AgGrow
AGRONOMY + RESEARCH

## RISKWISE 2024-2027 - THEME 2: PHOSPHORUS

### Enterprise Agronomic Decisions

*informing crop management decisions to balance risk and reward*

GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION

# PHOSPHORUS SAVINGS IN FARMING SYSTEMS WHAT RISK?

*Beelbangera 2025*

INDEPENDENT AGRONOMY ADVICE + CUTTING EDGE RESEARCH

# Managing Phosphorus in the Farming System

## KEY POINTS

- **A randomised 0–10 cm soil survey conducted in 2024 has provided Ag Grow Agronomy with a baseline dataset of soil phosphorus levels across paddocks in the wider Griffith region. This dataset highlights the proportion of the cropping landscape suitable for phosphorus-saving strategies, with 61% of paddocks exhibiting surplus P levels (>40 Colwell P).**
- **Phosphorus remains a critical and costly input for growers, yet yield responses continue to occur even where soil tests indicate moderate to high Colwell P levels. This trial shows that 7.7 kg P/ha consistently gave the highest ROI. Higher P rates were seen to increase grain yield slightly but reduced ROI because of higher fertiliser cost. This ROI remained positive, yet diminished as soil P levels increased.**
- **In the 2025 small-plot trial, all treatments receiving phosphorus outperformed nil-P treatments for both NDVI and grain yield, regardless of starting soil P level.**
- **Partial gross margin analysis demonstrated higher profitability in treatments with elevated background P levels and where additional phosphorus was applied, compared with the nil-P baseline. These results highlight the risk of withholding phosphorus based solely on soil test sufficiency and emphasise the need to refine P strategies to better balance input costs with yield and profitability.**

## BACKGROUND

Besides nitrogen, which Ag Grow has been undertaking local research on as part of theme 1 of the RiskWise (the National Risk Management Initiative) project since 2023, the next biggest expense for growers is Phosphorus (P). P management has therefore been identified through the RiskWi$e PAR process as the focus of the second theme, Enterprise Agronomic Decisions, of 'RiskWi$e' that Ag Grow has been researching.

Phosphorus (P) had been highlighted as a costly input for growers that cannot be avoided. Growers have been getting P responses on soils with high levels of P in them already, as identified through soil tests conducted by Ag Grow Agronomy and Research. More research is needed as to why, as well as what would be the minimum production financially you would achieve by tweaking our P strategies. The research question that has been asked is how low is too low and can the system be managed in terms of plant available water at sowing as well as seasonal forecasts to determine the risk reward around P applications at crop planting to optimise grower's return on investment (ROI).

This project, a part of GRDC's RiskWi$e initiative, will challenge and test traditional P replacement practises to establish on high P soils (e.g., > 40 mg P/kg soil Colwell P) what strategies can be applied (if any) to reduce P input costs and manage the risk reward and profit outcomes. This project is looking at P application and response, addressing the decision uncertainty for local growers. It is testing P application strategies to establish:

1. if short term input cost savings can be applied with little or no risk to profit outcomes and
2. if more flexible P input arrangements produce similar results to the set input arrangements. This strategy aligns more with cash flow cycles, so will also look at managing the financial risk.

This RiskWi$e project commenced in 2024. For more information on RiskWi$e go to https://grdc.com.au/research/partnerships-and-initiatives/strategic-partnerships/riskwise .

## PROJECT DETAILS

There are 2 main components to this project.

1. **Identifying the proportion of the cropping landscape that could be considered for short-term P saving opportunities.**

A random survey of soils in the wider Griffith region (including Rankins Springs, Merriwagga, Goolgowi, Hillston, Binya, Barellan, Ardlethan, Lake Cargelligo, Griffith and Yenda) was conducted in 2024, aimed at identifying the proportion of paddocks > 40 Colwell P that may be able to apply short term P savings strategies. The survey, of 0-10 cm Colwell P values, was undertaken on approximately 400 paddocks from north of Griffith, to Hillston, across to Lake Cargelligo, down to West Wyalong, Ardlethan and back to Griffith.

An analysis on the data set sorted paddocks into four categories: very P deficient (< 20ppm Colwell P), deficient (between 20 and 30ppm Colwell P), sufficient (between 30 and 40ppm Colwell P) and surplus (>40ppm Colwell P).

The information from this survey has been used to engage growers in PAR and leverage the on-farm paddock trials.

2. **Testing P saving decisions to inform risk/reward and profit.**

As part of informing growers on the best bet short term P saving strategies, Ag Grow Agronomy established along with their growers:

**Paddock scale test strips** – including half the intended starter P rate at sowing, the intended starter P rate as the grower practice and two times the intended starter P rate. Grain yield data will be collected and compared within and across sites and will form the basis of discussions on short term P saving strategies. Two demonstrations are conducted each year of the project.

**A small plot experiment -** testing different initial starting Colwell P values and assessing various short term P saving strategies. This trial aims to look at yield and cost outcomes from different P replacement strategies for different starting Colwell P values. Treatments were based on the soil paddock test results, as well as previous experience and past rials.

### Trial Details:

The trial site is located on the Ag Grow Agronomy research farm “Ridgetop” Beelbangera, approximately 16km NE of Griffith. The small plot P trial was set-up to test initial Colwell P starting values and the residual P in the plots for the following years.

***Year 1 (2024)***: Designed to set up initial starting P values, with initial soil samples (0-10cm) taken on 25th March 2024, determining targeted Colwell P rates. Soil P levels of the site were 40ppm Colwell P.

Initial starting P values to set up the trial were 40, 60 and 90ppm Colwell P, with P applied to reach target Colwell P levels as MAP on 29th April 2024. One third of plots in the trial received no P, one third received 60kg P/ha and one third received 90kg P/ha, as outlined below.

1. 40 Colwell P (current soil P test)
2. 60 Colwell P (add 60kg P/ha as 270 kg/ha MAP)
3. 90 Colwell P (add 90kg P/ha as 400 kg/ha MAP)

The site was kept fallow in 2024 after P treatments were applied, as it was used as the Colwell P values set up year, with the aim from the 2025 season onward to test yield and cost outcomes from different P replacement strategies for different starting Colwell P values. Appropriate weed control was undertaken on the fallowed trial site to keep it clean.

Y***ears 2, 3 and 4 (2025, 2026 and 2027):*** annual P applications to be applied to all plots, as per treatments below:

1. 0 kg P/ha (0 kg/ha MAP)
2. 7.7kg P/ha (35 kg/ha MAP)
3. 12kg P/ha (55 kg/ha MAP)
4. 16.8 kg P/ha (75 kg/ha MAP)

This allows from the 2025 season onward a test of yield and cost outcomes from different P replacement strategies for different starting Colwell P values. There are 12 treatments in total, replicated 4 times with treatment 12 (90 Colwell P plus 16.8k P/ha) assumed to be P unlimiting. Treatments are listed in table 1, and trial design shown in figure 1.

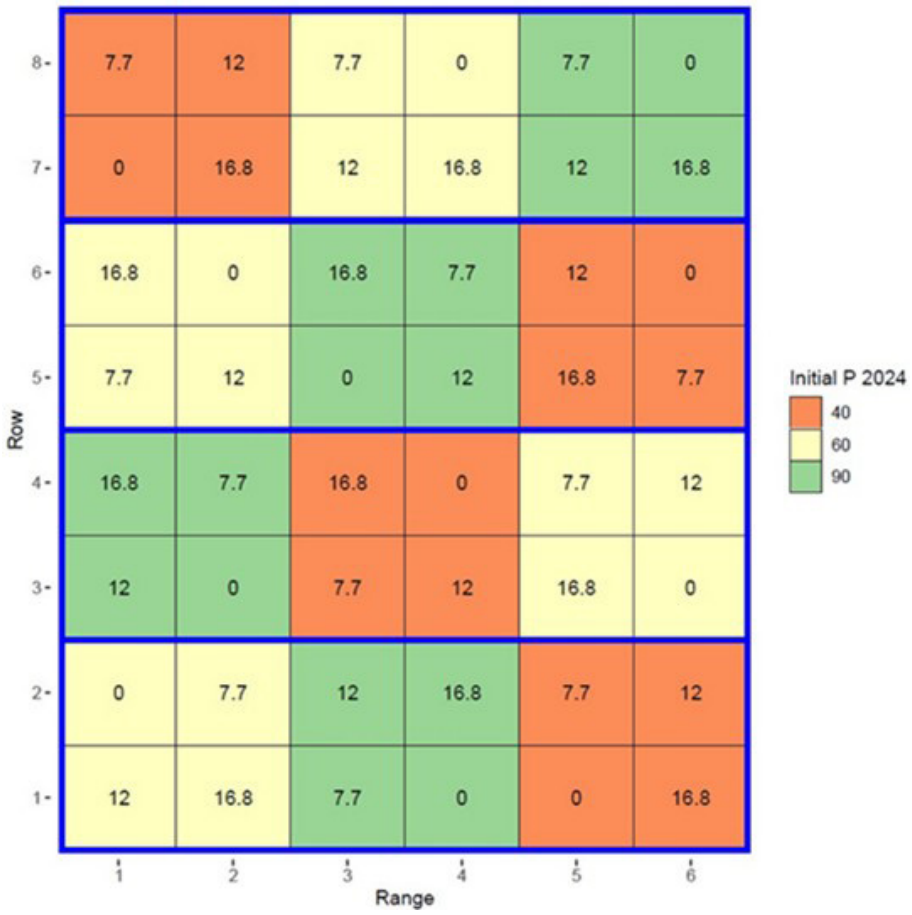
*Table 1: P Trial Treatment List.*

| Trt No | Treatment Name | Initial starting P values | P applied in 2024 (kg P /ha) | 2025 Colwell P | P applied in 2025 (kg P/ha) |
|---|---|---|---|---|---|
| 1 | 40 Colwell with 0 P applied | 40 Colwell | 0 | Soil Test 40 | 0 |
| 2 | 40 Colwell with 7.7 kg P/ha applied | 40 Colwell | 0 | Soil Test 40 | 7.7 |
| 3 | 40 Colwell with 12 kg P/ha applied | 40 Colwell | 0 | Soil Test 40 | 12 |
| 4 | 40 Colwell with 16.8 kg P/ha applied | 40 Colwell | 0 | Soil Test 40 | 16.8 |
| 5 | 60 Colwell with 0 P applied | 60 Colwell | 60 | Soil test 60 | 0 |
| 6 | 60 Colwell with 7.7 kg P/ha applied | 60 Colwell | 60 | Soil test 60 | 7.7 |
| 7 | 60 Colwell with 12 kg P/ha applied | 60 Colwell | 60 | Soil test 60 | 12 |
| 8 | 60 Colwell with 16.8 kg P/ha applied | 60 Colwell | 60 | Soil test 60 | 16.8 |
| 9 | 90 Colwell with 0 P applied | 90 Colwell | 90 | Soil test 90 | 0 |
| 10 | 90 Colwell with 7.7 kg P/ha applied | 90 Colwell | 90 | Soil test 90 | 7.7 |
| 11 | 90 Colwell with 12 kg P/ha applied | 90 Colwell | 90 | Soil test 90 | 12 |
| 12 | 90 Colwell with 16.8 kg P/ha applied | 90 Colwell | 90 | Soil test 90 | 16.8 |

