Climate risk information for rural Queensland**  
A Queensland Government initiative providing seasonal climate and pasture condition information to the rural community



go to: *The Long Paddock* website - [longpaddock.qld.gov.au](http://longpaddock.qld.gov.au) – it's all free!

**Question time for the panel...**