

FACTSHEET

Hill Country Futures: Potassium requirements

April 2022

Sheep and beef farms on most soils are generally self-sufficient for potassium (K). The exceptions are Podzol and Sandy soils and soils of volcanic origin.

Key messages

- For most hill country farms, K is not required because weathering rates of soil minerals exceed system losses.
- It is difficult to justify the application of fertiliser K to sedimentary soils, unless they have:
 - a. Soil Quick Test K (QT K) levels of <3, and
 - b. Sufficient moisture to sustain a clover content of greater than 10%.

K is mainly required for clover growth. In most years, weathering rates of clay minerals in most soils found in New Zealand's hill country sheep and beef farms supply sufficient K for clover and pasture growth, and balance any animal or soil losses from the system.

Current situation

Most sheep and beef farmers do not need to apply K fertiliser. Analysis of 120,000 New Zealand soil test results over a recent seven-year period showed:

- About 90% of the soil QT K levels are within or above the economic optimal range (4-5)
- No decline in soil QT K levels over time.

Visual assessment

In addition to soil testing, visual assessment of clover vigour and laboratory analysis of plant K content can help monitor the supply of K from the soil. This should be carried out during late spring/early summer.

For acceptable clover vigour the plants should be in a healthy state and make reasonable regrowth after grazing provided that this is not limited by low soil moisture and temperature.

The clover herbage K content should be greater than 2% to ensure adequate K supply from the soil.

When to apply K

Where soil QT K levels average <4 over at least two sampling years, apply 20-30 kg K/ha/yr in spring.

This situation is more likely where cattle graze. Cattle cycle K in their urine less efficiently than sheep and less effectively in higher rainfall zones.

Conclusion

Most sheep and beef operations do not need K inputs. Before you consider applying K as part of your fertiliser regime, carry out soil QT K tests. Only apply K if those tests show an average of <4 across two years.

Further reading

This factsheet is part of the Hill Country Futures soil and fertiliser series. The full series can be found at www.hillcountryfutures.co.nz/resources/soil-and-fertiliser-series

“Fertiliser use on New Zealand sheep and beef farms” booklet, produced the Fertiliser Association of New Zealand booklet. Download at: www.fertiliser.org.nz/Site/resources/booklets.aspx

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