*Note: P applied as MAP in 2025 with*

*0 kg P/ha = 0 kg/ha MAP*
*7.7kg P/ha = 35 kg/ha MAP*
*12kg P/ha = 55 kg/ha MAP*
*16.8 kg P/ha = 75 kg/ha MAP*

*Figure 1: Trial design with P treatments applied to set up the trial in year 1 (2024) and annual P applications to be applied to all plots from year 2 (2025).*



***2025 (year 2) Trial Details:*** 2025 was the first year of cropping on the site with lentils sown as part of the rotation. The trial was sown 30th April 2025 to GIA Thunder lentils at 40 kg/ha, with the site rolled 27th May 2025. The 4 P treatments (0kg P/ha, 7.7kg P/ha, 12kg P/ha and 16.8kg P/ha) were applied at sowing to the appropriate plots as per trial design.

Appropriate pest, disease and weed control were undertaken on the trial post-emergent, with 3 timely fungicides applied. The trial was harvested 30th October 2025.

## Seasonal Conditions 2024 & 2025

Conditions straight after harvest 2024 were wet, with 90mm falling in November and December, which topped up the soil profile. The first 4 months of 2025 were dry, with below average rainfall and above average temperatures. This trial was sown into moisture on 29th April after 14mm on 25th April and emerged evenly. Warm and dry conditions persisted into May, with some much-needed rain falling towards the end of the month, table 2. Follow up rain occurred mid-late June, before the crop accessed stored moisture.

With warmer, windy days and frosts impacting topsoil moisture, below average rainfall continued throughout June, July and August as drought conditions strengthened.

Much needed rain occurred in early September, setting up the crop. There was 166.5mm of growing season rainfall (GSR) from April–October (200.5mm GSR average) at Beelbangera, with 76mm of this rainfall received from early/mid September and October.

*Table 2: 2024 and 2025 Rainfall and Growing Season Rainfall (GSR) for the trial site, compared to long term rainfall taken at Griffith Airport.*

| MONTH | Ridgetop Rainfall 2024 | Ridgetop Rainfall 2025 | Griffith Airport 2025 | Griffith Airport Long Term (1958 to 2025) |
|---|---|---|---|---|
| January | 83.5 | 4 | 4.4 | *36.3* |
| February | 18 | 18 | 23.6 | *28* |
| March | 15 | 32 | 25 | *35.3* |
| April | 48 | 13.5 | 12.4 | *29.3* |
| May | 104 | 18 | 14.8 | *36.1* |
| June | 11.5 | 25 | 29 | *35.1* |
| July | 14 | 24.5 | 22.4 | *32.4* |
| August | 22 | 9.5 | 17 | *34.9* |
| September | 22 | 50.5 | 32.8 | *32.7* |
| October | 24.5 | 25.5 | 7.2 | *39.4* |
| November | 67 | 13.5 | 21.2 | *36.3* |
| December | 23 | 34 | 30.4 | *32.7* |
| **TOTAL** | **452.5** | **268** | **240.2** | **408.5** |
| ***GSR (April - Oct)*** | ***246*** | ***166.5*** | ***135.6*** | ***239.9*** |

# RESULTS AND DISCUSSION

## Random paddock survey

In 2024 a random 0-10cm survey of soils in the wider Griffith region was undertaken, with samples tested for Colwell P. The aim was to identify the proportion of paddocks > 40 Colwell P where short term P savings could be applied.

Close to 400 samples were surveyed throughout the region. Appendix A shows the Colwell P values, meta data such as GPS location, paddock size and surface soil colour of the samples collected in the survey.

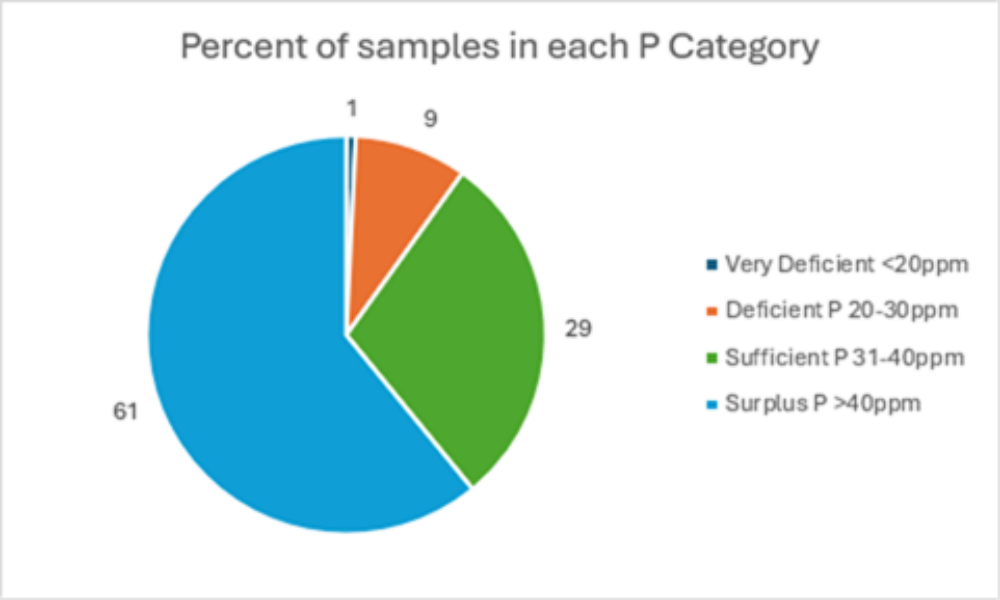
Colwell P values of the surveyed soil were sorted into the categories below;

1. very P deficient (< 20ppm Colwell P),
2. deficient (between 20 to 30ppm Colwell P)
3. sufficient (between 30 to 40ppm Colwell P)
4. surplus (>40ppm Colwell P)

The proportion of the landscape surveyed that falls into these categories are shown in figure 2.

Of the samples collected 61% of paddocks had a surplus P level (> 40 Colwell P), 29% had a sufficient P level (31-40ppm Colwell P), 9% were deficient (20-30ppm Colwell P) and 1% was very deficient (<20ppm Colwell P). The survey showed that in 90% of paddocks tested they had sufficient P levels where short term P savings may be able to be applied.

*Figure 2: Proportion of 0-10cm soil samples across the wider Griffith region tested for Colwell P in each P category.*




## 2024 and 2025 Paddock Demonstrations

Two paddock scale demonstrations were conducted each year varying the rate of intended starter P sowing. Rates included the normal starter P rate, half the normal rate and double the starter P rate.

In both years the rates of starter fertiliser applied were 60 kg/ha as the usual rate, 30 kg/ha as half the rate and 120 kg/ha as double the rate.

Results from each demo across the two years are still being collated and will be reported at a later date.

## 2025 Trial Results - small plot experiment

Establishment, NDVI, yield and grain quality were assessed, with yield and quality statistically analysed by Analytics for the Australian Grains Industry - Curtin University (AAGI-CU).

### Establishment:

An establishment assessment including a score (each plot scored from 0 to 9, 0 indicating poor establishment and 9 indicating very even establishment) and plant counts were taken on the trial.

Establishment was assessed 13.06.2025 at the 5-8 node stage, figure 3, whilst it took a long time to establish given the conditions the trial established well. The average establishment score of the trial was 7.6, with an average plant count of 93 plants/$m^2$.

*Figure 3: Establishment June 2025*

### NDVI:

NDVI measurements were obtained using a handheld GreenSeeker crop sensor, with two readings taken, mid/late vegetative growth and at flowering.

A summary of the early and flowering NDVI's for the different P application treatments is shown in table 3. The treatment with the lowest NDVI measurement early was 40 kg/ha initial P 2024 and 0 kg/ha Applied P in 2025 with a reading of 0.20, which was significantly lower than the remaining treatments. The highest NDVI measurement early of 0.40 was from the treatment 60 kg/ha initial P 2024 was applied and 16.8 kg/ha Applied P in 2025.

Similarly, the treatment with the lowest NDVI measurement at flowering was 40 kg/ha initial P 2024 and 0 kg/ha Applied P in 2025 with an NDVI measurement of 0.37 and the highest NDVI measurement at flowering was 0.66 from the treatment 60 kg/ha initial P 2024 was applied and 16.8 kg/ha Applied P in 2025.

