
AG PLUS CONSULTANCY

# Efficacy of Liquid Potassium Compared to Granular Potassium Fertiliser

27 Sheridan St, Bundaberg QLD 4670
agplusconsultancy.com.au

# Executive Summary

**Comparative Evaluation: Liquid K (160L K/ha) vs Potassium Sulphate (300kg K/ha)**

A five-year fertiliser trial conducted across two commercial farms assessed whether a **lower-rate application of Liquid K (160L K/ha)** could deliver the same agronomic performance as a **higher-rate application of Potassium Sulphate (300kg K/ha)**.

The results were clear:

- **Soil Potassium Response:**
  Both treatments produced **comparable soil potassium levels across a range of soil types and Cation Exchange Capacities (CEC)**. Statistical analysis showed **CEC—not fertiliser type—was the primary driver of soil potassium levels**.
- **Leaf Potassium Uptake:**
  Leaf analysis confirmed the soil results. **Average leaf potassium levels were nearly identical**:
  - Liquid K: **1.35%**
  - Potassium Sulphate: **1.37%** These small differences were **not statistically significant**, indicating equivalent uptake by the crop.
- **Key Conclusion:**
  **Liquid K at 160L/ha performs just as well as Potassium Sulphate at 300 kg/ha**—both in terms of soil availability and plant uptake.

This study demonstrates a valuable opportunity to:

- **Reduce potassium input rates**
- **Lower fertiliser costs**
- **Maintain crop nutrient levels and productivity**

These findings support the use of **Liquid K as an efficient, cost-effective alternative to granular potassium fertilisers**, without compromising crop performance.

27 Sheridan St, Bundaberg QLD 4670
agplusconsultancy.com.au

## Introduction

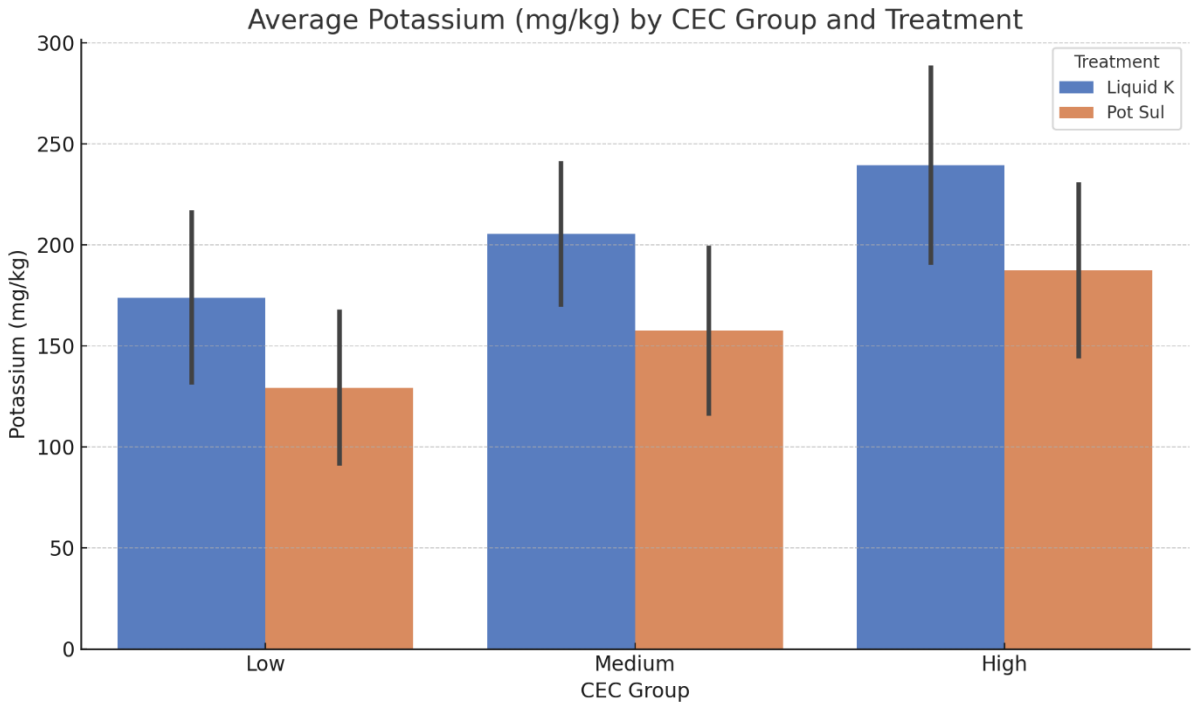
This study presents a comparative evaluation of two potassium fertiliser strategies — **Liquid K at 160 L K/ha** and **Potassium Sulphate at 300 kg K/ha** — conducted over a significant dataset. The dataset includes **soil and leaf potassium data collected over a five-year period from two commercial farms**, providing a robust basis for comparison across varying seasonal conditions, soil types, and crop stages. In total, the dataset comprises **135 data points**, offering a high level of statistical confidence and practical relevance for broader industry application.

