

FACTSHEET

Protocol for using pasture test strips to identify a lack of molybdenum for clover growth

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Mo deficiency can limit clover growth especially on downland soils derived from loess.

Pasture test strips can be used effectively to identify molybdenum (Mo) deficiency in pastures.

What are the limitations of the current methods?

- The main method of detecting a lack of Mo is to take pasture samples from several paddocks and send them to a laboratory for the clovers to be analysed for Mo and nitrogen (N) content.

The limitations to this methodology include:

- Insufficient clover present in the sward (especially under set-stocking by sheep) to collect enough material for a sample without the leaves being contaminated with soil causing an elevation of Mo and N content.
- Difficulty in interpreting the results through insufficient consideration of the N content - both Mo (<0.1 ppm) and N (<4.5%) need to be low for the addition of Mo to be effective (Morton 2023). *For practical purposes, if Mo content of the clovers is <0.2 ppm and N content is <4.5%, then Mo should be recommended.

Using pasture test strips

What are pasture test strips?

- A pasture test strip for Mo is a small area that has had granular Mo applied so that the clover vigour in the strip can be compared with that from outside the strip that has not received Mo.

When should I use them?

- When despite good growing conditions and adequate supply of essential plant nutrients the clover in the pasture lacks vigour.
- When a pasture has had Mo applied in the past and the farmer wants to know if they should re-apply it.

What do I do?

- Select 3 to 5 paddocks that represent the variation in farm characteristics and management and have a good fertiliser history.

- In an area with reasonable clover cover (at least 10%) in each paddock step out a strip of about 5 m long and 2 m wide.
- GPS the location of the strip and apply 500 g of Granular Mo evenly over an area of 10m².
- Over the following 6-12 months, observe any difference in the vigour of clover both within and outside the strip.

How do I act on the results?

- If in the majority of strips in each paddock you can visually see that the clover inside the strip is more vigorous in its growth than the clover outside (see photograph below), then Mo should be added to the next fertiliser mix to be applied.
- Use either 100 g of Granular Mo per hectare or 50 g/ha of sodium molybdate.



The photograph above shows a plot with poor clover cover (left) and vigorous clover cover (right) which has received 50 g/ha of sodium molybdate, resulting in a 40% increase in pasture yield.

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Further information

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References:

Morton JD 2023. A review of research on the molybdenum requirements of New Zealand pastures. New Zealand Journal of Agricultural Research 66: in press. DOI: [10.1080/00288233.2022.2132963](https://doi.org/10.1080/00288233.2022.2132963)