*Table 3: Summary of early (24th July) and flowering (12th August) NDVI for the different P application treatments.*

| Trt No | Starting Colwell P values (ppm) | P applied in 2025 (kg P/ha) | NDVI early | *Sig diff* | NDVI Flowering | *Sig diff* |
|---|---|---|---|---|---|---|
| 1 | 40 | 0 | 0.204 | *b* | 0.366 | *c* |
| 2 | 40 | 7.7 | 0.327 | *a* | 0.542 | *b* |
| 3 | 40 | 12 | 0.339 | *a* | 0.567 | *b* |
| 4 | 40 | 16.8 | 0.370 | *a* | 0.588 | *b* |
| 5 | 60 | 0 | 0.328 | *a* | 0.533 | *b* |
| 6 | 60 | 7.7 | 0.335 | *a* | 0.591 | *b* |
| 7 | 60 | 12 | 0.365 | *a* | 0.586 | *b* |
| 8 | 60 | 16.8 | 0.402 | *a* | 0.653 | *a* |
| 9 | 90 | 0 | 0.343 | *a* | 0.558 | *b* |
| 10 | 90 | 7.7 | 0.365 | *a* | 0.594 | *ab* |
| 11 | 90 | 12 | 0.370 | *a* | 0.591 | *b* |
| 12 | 90 | 16.8 | 0.397 | *a* | 0.659 | *a* |
| | | **mean** | **0.345** | | **0.569** | |
| | | **lsd(p=0.05)** | **0.082** | | **0.069** | |

*Same LSD letters indicate no significant difference between the treatments, while different letters indicate significant differences at a 5% level of significance*

There were significant differences in NDVI early and at flowering between the 3 levels of Initial P Applied in 2024 and the 4 levels of Applied P in 2025, tables 4 and 5.

Of the starting Colwell P levels, the treatment with the lowest NDVI measurement early was 40 kg/ha - Initial P in 2024 with a reading of 0.31 while the highest early NDVI measurement of 0.369 was for 90 kg P/ha Initial P in 2024, table 4. There was a similar trend for the flowering NDVI with 40 kg/ha - Initial P in 2024 again having the lowest NDVI value of 0.516 and where 90 kg P/ha Initial P in 2024 was applied having the highest NDVI with 0.601.

Across the 4 levels of P applied in 2025, the treatment with the lowest NDVI measurement early was where 0 kg P/ha was applied in 2025 with a reading of 0.292, while the highest early NDVI measurement was where 16.8 kg P/ha was applied in 2025 with 0.390, table 5. Similarly at flowering where 0 kg P/ha was applied in 2025 it had the lowest NDVI reading of 0.486, and where 16.8 kg P/ha was applied in 2025 it had the highest reading of 0.633

*Table 4: NDVI early and at flowering for the initial phosphorus applied in 2024.*

| Starting Colwell P values (ppm) | NDVI early | *Sig diff* | NDVI Flowering | *Sig diff* |
|---|---|---|---|---|
| 40 | 0.310 | *b* | 0.516 | *b* |
| 60 | 0.358 | *a* | 0.591 | *a* |
| 90 | 0.369 | *a* | 0.601 | *a* |
| ***mean*** | ***0.346*** | | ***0.569*** | |
| ***lsd(p=0.05)*** | ***0.046*** | | ***0.04*** | |

*Table 5: NDVI early and at flowering for phosphorus applied in 2025..*

| P applied in 2025 (kg P/ha) | NDVI early | *Sig diff* | NDVI Flowering | *Sig diff* |
|---|---|---|---|---|
| 0 | 0.292 | *c* | 0.486 | *c* |
| 7.7 | 0.342 | *b* | 0.576 | *b* |
| 12 | 0.358 | *ab* | 0.582 | *b* |
| 16.8 | 0.39 | *ab* | 0.633 | *a* |
| ***mean*** | ***0.346*** | | ***0.569*** | |
| ***lsd(p=0.05)*** | ***0.044*** | | ***0.037*** | |

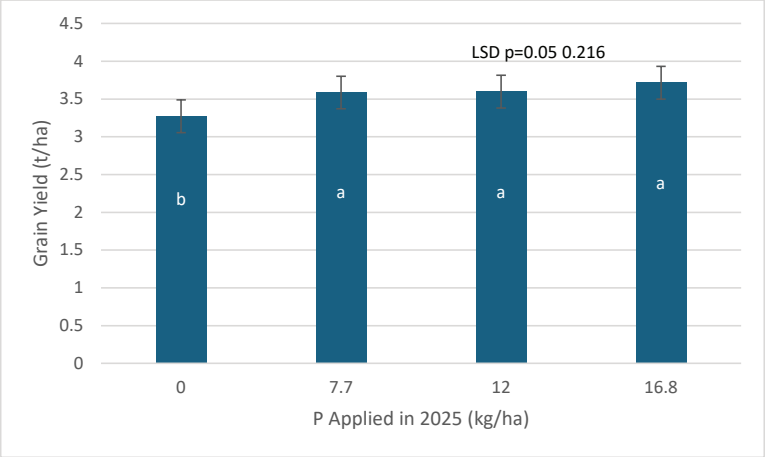
*Same LSD letters indicate no significant difference between the treatments, while different letters indicate significant differences at a 5% level of significance*

## Grain Yield:

The average grain yield of the trial was 3.54t/ha. Where the starting Colwell P was 40ppm the average grain yield across 2025 P treatments was 3.22 t/ha, which was significantly lower compared to where the starting Colwell P was 60ppm and 90ppm with yields of 3.64 t/ha and 3.77 t/ha respectively.

Grain yield was significantly lower (3.27 t/ha) when no P was applied in 2025 compared to the 3 other levels of P applied, with yields of 3.59 t/ha, 3.60 t/ha, and 3.72 t/ha for 7.7 kg P/ha, 12 kg P/ha, and 16.8 kg P/ha applied P in 2025, respectively, figure 4.

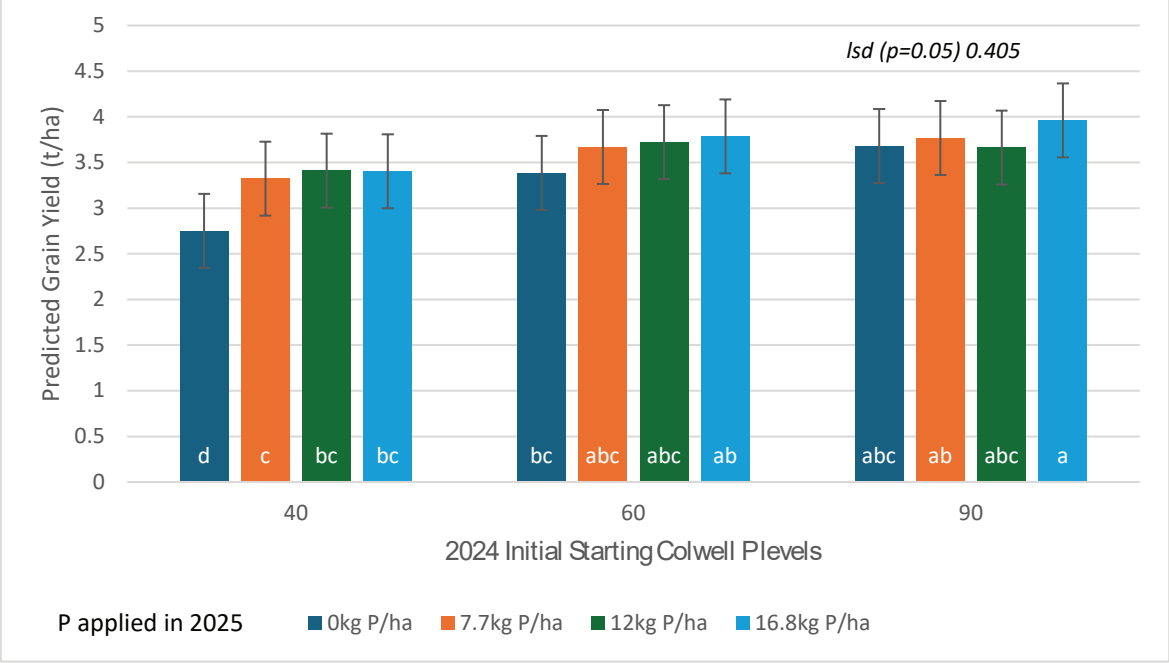
*Figure 4: Lentil Grain yield (t/ha) for the P applied in 2025.*




*Same LSD letters indicate no significant difference between the treatments, while different letters indicate significant differences at a 5% level of significance*.

The treatment which yielded the least was where Initial starting P in 2024 was 40 Colwell P and where 0kg/ha P was Applied in 2025 with a yield of 2.75 t/ha. The highest yielding treatment, with a yield of 3.96 t/ha was from the treatment where the initial starting Colwell P was 90 ppm and where 16.8 kg P/ha was applied in 2025, figure 5.

*Figure 5: 2025 Lentil Grain yield of the different P treatments*




*Same LSD letters indicate no significant difference between the treatments, while different letters indicate significant differences at a 5% level of significance*.

## Economics:

Partial gross margins for each treatment were calculated using the grain yields and phosphorus costs for each treatment and a constant grain price of $600/t on farm for lentils.

After the first year of the project a partial gross margin and Return on investment (ROI), focussing on P treatment costs and the profitability of each treatment relative to the zero-P treatment within each starting soil P level (40, 60, 90 ppm), is shown in table 7.

Whilst all backround levels of P were considered to be sufficient, profit was generally greater in treatments which had higher background levels of P (60ppm and 90 ppm Colwell P) and where additional P was added in 2025.

ROI was greatest for 40ppm Colwell P where 7.7 and 12 kg P/ha were applied in 2025 with a ROI of 6.9 and 6.6 respectively. For 60ppm Colwell P 7.7 kg P/ha had the best ROI with 5.9 and for 90ppm Colwell P 7.7 kg P/ha applid in 2025 also had the highest ROI with 5.4. There was diminishing returns at all soil P levels where the higher P rate of 16.8 kg P/ha was applied.