## Purpose of the Evaluation

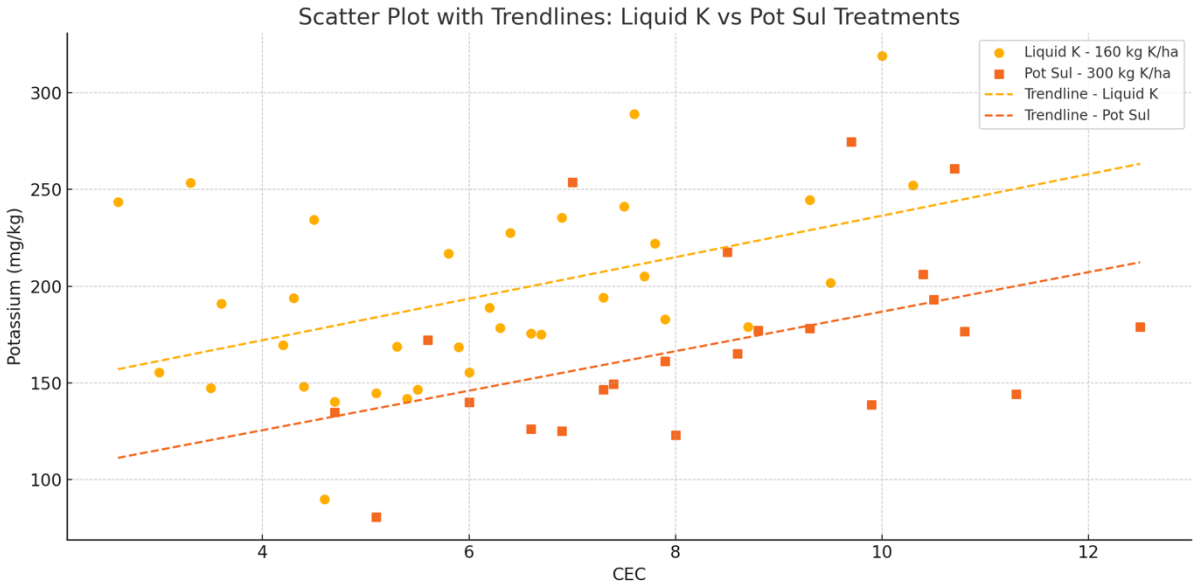
We evaluated whether a lower application rate of potassium, delivered in a more efficient form (**Liquid K at 160 L K/ha**), could match the performance of a higher input rate (**Potassium Sulphate at 300 kg K/ha**). The objective was to assess whether similar agronomic outcomes could be achieved with reduced fertiliser inputs — offering potential cost and efficiency benefits without compromising soil health or plant performance.

### Soil Potassium Response

- Both fertiliser treatments showed very similar potassium levels in the soil.
- Soil potassium trends were assessed against Cation Exchange Capacity (CEC), a key factor influencing nutrient availability.
- Across a range of soil types and CEC levels (low, medium, high), there was no significant difference between the two treatments.
- Statistical analysis confirmed that CEC was the main driver of soil potassium levels, not the type or quantity of fertiliser applied.