*Table 7: Partial Gross Margin - Profit ($/ha) and ROI Return on Investment (ROI) relative to the zero-P treatment within each starting soil P level (40, 60, 90 ppm).*

| Trt | 2024 starting Colwell P (ppm) | 2025 P applied (kg P/ha) | 2025 Lentil Grain yield (t/ha) | 2025 Revenue ($) *lentils $600/t on farm | Total P Treatment Cost ($/ha) | Revenue minus Treatment Costs ($) | Net benefit PROFIT ($/ha) | ROI ($ return per $ invested) | ROI % |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 40 | 0 | 2.74 | 1642.87 | 0 | 1642.87 | – | – | – |
| 2 | 40 | 7.7 | 3.29 | 1972.42 | 42 | 1930.42 | 287.55 | 6.85 | 685% |
| 3 | 40 | 12 | 3.57 | 2142.15 | 66 | 2076.15 | 433.28 | 6.56 | 656% |
| 4 | 40 | 16.8 | 3.58 | 2149.46 | 90 | 2059.46 | 416.59 | 4.63 | 463% |
| | | | | | | | | | |
| 5 | 60 | 0 | 3.28 | 1970.75 | 0 | 1970.75 | – | – | – |
| 6 | 60 | 7.7 | 3.77 | 2261.17 | 42 | 2219.17 | 248.42 | 5.92 | 592% |
| 7 | 60 | 12 | 3.61 | 2163.23 | 66 | 2097.23 | 126.48 | 1.92 | 192% |
| 8 | 60 | 16.8 | 3.78 | 2267.4 | 90 | 2177.4 | 206.65 | 2.3 | 230% |
| | | | | | | | | | |
| 9 | 90 | 0 | 3.49 | 2094.68 | 0 | 2094.68 | – | – | – |
| 10 | 90 | 7.7 | 3.94 | 2365 | 42 | 2323 | 228.32 | 5.44 | 544% |
| 11 | 90 | 12 | 3.92 | 2350.58 | 66 | 2284.58 | 189.9 | 2.88 | 288% |
| 12 | 90 | 16.8 | 3.83 | 2295.12 | 90 | 2205.12 | 110.44 | 1.23 | 123% |
| | | | | | | | | | |

***Costs are based on actual paddock costs; Treatment costs are those above the standard paddock costs and are the costs attributed to the actual P treatment only.*
*2025 Lentil on farm price $600/t*
*2025 MAP $1200/t (~$5.50/kg P)*

## DISCUSSION

Phosphorus is widely recognised by growers as a high-cost but essential input, and the results from the 2025 small plot trial reinforce the complexity of managing P in modern farming systems. Despite soil test results indicating moderate to high Colwell P levels prior to sowing, lentils showed a consistent and positive response to applied phosphorus in 2025. This confirms grower observations that yield responses to P can still occur even where soil P levels are considered adequate according to current critical values.

Across all background P levels (40, 60 and 90 ppm Colwell P), treatments that received P at sowing outperformed the nil-P treatments in both NDVI and grain yield. This suggests that crop access to P during early growth remains a limiting factor, regardless of measured soil P reserves. The lower NDVI values observed where no P was applied at sowing further indicate reduced early biomass and vigour, which likely contributed to the lower grain yields in these treatments. The poorest crop performance occurred where the starting Colwell P was 40 ppm and no additional P was applied, highlighting the risk of withholding P even when soil test levels are within or above the traditionally accepted sufficiency ranges.

Yield responses also aligned with increasing background Colwell P levels. Average grain yield increased from 3.29 t/ha at 40 ppm to 3.61 t/ha at 60 ppm, and further to 3.79 t/ha at 90 ppm, across all 2025 P treatments. This trend indicates that higher soil P status provided a yield advantage, which was further enhanced when additional P was applied at sowing. The highest yielding treatments combined a high starting Colwell P (90 ppm) with in-season P application.

Although all background P levels were considered sufficient by soil testing standards, treatments with higher starting P levels (60 and 90 ppm) and additional P applied in 2025 generally returned higher profits relative to the baseline treatment (40 ppm Colwell P with no P applied). This demonstrates that withholding P to reduce costs may come at the expense of both yield and profitability, even in soils with moderate to high P reserves.

Small P applications gave the highest economic return. Increasing P rate provided some yield gains, but poorer economic return and reduced ROI. Across all soil P levels applying 7.7 kg P/ha gave the highest ROI, with an average ROI of 6.07 for 7.7 kg P/ha, 3.79 for12 kg P/ha and 2.72 for 16.8 kg P/ha.

Potential explanations for the observed responses include limited plant availability of soil P due to stratification, soil moisture constraints, root access, or the seasonal conditions affecting P uptake. The continuation of these trials will help us better understand this as well as help us to identify the minimum economic practical P strategies that balance fertiliser cost with yield and profit outcomes over the longer term. It will also provide growers with greater confidence in optimising P investment rather than simply maintaining or reducing inputs.

Overall, the 2025 trial highlights that phosphorus remains an important driver of lentil productivity and profitability, even in soils testing high for Colwell P.

## ACKNOWLEDGEMENTS

RiskWi$e is conducted in partnership with grower groups, 6 action research group leads, research/extension partners, CSIRO and the Grains Research and Development Corporation (GRDC). Ag Grow Agronomy and Research is leading RiskWi$e work on phosphorus in the Griffith area.

Statistical analysis was carried out by Analytics for the Australian Grains Industry - Curtin University (AAGI-CU).

### Further contacts

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# APPENDIX

## Colwell P values, meta data including GPS location, paddock size and surface soil colour of the samples collected in the 0-10cm soil P survey.

| Sample No. | Year | Sample Depth (cm) | GPS Location (Latitude) | GPS Location (Longitude) | Paddock Size (ha) | Phosphorus [Colwell] (ppm) | P Category | P Level | Texture | Surface Soil Colour |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2024 | 0 to 10 | -34.195221 | 146.080994 | 51.38 | 33 | Sufficient P | 31-40ppm | SILTY LOAM | BROWN |
| 2 | 2024 | 0 to 10 | -34.199448 | 146.090647 | 107.95 | 38 | Sufficient P | 31-40ppm | SILTY LOAM | BROWN |
| 3 | 2024 | 0 to 10 | -34.151913 | 146.080505 | 341.05 | 46 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 4 | 2024 | 0 to 10 | -34.189438 | 146.090729 | 49.41 | 48 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 5 | 2024 | 0 to 10 | -33.574238 | 146.232147 | 83.9 | 27 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 6 | 2024 | 0 to 10 | -33.529442 | 146.209305 | 130 | 32 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 7 | 2024 | 0 to 10 | -33.567417 | 146.243408 | 169.25 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 8 | 2024 | 0 to 10 | -33.542110 | 146.237549 | 139.78 | 46 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 9 | 2024 | 0 to 10 | -33.998158 | 146.000153 | 162.25 | 40 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 10 | 2024 | 0 to 10 | -34.009983 | 146.008621 | 160.15 | 44 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 11 | 2024 | 0 to 10 | -34.021950 | 146.008087 | 180.95 | 46 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 12 | 2024 | 0 to 10 | -33.965435 | 145.956573 | 244.22 | 46 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 13 | 2024 | 0 to 10 | -33.944355 | 145.943207 | 309.69 | 48 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 14 | 2024 | 0 to 10 | -34.390362 | 146.494293 | 130 | 58 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 15 | 2024 | 0 to 10 | -34.351406 | 146.587601 | 68 | 69 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 16 | 2024 | 0 to 10 | -34.345505 | 146.540253 | 99.7 | 77 | Surplus P | >40ppm | LOAM | DARK BROWN |
| 17 | 2024 | 0 to 10 | -34.306026 | 146.542557 | 220 | 120 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 18 | 2024 | 0 to 10 | -33.795029 | 145.792023 | 289.77 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 19 | 2024 | 0 to 10 | -33.700901 | 145.781021 | 361.7 | 40 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 20 | 2024 | 0 to 10 | -33.726311 | 145.778488 | 397 | 41 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 21 | 2024 | 0 to 10 | -33.747852 | 145.750626 | 329.86 | 42 | Surplus P | >40ppm | LOAM | BROWN |
| 22 | 2024 | 0 to 10 | -33.745811 | 145.754883 | 377.63 | 43 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 23 | 2024 | 0 to 10 | -33.760571 | 145.456119 | 356 | 54 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 24 | 2024 | 0 to 10 | -33.793419 | 145.982254 | 198.79 | 17 | Very Deficient | <20ppm | SANDY LOAM | BROWN |
| 25 | 2024 | 0 to 10 | -33.783333 | 145.998749 | 214.87 | 24 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 26 | 2024 | 0 to 10 | -34.153381 | 146.497726 | 237.1 | 58 | Surplus P | >40ppm | LOAM | BROWN |
| 27 | 2024 | 0 to 10 | -34.170788 | 146.474152 | 116.16 | 63 | Surplus P | >40ppm | LOAM | BROWN |
| 28 | 2024 | 0 to 10 | -34.148190 | 146.473328 | 107.8 | 69 | Surplus P | >40ppm | LOAM | BROWN |
| 29 | 2024 | 0 to 10 | -33.652664 | 146.031006 | 296.63 | 18 | Very Deficient | <20ppm | SANDY LOAM | DARK BROWN |
| 30 | 2024 | 0 to 10 | -33.615192 | 146.027618 | 253.58 | 31 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 31 | 2024 | 0 to 10 | -33.660358 | 145.951874 | 295.48 | 40 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 32 | 2024 | 0 to 10 | -33.640675 | 145.951385 | 239.66 | 44 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 33 | 2024 | 0 to 10 | -34.197937 | 147.065933 | 36 | 78 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 34 | 2024 | 0 to 10 | -34.229279 | 147.017456 | 70 | 90 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 35 | 2024 | 0 to 10 | -34.075539 | 145.950165 | 199.15 | 18 | Very Deficient | <20ppm | SANDY LOAM | RED BROWN |
| 36 | 2024 | 0 to 10 | -34.139336 | 146.282578 | 83.35 | 37 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 37 | 2024 | 0 to 10 | -33.939007 | 146.016464 | 108.38 | 68 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 38 | 2024 | 0 to 10 | -33.909573 | 145.798355 | 174.01 | 35 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 39 | 2024 | 0 to 10 | -33.797905 | 145.822449 | 338.1 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | RED BROWN |
| 40 | 2024 | 0 to 10 | -33.906487 | 145.776230 | 137.71 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 41 | 2024 | 0 to 10 | -33.833385 | 145.869171 | 186.02 | 40 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 42 | 2024 | 0 to 10 | -33.765465 | 145.828125 | 356.86 | 42 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 43 | 2024 | 0 to 10 | -33.856678 | 145.856949 | 174.47 | 43 | Surplus P | >40ppm | SANDY LOAM | RED BROWN |
| 44 | 2024 | 0 to 10 | -33.876114 | 145.783417 | 288.48 | 45 | Surplus P | >40ppm | SANDY LOAM | RED BROWN |
| 45 | 2024 | 0 to 10 | -33.827213 | 145.859970 | 353.62 | 50 | Surplus P | >40ppm | SANDY LOAM | BROWN |

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|---|---|---|---|---|---|---|---|---|---|---|
| 46 | 2024 | 0 to 10 | -33.710655 | 146.049408 | 108.32 | 23 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 47 | 2024 | 0 to 10 | -33.707569 | 146.013123 | 290.02 | 33 | Sufficient P | 31-40ppm | SANDY LOAM | DARK BROWN |
| 48 | 2024 | 0 to 10 | -33.674351 | 146.041962 | 212.55 | 34 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 49 | 2024 | 0 to 10 | -33.757652 | 145.989960 | 122.27 | 39 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 50 | 2024 | 0 to 10 | -33.753880 | 145.966553 | 162.66 | 41 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 51 | 2024 | 0 to 10 | -33.705681 | 146.025482 | 249.05 | 44 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 52 | 2024 | 0 to 10 | -33.690769 | 146.054688 | 194.36 | 47 | Surplus P | >40ppm | LOAM | BROWN |
| 53 | 2024 | 0 to 10 | -34.241154 | 146.542648 | 574.27 | 29 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 54 | 2024 | 0 to 10 | -34.194988 | 146.481842 | 602 | 39 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 55 | 2024 | 0 to 10 | -34.203922 | 146.518219 | 1021.6 | 45 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 56 | 2024 | 0 to 10 | -34.245464 | 146.534821 | 111.63 | 45 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 57 | 2024 | 0 to 10 | -34.217136 | 146.537872 | 129.95 | 46 | Surplus P | >40ppm | LOAM | BROWN |
| 58 | 2024 | 0 to 10 | -34.265152 | 146.538315 | 491.28 | 47 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 59 | 2024 | 0 to 10 | -34.226566 | 146.391037 | 246 | 55 | Surplus P | >40ppm | LOAM | BROWN |
| 60 | 2024 | 0 to 10 | -34.215099 | 146.459534 | 120 | 56 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 61 | 2024 | 0 to 10 | -34.244370 | 146.436874 | 259 | 85 | Surplus P | >40ppm | LOAM | BROWN |
| 62 | 2024 | 0 to 10 | -34.091228 | 146.620514 | 122.7 | 45 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 63 | 2024 | 0 to 10 | -34.031612 | 146.406433 | 113.76 | 70 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 64 | 2024 | 0 to 10 | -34.165512 | 146.584518 | 76.66 | 87 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 65 | 2024 | 0 to 10 | -33.853889 | 145.666855 | 90 | 38 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 66 | 2024 | 0 to 10 | -33.781384 | 145.709595 | 330 | 41 | Surplus P | >40ppm | SANDY LOAM | RED BROWN |
| 67 | 2024 | 0 to 10 | -33.853977 | 145.573837 | 150 | 44 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 68 | 2024 | 0 to 10 | -34.059364 | 145.612427 | 124.58 | 28 | Deficient P | 20-30ppm | LOAM | BROWN |
| 69 | 2024 | 0 to 10 | -33.957928 | 145.635818 | 160.42 | 49 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 70 | 2024 | 0 to 10 | -34.053323 | 145.596344 | 104.75 | 54 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 71 | 2024 | 0 to 10 | -34.045650 | 145.607529 | 99.75 | 55 | Surplus P | >40ppm | LOAM | BROWN |
| 72 | 2024 | 0 to 10 | -33.965897 | 145.644958 | 169.16 | 56 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 73 | 2024 | 0 to 10 | -33.973412 | 145.646103 | 154.78 | 57 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 74 | 2024 | 0 to 10 | -34.049267 | 145.623077 | 82.98 | 60 | Surplus P | >40ppm | LOAM | BROWN |
| 75 | 2024 | 0 to 10 | -33.541431 | 145.525925 | 60.55 | 35 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 76 | 2024 | 0 to 10 | -33.542858 | 145.533325 | 125.16 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 77 | 2024 | 0 to 10 | -33.541683 | 146.491074 | 18 | 38 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 78 | 2024 | 0 to 10 | -33.508610 | 145.583878 | 254.95 | 44 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 79 | 2024 | 0 to 10 | -33.547829 | 145.501373 | 65 | 44 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 80 | 2024 | 0 to 10 | -33.563908 | 145.521301 | 205 | 49 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 81 | 2024 | 0 to 10 | -33.559628 | 145.514175 | 65 | 50 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 82 | 2024 | 0 to 10 | -33.557323 | 145.555176 | 190.28 | 51 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 83 | 2024 | 0 to 10 | -33.768734 | 146.046783 | 127.15 | 27 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 84 | 2024 | 0 to 10 | -33.782516 | 146.059113 | 104.41 | 33 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 85 | 2024 | 0 to 10 | -33.830795 | 145.968903 | 418.52 | 35 | Sufficient P | 31-40ppm | SANDY LOAM | DARK BROWN |
| 86 | 2024 | 0 to 10 | -33.727955 | 146.181931 | 141.32 | 38 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 87 | 2024 | 0 to 10 | -33.797516 | 146.028427 | 283.74 | 39 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 88 | 2024 | 0 to 10 | -33.706642 | 146.119415 | 129.21 | 41 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 89 | 2024 | 0 to 10 | -33.836185 | 145.949951 | 179.38 | 43 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 90 | 2024 | 0 to 10 | -33.947456 | 146.048889 | 171.9 | 48 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 91 | 2024 | 0 to 10 | -33.947437 | 146.036102 | 120.21 | 49 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 92 | 2024 | 0 to 10 | -33.728298 | 146.144089 | 207.67 | 51 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 93 | 2024 | 0 to 10 | -33.906849 | 145.399597 | 324.5 | 27 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 94 | 2024 | 0 to 10 | -33.873074 | 145.417221 | 242.88 | 33 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 95 | 2024 | 0 to 10 | -33.909443 | 145.462067 | 175.88 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |

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|---|---|---|---|---|---|---|---|---|---|---|
| 96 | 2024 | 0 to 10 | -33.880753 | 145.459869 | 113.66 | 39 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 97 | 2024 | 0 to 10 | -33.818478 | 145.422607 | 225.96 | 40 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 98 | 2024 | 0 to 10 | -33.868332 | 145.446945 | 294.98 | 51 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 99 | 2024 | 0 to 10 | -33.601345 | 145.733292 | 116.37 | 23 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 100 | 2024 | 0 to 10 | -33.667160 | 145.885152 | 229 | 29 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 101 | 2024 | 0 to 10 | -33.408077 | 145.773041 | 266.04 | 31 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 102 | 2024 | 0 to 10 | -33.684277 | 145.869049 | 321.77 | 31 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 103 | 2024 | 0 to 10 | -33.703709 | 145.798935 | 358.88 | 31 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 104 | 2024 | 0 to 10 | -33.671894 | 145.882980 | 412 | 33 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 105 | 2024 | 0 to 10 | -33.710823 | 145.837997 | 380.63 | 34 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 106 | 2024 | 0 to 10 | -33.563461 | 145.816193 | 582.14 | 35 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 107 | 2024 | 0 to 10 | -33.691330 | 145.895096 | 293.84 | 35 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 108 | 2024 | 0 to 10 | -33.395988 | 145.778763 | 190.27 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 109 | 2024 | 0 to 10 | -33.599369 | 145.866577 | 321 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 110 | 2024 | 0 to 10 | -33.414612 | 145.746399 | 136.95 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 111 | 2024 | 0 to 10 | -33.544418 | 145.800201 | 83.18 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 112 | 2024 | 0 to 10 | -33.626251 | 145.891434 | 633.9 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 113 | 2024 | 0 to 10 | -33.511105 | 145.839905 | 169.42 | 39 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 114 | 2024 | 0 to 10 | -33.676723 | 145.907715 | 290 | 39 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 115 | 2024 | 0 to 10 | -33.521461 | 145.828598 | 297.71 | 66 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 116 | 2024 | 0 to 10 | -34.192818 | 146.344238 | 257.98 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 117 | 2024 | 0 to 10 | -34.192818 | 146.344238 | 123.86 | 45 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 118 | 2024 | 0 to 10 | -34.120243 | 146.311295 | 311.76 | 57 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 119 | 2024 | 0 to 10 | -34.199032 | 146.388794 | 315.96 | 66 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 120 | 2024 | 0 to 10 | -34.006710 | 146.070374 | 79.81 | 22 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 121 | 2024 | 0 to 10 | -33.986481 | 146.075974 | 209.29 | 37 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 122 | 2024 | 0 to 10 | -33.984467 | 146.099487 | 351.38 | 48 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 123 | 2024 | 0 to 10 | -33.971691 | 146.101166 | 184.48 | 54 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 124 | 2024 | 0 to 10 | -33.620590 | 146.035202 | 163.53 | 21 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 125 | 2024 | 0 to 10 | -33.577682 | 146.073944 | 122.95 | 31 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 126 | 2024 | 0 to 10 | -33.588226 | 146.079315 | 131.56 | 35 | Sufficient P | 31-40ppm | SANDY LOAM | DARK BROWN |
| 127 | 2024 | 0 to 10 | -33.549561 | 146.042160 | 157.67 | 45 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 128 | 2024 | 0 to 10 | -34.003269 | 146.472382 | 358.72 | 34 | Sufficient P | 31-40ppm | SANDY LOAM | RED BROWN |
| 129 | 2024 | 0 to 10 | -34.050655 | 146.447342 | 222.09 | 48 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 130 | 2024 | 0 to 10 | -34.336052 | 146.388321 | 287.31 | 74 | Surplus P | >40ppm | SANDY LOAM | GREY BROWN |
| 131 | 2024 | 0 to 10 | -34.333893 | 146.414703 | 268.05 | 110 | Surplus P | >40ppm | LOAM | GREY BROWN |
| 132 | 2024 | 0 to 10 | -34.290752 | 146.704239 | 240 | 28 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 133 | 2024 | 0 to 10 | -34.262852 | 146.742065 | 122.36 | 39 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 134 | 2024 | 0 to 10 | -34.278263 | 146.699448 | 288 | 50 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 135 | 2024 | 0 to 10 | -34.283321 | 146.623779 | 193.39 | 52 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 136 | 2024 | 0 to 10 | -34.274910 | 146.627975 | 100.39 | 61 | Surplus P | >40ppm | LOAM | BROWN |
| 137 | 2024 | 0 to 10 | -34.262012 | 146.353622 | 96.96 | 76 | Surplus P | >40ppm | LOAM | BROWN |
| 138 | 2024 | 0 to 10 | -33.816788 | 146.119263 | 134.05 | 33 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 139 | 2024 | 0 to 10 | -33.811207 | 146.104980 | 11.87 | 68 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 140 | 2024 | 0 to 10 | -34.694790 | 146.727951 | 39.9 | 41 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 141 | 2024 | 0 to 10 | -34.473316 | 146.734131 | 121.63 | 73 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 142 | 2024 | 0 to 10 | -33.588848 | 145.687042 | 192.61 | 35 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 143 | 2024 | 0 to 10 | -33.587410 | 145.615341 | 423.93 | 36 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 144 | 2024 | 0 to 10 | -33.571327 | 145.645691 | 145.98 | 45 | Surplus P | >40ppm | LOAM | BROWN |
| 145 | 2024 | 0 to 10 | -33.658070 | 145.713989 | 175.26 | 49 | Surplus P | >40ppm | SANDY LOAM | BROWN |