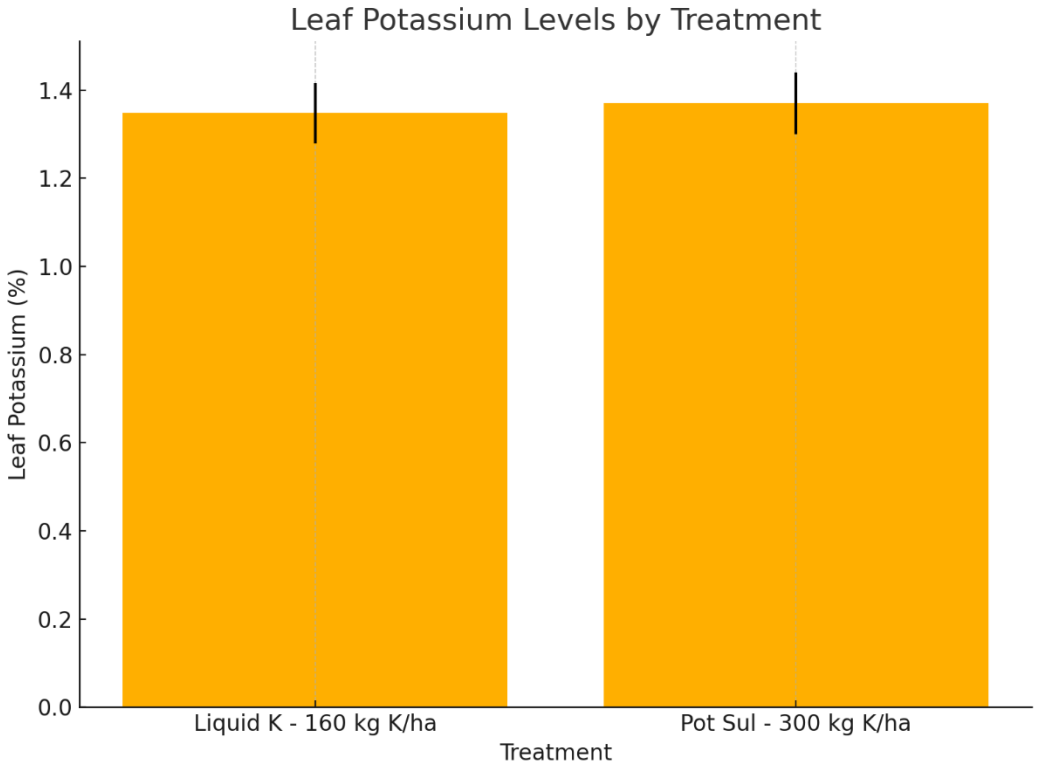


27 Sheridan St, Bundaberg QLD 4670
agplusconsultancy.com.au




## Leaf Potassium Results

- Leaf tissue analysis supported the soil results.
- **Average leaf potassium concentrations were nearly identical**:
  - **Liquid K:** 1.35%
  - **Potassium Sulphate:** 1.37%
- The difference between treatments was minor and **not statistically significant**, indicating similar uptake by the crop regardless of fertiliser source.



## Key Takeaways

- **Liquid K at 160 L/ha performs equivalently to Potassium Sulphate at 300 kg/ha**, both in terms of soil potassium availability and crop uptake.
- This presents a compelling opportunity to:
  - **Reduce potassium input rates**
  - **Lower fertiliser costs**
  - **Maintain crop performance and nutrient status**
- The results strongly support the use of **Liquid K as a more efficient and cost-effective potassium strategy**.

---

## Contact Us Today to Discuss Your Needs

**Ag-Plus Consultancy**

**27 Sheridan St, Bundaberg QLD**

**Phone:** 0429 112 225 | **Website:** agplusconsultancy.com.au