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|---|---|---|---|---|---|---|---|---|---|---|
| 146 | 2024 | 0 to 10 | -33.646713 | 145.696060 | 59.94 | 57 | Surplus P | >40ppm | LOAM | BROWN |
| 147 | 2024 | 0 to 10 | -33.602962 | 145.653122 | 307.5 | 57 | Surplus P | >40ppm | SILTY LOAM | BROWN |
| 148 | 2024 | 0 to 10 | -34.002769 | 145.565155 | 210 | 40 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 149 | 2024 | 0 to 10 | -34.018311 | 145.622269 | 240 | 42 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 150 | 2024 | 0 to 10 | -34.061031 | 145.735107 | 200 | 62 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 151 | 2024 | 0 to 10 | -34.087826 | 145.769989 | 168 | 65 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 152 | 2024 | 0 to 10 | -34.005619 | 145.634018 | 245 | 70 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 153 | 2024 | 0 to 10 | -33.934582 | 145.813553 | 241.2 | 32 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 154 | 2024 | 0 to 10 | -34.110737 | 145.676178 | 162 | 35 | Sufficient P | 31-40ppm | LOAM | DARK BROWN |
| 155 | 2024 | 0 to 10 | -34.145805 | 145.668732 | 232 | 36 | Sufficient P | 31-40ppm | LOAM | GREY BROWN |
| 156 | 2024 | 0 to 10 | -33.906406 | 145.749496 | 180.68 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 157 | 2024 | 0 to 10 | -34.088058 | 145.685699 | 270.58 | 39 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 158 | 2024 | 0 to 10 | -34.117603 | 145.643661 | 126 | 42 | Surplus P | >40ppm | LOAM | DARK BROWN |
| 159 | 2024 | 0 to 10 | -34.131737 | 145.655746 | 79 | 44 | Surplus P | >40ppm | LOAM | DARK BROWN |
| 160 | 2024 | 0 to 10 | -34.104942 | 145.697159 | 174.87 | 47 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 161 | 2024 | 0 to 10 | -33.927505 | 145.761841 | 107.9 | 57 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 162 | 2024 | 0 to 10 | -33.932648 | 145.787827 | 397.36 | 58 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 163 | 2024 | 0 to 10 | -33.919361 | 145.726410 | 193.7 | 60 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 164 | 2024 | 0 to 10 | -33.101059 | 146.096481 | 127 | 27 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 165 | 2024 | 0 to 10 | -33.142773 | 146.098663 | 126 | 28 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 166 | 2024 | 0 to 10 | -33.918030 | 145.647873 | 132.22 | 30 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 167 | 2024 | 0 to 10 | -33.992954 | 145.959076 | 309.33 | 39 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 168 | 2024 | 0 to 10 | -33.148346 | 146.111725 | 128.36 | 42 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 169 | 2024 | 0 to 10 | -33.940044 | 145.685699 | 318.39 | 44 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 170 | 2024 | 0 to 10 | -33.951191 | 145.677185 | 160.94 | 46 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 171 | 2024 | 0 to 10 | -33.934719 | 145.594131 | 125.82 | 48 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 172 | 2024 | 0 to 10 | -33.933304 | 145.679184 | 318.39 | 49 | Surplus P | >40ppm | SANDY LOAM | RED BROWN |
| 173 | 2024 | 0 to 10 | -33.945335 | 145.690659 | 275.05 | 50 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 174 | 2024 | 0 to 10 | -33.971912 | 145.911804 | 293.18 | 51 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 175 | 2024 | 0 to 10 | -33.930031 | 145.587585 | 120.28 | 52 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 176 | 2024 | 0 to 10 | -34.052776 | 145.760727 | 337.03 | 55 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 177 | 2024 | 0 to 10 | -33.927025 | 145.656357 | 132.22 | 56 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 178 | 2024 | 0 to 10 | -33.900448 | 146.154434 | 119.18 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 179 | 2024 | 0 to 10 | -33.994579 | 146.323135 | 378.64 | 44 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 180 | 2024 | 0 to 10 | -33.921261 | 146.287750 | 238.87 | 45 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 181 | 2024 | 0 to 10 | -33.858407 | 146.156998 | 152.06 | 46 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 182 | 2024 | 0 to 10 | -33.934963 | 146.253372 | 132.05 | 47 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 183 | 2024 | 0 to 10 | -33.933006 | 146.335648 | 380.19 | 53 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 184 | 2024 | 0 to 10 | -33.862766 | 146.167435 | 155.32 | 53 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 185 | 2024 | 0 to 10 | -33.959087 | 146.337646 | 157.17 | 59 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 186 | 2024 | 0 to 10 | -33.884724 | 146.179352 | 250.54 | 60 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 187 | 2024 | 0 to 10 | -34.072483 | 145.687988 | 742.76 | 71 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 188 | 2024 | 0 to 10 | -34.012951 | 146.332245 | 322.39 | 75 | Surplus P | >40ppm | LOAM | BROWN |
| 189 | 2024 | 0 to 10 | -33.901890 | 146.198059 | 447.94 | 83 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 190 | 2024 | 0 to 10 | -34.042522 | 145.690765 | 430.37 | 86 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 191 | 2024 | 0 to 10 | -33.882896 | 145.688080 | 254.72 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 192 | 2024 | 0 to 10 | -33.992172 | 145.682800 | 76.57 | 40 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 193 | 2024 | 0 to 10 | -33.927731 | 145.839584 | 346.59 | 48 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 194 | 2024 | 0 to 10 | -33.920364 | 145.709808 | 189.3 | 49 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 195 | 2024 | 0 to 10 | -34.004425 | 145.657715 | 197.4 | 53 | Surplus P | >40ppm | SANDY LOAM | BROWN |

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|---|---|---|---|---|---|---|---|---|---|---|
| 196 | 2024 | 0 to 10 | -33.924313 | 145.860825 | 387.07 | 60 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 197 | 2024 | 0 to 10 | -34.016186 | 146.052231 | 296 | 38 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 198 | 2024 | 0 to 10 | -34.028622 | 146.080841 | 328 | 52 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 199 | 2024 | 0 to 10 | -34.024597 | 145.996140 | 312 | 54 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 200 | 2024 | 0 to 10 | -34.005322 | 145.987808 | 326 | 75 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 201 | 2024 | 0 to 10 | -33.494190 | 145.685204 | 172 | 25 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 202 | 2024 | 0 to 10 | -33.398136 | 145.719742 | 283.83 | 25 | Deficient P | 20-30ppm | SANDY LOAM | GREY BROWN |
| 203 | 2024 | 0 to 10 | -33.437733 | 145.845703 | 274.82 | 30 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 204 | 2024 | 0 to 10 | -33.531296 | 145.850403 | 303 | 31 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 205 | 2024 | 0 to 10 | -33.427132 | 145.789536 | 118.95 | 32 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 206 | 2024 | 0 to 10 | -33.393944 | 145.708405 | 302.24 | 38 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 207 | 2024 | 0 to 10 | -33.570992 | 145.887772 | 380.13 | 42 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 208 | 2024 | 0 to 10 | -33.560677 | 145.859207 | 355.85 | 46 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 209 | 2024 | 0 to 10 | -33.138817 | 145.321838 | 30 | 40 | Sufficient P | 31-40ppm | CLAY | BROWN |
| 210 | 2024 | 0 to 10 | -33.155994 | 145.276505 | 35.7 | 52 | Surplus P | >40ppm | CLAY | GREY BROWN |
| 211 | 2024 | 0 to 10 | -33.184620 | 145.311844 | 38 | 53 | Surplus P | >40ppm | LOAM | BROWN |
| 212 | 2024 | 0 to 10 | -33.144650 | 145.325211 | 31.9 | 61 | Surplus P | >40ppm | LOAM | BROWN |
| 213 | 2024 | 0 to 10 | -33.170197 | 145.304428 | 35.5 | 65 | Surplus P | >40ppm | LOAM | GREY BROWN |
| 214 | 2024 | 0 to 10 | -33.137829 | 145.311356 | 39.4 | 66 | Surplus P | >40ppm | LOAM | BROWN |
| 215 | 2024 | 0 to 10 | -33.169170 | 145.312408 | 14.8 | 69 | Surplus P | >40ppm | LOAM | GREY |
| 216 | 2024 | 0 to 10 | -33.155994 | 145.289078 | 37.5 | 74 | Surplus P | >40ppm | CLAY | GREY |
| 217 | 2024 | 0 to 10 | -34.169979 | 145.190201 | 542 | 30 | Deficient P | 20-30ppm | LOAM | BROWN |
| 218 | 2024 | 0 to 10 | -34.117546 | 145.203033 | 442.94 | 40 | Sufficient P | 31-40ppm | LOAM | PALE GREY |
| 219 | 2024 | 0 to 10 | -34.334965 | 146.908142 | 145 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 220 | 2024 | 0 to 10 | -34.261726 | 146.869232 | 87 | 38 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 221 | 2024 | 0 to 10 | -34.263023 | 146.912903 | 160 | 43 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 222 | 2024 | 0 to 10 | -34.264774 | 146.699265 | 94.47 | 47 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 223 | 2024 | 0 to 10 | -34.312477 | 146.807404 | 220 | 49 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 224 | 2024 | 0 to 10 | -34.279034 | 146.897537 | 156 | 67 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 225 | 2024 | 0 to 10 | -34.240696 | 146.927017 | 90 | 74 | Surplus P | >40ppm | LOAM | DARK BROWN |
| 226 | 2024 | 0 to 10 | -34.289658 | 146.840744 | 80 | 89 | Surplus P | >40ppm | LOAM | BROWN |
| 227 | 2024 | 0 to 10 | -34.323048 | 146.487701 | 74.66 | 24 | Deficient P | 20-30ppm | LOAM | BROWN |
| 228 | 2024 | 0 to 10 | -34.352863 | 146.490829 | 63.02 | 44 | Surplus P | >40ppm | LOAM | BROWN |
| 229 | 2024 | 0 to 10 | -34.327065 | 146.602264 | 157.17 | 47 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 230 | 2024 | 0 to 10 | -33.588547 | 145.485825 | 202.4 | 33 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 231 | 2024 | 0 to 10 | -33.599434 | 145.490601 | 133.42 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 232 | 2024 | 0 to 10 | -34.015911 | 146.135406 | 167.73 | 44 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 233 | 2024 | 0 to 10 | -34.027481 | 146.133484 | 190.05 | 44 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 234 | 2024 | 0 to 10 | -33.900703 | 146.095230 | 335.16 | 46 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 235 | 2024 | 0 to 10 | -34.006027 | 146.116714 | 186.31 | 54 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 236 | 2024 | 0 to 10 | -34.014416 | 146.161621 | 246.92 | 61 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 237 | 2024 | 0 to 10 | -33.999710 | 146.155624 | 76.95 | 71 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 238 | 2024 | 0 to 10 | -34.035511 | 146.107330 | 167.66 | 73 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 239 | 2024 | 0 to 10 | -33.930183 | 146.066940 | 142.62 | 80 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 240 | 2024 | 0 to 10 | -33.764324 | 145.585999 | 349.01 | 33 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 241 | 2024 | 0 to 10 | -33.809277 | 145.423355 | 225.95 | 35 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 242 | 2024 | 0 to 10 | -33.809277 | 145.423355 | 209.92 | 48 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 243 | 2024 | 0 to 10 | -33.762661 | 145.705002 | 358 | 50 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 244 | 2024 | 0 to 10 | -33.840855 | 145.415680 | 476 | 50 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 245 | 2024 | 0 to 10 | -33.794540 | 145.592194 | 720 | 56 | Surplus P | >40ppm | SANDY LOAM | BROWN |

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|---|---|---|---|---|---|---|---|---|---|---|
| 246 | 2024 | 0 to 10 | -34.016079 | 145.705612 | 280 | 31 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 247 | 2024 | 0 to 10 | -33.870464 | 145.738510 | 139.99 | 33 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 248 | 2024 | 0 to 10 | -33.859913 | 145.729355 | 167.39 | 41 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 249 | 2024 | 0 to 10 | -34.028576 | 145.661652 | 216.22 | 45 | Surplus P | >40ppm | LOAM | BROWN |
| 250 | 2024 | 0 to 10 | -34.052582 | 145.650055 | 282.4 | 55 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 251 | 2024 | 0 to 10 | -34.068790 | 145.634872 | 26.26 | 57 | Surplus P | >40ppm | LOAM | DARK BROWN |
| 252 | 2024 | 0 to 10 | -34.027409 | 145.648575 | 53 | 66 | Surplus P | >40ppm | SANDY LOAM | RED BROWN |
| 253 | 2024 | 0 to 10 | -33.745056 | 145.718704 | 169.26 | 31 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 254 | 2024 | 0 to 10 | -33.784435 | 145.742996 | 475.53 | 33 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 255 | 2024 | 0 to 10 | -33.771542 | 145.723053 | 414.75 | 45 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 256 | 2024 | 0 to 10 | -33.623108 | 146.081787 | 88.88 | 29 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 257 | 2024 | 0 to 10 | -34.201923 | 146.427658 | 232.21 | 48 | Surplus P | >40ppm | LOAM | DARK BROWN |
| 258 | 2024 | 0 to 10 | -34.205807 | 146.369339 | 257.31 | 54 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 259 | 2024 | 0 to 10 | -34.194462 | 146.372833 | 248.38 | 58 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 260 | 2024 | 0 to 10 | -34.306747 | 146.669617 | 134.05 | 38 | Sufficient P | 31-40ppm | SANDY LOAM | DARK BROWN |
| 261 | 2024 | 0 to 10 | -34.281467 | 146.675964 | 124.33 | 51 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 262 | 2024 | 0 to 10 | -34.177925 | 146.566269 | 353.08 | 52 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 263 | 2024 | 0 to 10 | -34.399639 | 146.702988 | 315.12 | 55 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 264 | 2024 | 0 to 10 | -34.199974 | 146.609253 | 326.24 | 64 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 265 | 2024 | 0 to 10 | -34.396927 | 146.682877 | 561.15 | 69 | Surplus P | >40ppm | LOAM | BROWN |
| 266 | 2024 | 0 to 10 | -34.361835 | 146.659241 | 212.19 | 81 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 267 | 2024 | 0 to 10 | -34.339161 | 146.673294 | 124.77 | 88 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 268 | 2024 | 0 to 10 | -33.549850 | 145.778900 | 327.78 | 26 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 269 | 2024 | 0 to 10 | -33.583611 | 145.577026 | 212.54 | 34 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 270 | 2024 | 0 to 10 | -33.551636 | 145.734604 | 210.78 | 35 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 271 | 2024 | 0 to 10 | -33.604362 | 145.568268 | 274.56 | 41 | Surplus P | >40ppm | LOAM | BROWN |
| 272 | 2024 | 0 to 10 | -33.657650 | 145.511612 | 199.43 | 41 | Surplus P | >40ppm | LOAM | BROWN |
| 273 | 2024 | 0 to 10 | -33.575817 | 145.723877 | 166.97 | 47 | Surplus P | >40ppm | LOAM | BROWN |
| 274 | 2024 | 0 to 10 | -33.582573 | 145.748138 | 355.82 | 55 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 275 | 2024 | 0 to 10 | -34.171165 | 146.428009 | 92.78 | 34 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 276 | 2024 | 0 to 10 | -34.240353 | 146.400330 | 101.6 | 39 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 277 | 2024 | 0 to 10 | -34.213524 | 146.411713 | 76.57 | 54 | Surplus P | >40ppm | LOAM | BROWN |
| 278 | 2024 | 0 to 10 | -34.240620 | 146.361801 | 112.5 | 59 | Surplus P | >40ppm | LOAM | BROWN |
| 279 | 2024 | 0 to 10 | -34.398556 | 146.505737 | 128.43 | 62 | Surplus P | >40ppm | LOAM | BROWN |
| 280 | 2024 | 0 to 10 | -34.389606 | 146.530869 | 194.79 | 63 | Surplus P | >40ppm | LOAM | BROWN |
| 281 | 2024 | 0 to 10 | -34.375538 | 146.595184 | 218 | 65 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 282 | 2024 | 0 to 10 | -34.470951 | 146.559128 | 256.01 | 83 | Surplus P | >40ppm | LOAM | BROWN |
| 283 | 2024 | 0 to 10 | -34.458473 | 146.577042 | 169.1 | 99 | Surplus P | >40ppm | LOAM | BROWN |
| 284 | 2024 | 0 to 10 | -34.018429 | 147.004410 | 251.19 | 49 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 285 | 2024 | 0 to 10 | -34.042469 | 146.822128 | 263.32 | 55 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 286 | 2024 | 0 to 10 | -34.019627 | 146.817764 | 131.38 | 55 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 287 | 2024 | 0 to 10 | -34.040432 | 147.010971 | 47.23 | 60 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 288 | 2024 | 0 to 10 | -34.019547 | 146.760773 | 114.24 | 64 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 289 | 2024 | 0 to 10 | -34.009193 | 146.826752 | 120.39 | 66 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 290 | 2024 | 0 to 10 | -33.848602 | 145.628403 | 151.92 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 291 | 2024 | 0 to 10 | -33.900585 | 145.661438 | 174.36 | 41 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 292 | 2024 | 0 to 10 | -33.817463 | 145.692200 | 85.75 | 47 | Surplus P | >40ppm | LOAM | BROWN |
| 293 | 2024 | 0 to 10 | -33.889786 | 145.601685 | 199.01 | 47 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 294 | 2024 | 0 to 10 | -33.917194 | 145.672058 | 143.17 | 55 | Surplus P | >40ppm | SANDY LOAM | RED BROWN |
| 295 | 2024 | 0 to 10 | -33.819241 | 145.562927 | 327.19 | 57 | Surplus P | >40ppm | SANDY LOAM | BROWN |

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|---|---|---|---|---|---|---|---|---|---|---|
| 296 | 2024 | 0 to 10 | -33.870041 | 145.667313 | 176 | 60 | Surplus P | >40ppm | SANDY LOAM | RED BROWN |
| 297 | 2024 | 0 to 10 | -33.598804 | 146.189072 | 173.08 | 26 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 298 | 2024 | 0 to 10 | -33.621872 | 146.150497 | 135.67 | 28 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 299 | 2024 | 0 to 10 | -33.636471 | 146.115601 | 126.11 | 43 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 300 | 2024 | 0 to 10 | -33.614281 | 146.162247 | 200.94 | 45 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 301 | 2024 | 0 to 10 | -33.624355 | 146.116348 | 142.3 | 59 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 302 | 2024 | 0 to 10 | -34.145607 | 146.679550 | 106 | 45 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 303 | 2024 | 0 to 10 | -34.092693 | 146.635666 | 130.3 | 54 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 304 | 2024 | 0 to 10 | -34.113419 | 146.602280 | 99.02 | 68 | Surplus P | >40ppm | SANDY LOAM | RED BROWN |
| 305 | 2024 | 0 to 10 | -33.862942 | 145.901367 | 319.1 | 40 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 306 | 2024 | 0 to 10 | -33.862381 | 145.791504 | 205.98 | 41 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 307 | 2024 | 0 to 10 | -33.840107 | 145.912308 | 343.91 | 57 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 308 | 2024 | 0 to 10 | -33.989498 | 146.010620 | 126.54 | 35 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 309 | 2024 | 0 to 10 | -33.988045 | 146.038574 | 112.78 | 47 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 310 | 2024 | 0 to 10 | -33.751034 | 145.586700 | 202 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 311 | 2024 | 0 to 10 | -33.744114 | 145.890121 | 351.63 | 32 | Sufficient P | 31-40ppm | SANDY LOAM | DARK BROWN |
| 312 | 2024 | 0 to 10 | -33.728573 | 145.939117 | 361.3 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 313 | 2024 | 0 to 10 | -33.735378 | 145.835205 | 353.61 | 39 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 314 | 2024 | 0 to 10 | -33.722481 | 145.930908 | 289.75 | 41 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 315 | 2024 | 0 to 10 | -33.229435 | 146.357086 | 241.56 | 50 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 316 | 2024 | 0 to 10 | -33.258190 | 146.385895 | 109.25 | 53 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 317 | 2024 | 0 to 10 | -34.053020 | 146.287170 | 222.48 | 40 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 318 | 2024 | 0 to 10 | -34.146072 | 146.355988 | 190.92 | 47 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 319 | 2024 | 0 to 10 | -34.212036 | 146.345291 | 120.32 | 49 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 320 | 2024 | 0 to 10 | -34.120312 | 146.370712 | 110.96 | 54 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 321 | 2024 | 0 to 10 | -34.193535 | 146.334991 | 138.63 | 67 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 322 | 2024 | 0 to 10 | -33.414322 | 145.703613 | 173.63 | 35 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 323 | 2024 | 0 to 10 | -33.411171 | 145.694595 | 50.84 | 53 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 324 | 2024 | 0 to 10 | -33.403046 | 145.685150 | 50.57 | 55 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 325 | 2024 | 0 to 10 | -33.430317 | 145.736282 | 153.83 | 57 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 326 | 2024 | 0 to 10 | -33.930058 | 145.548065 | 434.3 | 21 | Deficient P | 20-30ppm | LOAM | BROWN |
| 327 | 2024 | 0 to 10 | -34.006950 | 145.474365 | 283.06 | 22 | Deficient P | 20-30ppm | LOAM | BROWN |
| 328 | 2024 | 0 to 10 | -34.001968 | 145.463409 | 276.83 | 26 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 329 | 2024 | 0 to 10 | -34.023415 | 145.462936 | 178.78 | 30 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 330 | 2024 | 0 to 10 | -33.944210 | 145.500412 | 432.27 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 331 | 2024 | 0 to 10 | -33.942142 | 145.523376 | 391.05 | 39 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 332 | 2024 | 0 to 10 | -33.769787 | 145.631729 | 167.26 | 43 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 333 | 2024 | 0 to 10 | -33.801643 | 145.373239 | 159.32 | 45 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 334 | 2024 | 0 to 10 | -33.800201 | 145.773911 | 348.3 | 46 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 335 | 2024 | 0 to 10 | -33.799168 | 145.685440 | 196.15 | 54 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 336 | 2024 | 0 to 10 | -33.822750 | 145.812744 | 301.24 | 63 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 337 | 2024 | 0 to 10 | -33.815872 | 145.728207 | 175.97 | 64 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 338 | 2024 | 0 to 10 | -33.853138 | 146.175568 | 74.15 | 53 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 339 | 2024 | 0 to 10 | -33.831985 | 146.142548 | 87.22 | 56 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 340 | 2024 | 0 to 10 | -33.839352 | 146.098618 | 112.57 | 68 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 341 | 2024 | 0 to 10 | -33.839775 | 146.140747 | 60.3 | 81 | Surplus P | >40ppm | LOAM | BROWN |
| 342 | 2024 | 0 to 10 | -33.870472 | 145.573730 | 418.11 | 29 | Deficient P | 20-30ppm | SILTY LOAM | BROWN |
| 343 | 2024 | 0 to 10 | -33.808697 | 145.516296 | 509.82 | 33 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 344 | 2024 | 0 to 10 | -33.802097 | 145.565933 | 646.43 | 33 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 345 | 2024 | 0 to 10 | -33.772526 | 145.463074 | 643.79 | 34 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |

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|---|---|---|---|---|---|---|---|---|---|---|
| 346 | 2024 | 0 to 10 | -33.760929 | 145.496140 | 389.21 | 34 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 347 | 2024 | 0 to 10 | -33.797459 | 145.486526 | 580.76 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 348 | 2024 | 0 to 10 | -33.808834 | 145.534195 | 709.62 | 39 | Sufficient P | 31-40ppm | LOAM | RED BROWN |
| 349 | 2024 | 0 to 10 | -33.781956 | 145.508835 | 826.03 | 43 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 350 | 2024 | 0 to 10 | -33.794216 | 145.536224 | 664.89 | 43 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 351 | 2024 | 0 to 10 | -33.715179 | 145.692032 | 360.68 | 31 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 352 | 2024 | 0 to 10 | -33.735725 | 145.609695 | 375.72 | 46 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 353 | 2024 | 0 to 10 | -33.727657 | 145.699142 | 300 | 49 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 354 | 2024 | 0 to 10 | -33.826763 | 145.628540 | 114.17 | 53 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 355 | 2024 | 0 to 10 | -33.711742 | 145.657242 | 312.94 | 53 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 356 | 2024 | 0 to 10 | -33.830826 | 145.658676 | 206.9 | 68 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 357 | 2024 | 0 to 10 | -33.858322 | 145.698990 | 315.9 | 80 | Surplus P | >40ppm | LOAM | BROWN |
| 358 | 2024 | 0 to 10 | -33.849266 | 145.520721 | 386.41 | 27 | Deficient P | 20-30ppm | LOAM | BROWN |
| 359 | 2024 | 0 to 10 | -33.850842 | 145.484131 | 260.58 | 31 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 360 | 2024 | 0 to 10 | -33.792568 | 145.453918 | 419.89 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 361 | 2024 | 0 to 10 | -33.740334 | 145.431015 | 322.02 | 51 | Surplus P | >40ppm | SILTY LOAM | BROWN |
| 362 | 2024 | 0 to 10 | -33.813969 | 145.468124 | 94.72 | 57 | Surplus P | >40ppm | LOAM | BROWN |
| 363 | 2024 | 0 to 10 | -34.141006 | 145.807556 | 40 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 364 | 2024 | 0 to 10 | -34.098816 | 145.838165 | 63.02 | 43 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 365 | 2024 | 0 to 10 | -34.126804 | 145.813080 | 129.54 | 48 | Surplus P | >40ppm | LOAM | BROWN |
| 366 | 2024 | 0 to 10 | -34.124653 | 145.827881 | 36.67 | 49 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 367 | 2024 | 0 to 10 | -34.121452 | 145.831207 | 50 | 67 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 368 | 2024 | 0 to 10 | -34.132877 | 145.821548 | 50 | 68 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 369 | 2024 | 0 to 10 | -34.097897 | 145.817368 | 50 | 77 | Surplus P | >40ppm | LOAM | BROWN |
| 370 | 2024 | 0 to 10 | -34.088223 | 145.815720 | 50 | 87 | Surplus P | >40ppm | LOAM | BROWN |
| 371 | 2024 | 0 to 10 | -34.097973 | 145.829559 | 50 | 91 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 372 | 2024 | 0 to 10 | -34.111366 | 145.833252 | 50 | 98 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 373 | 2024 | 0 to 10 | -33.908203 | 146.066010 | 79.25 | 26 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 374 | 2024 | 0 to 10 | -33.885189 | 146.064117 | 112.57 | 31 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 375 | 2024 | 0 to 10 | -33.749397 | 146.154510 | 98.59 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 376 | 2024 | 0 to 10 | -33.634464 | 145.464417 | 386.69 | 41 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 377 | 2024 | 0 to 10 | -33.656750 | 145.456329 | 636.13 | 37 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 378 | 2024 | 0 to 10 | -33.683254 | 145.500595 | 350.49 | 40 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 379 | 2024 | 0 to 10 | -33.694683 | 145.486954 | 162.45 | 32 | Sufficient P | 31-40ppm | LOAM | BROWN |
| 380 | 2024 | 0 to 10 | -33.673531 | 145.530334 | 293.11 | 52 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 381 | 2024 | 0 to 10 | -33.696423 | 145.509033 | 148.39 | 39 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 382 | 2024 | 0 to 10 | -33.689995 | 145.543610 | 182.09 | 21 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 383 | 2024 | 0 to 10 | -33.675510 | 145.564316 | 463.82 | 36 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 384 | 2024 | 0 to 10 | -33.646500 | 145.567612 | 415.09 | 30 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 385 | 2024 | 0 to 10 | -33.632584 | 145.567596 | 514.38 | 40 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 386 | 2024 | 0 to 10 | -33.672504 | 145.630768 | 550.23 | 33 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 387 | 2024 | 0 to 10 | -33.672848 | 145.656631 | 175.47 | 42 | Surplus P | >40ppm | SANDY LOAM | DARK BROWN |
| 388 | 2024 | 0 to 10 | -33.670334 | 145.675827 | 498.24 | 30 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 389 | 2024 | 0 to 10 | -33.685463 | 145.749817 | 284.23 | 41 | Surplus P | >40ppm | LOAM | BROWN |
| 390 | 2024 | 0 to 10 | -33.678658 | 145.763809 | 272.91 | 58 | Surplus P | >40ppm | SANDY LOAM | BROWN |
| 391 | 2024 | 0 to 10 | -33.157150 | 145.926880 | 243.65 | 23 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 392 | 2024 | 0 to 10 | -33.170132 | 146.032791 | 175.56 | 28 | Deficient P | 20-30ppm | SANDY LOAM | BROWN |
| 393 | 2024 | 0 to 10 | -33.162041 | 146.055725 | 141.14 | 32 | Sufficient P | 31-40ppm | SANDY LOAM | BROWN |
| 394 | 2024 | 0 to 10 | -33.172306 | 146.037872 | 213.34 | 41 | Surplus P | >40ppm | SANDY LOAM | RED BROWN |