

Towards improving the efficiency of fertiliser use in variable landscapes.

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Introduction

Fertiliser represents a significant input cost to the grazing industry. Efficient utilisation of applied fertiliser by pasture needs to be considered by producers and consultants when developing strategic management plans. In areas with variable landscapes, there can be a considerable range in pasture production within paddocks (Hackney 2001) and the potential for utilisation of applied fertiliser. How then, may fertilisers be used in a more efficient manner to increase productivity and profitability?

Method

At a site 25 km west of Adelong four fertiliser trials were established on north, south, east and west aspects of a hill at approximately mid slope position. At each of these sites a range of fertilisers were applied to assess potential responses. Dry matter cuts were taken approximately every six to eight weeks over an eighteen-month period.

Results

There were considerable increases in production achieved through use of a non-limiting fertiliser (NLF) compared with zero fertiliser treatment (Figure 1). Perhaps of greater importance than the overall increase in production was the increase achieved during the winter period (Figure 2). Through the use of fertiliser, production on the northern aspect was increased 2.7 fold. Similar increases were recorded at the east and west fertiliser trial sites. Production was also increased by 1.7 fold on the south facing slope, although the highest production on the south slope at this time of year was only 28-55 % of that achieved on the other aspects. Production in this area of the paddock may be limited by temperature at this time of the year. Therefore, there may be more merit to applying fertiliser on those areas of the paddock that can increase total feed production at a time of year when shortages are most critical, in this case, winter. The south side of the hill produced the greatest proportion of total production in spring, a time when there is often more feed available than can be utilised.

Figure 1. Total dry matter production on control (zero fertiliser) and non-limiting fertiliser (NLF) on various aspects of a hill near Adelong from winter 1998-spring 1999.

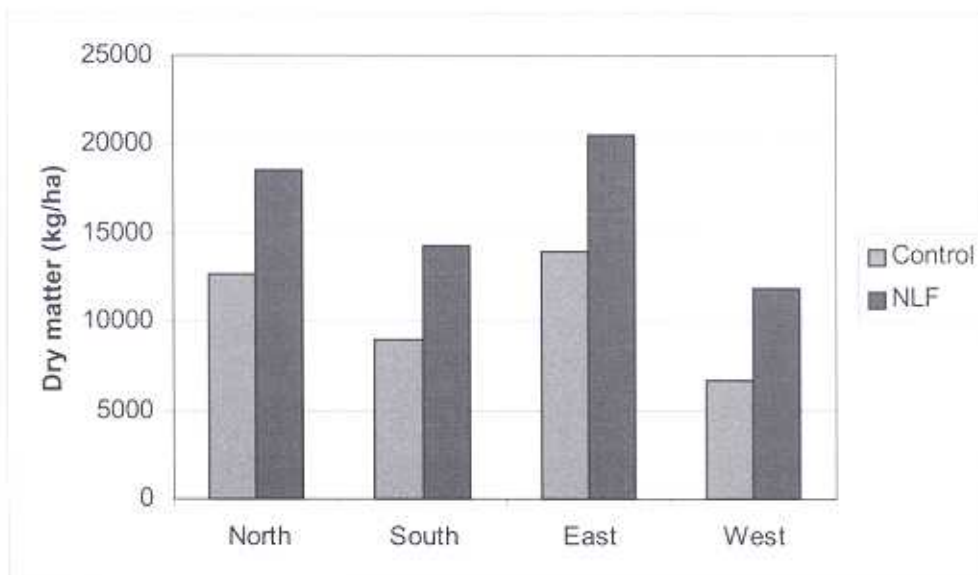
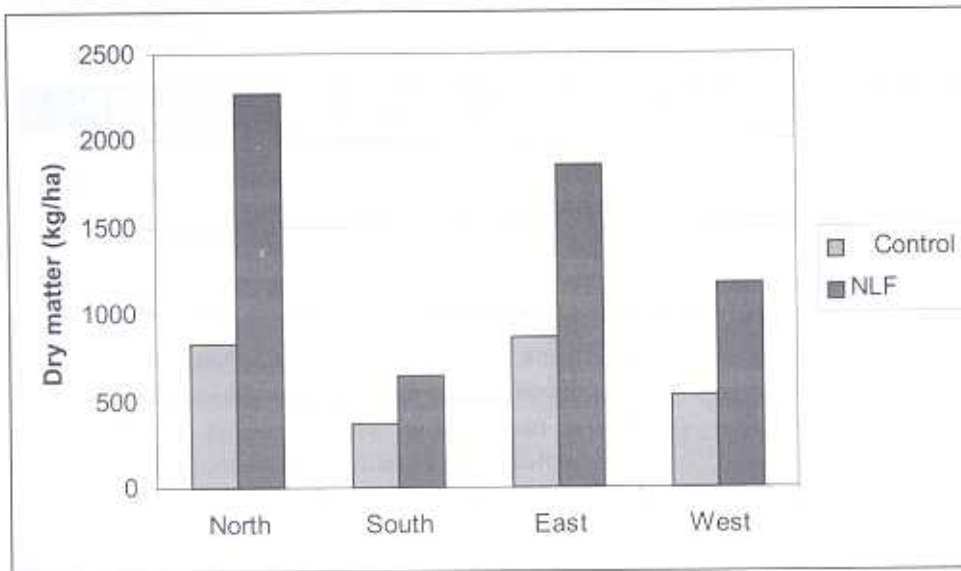


Figure 2. Winter production on various aspects for control (zero fertiliser) and non-limiting fertiliser plots at Adelong.



Conclusion

Focusing fertiliser application on areas of the paddock which have the ability to respond and produce more feed at times of feed shortages could result in greater economic return on fertiliser expenditure. The increases in production that were achieved in this experiment on north and eastern slopes in particular offer the potential to greatly reduce the need for supplementary feeding to maintain animal productivity over winter.

References

Hackney, B & Virgona, J (2001). Do you know how variable production is in your pasture paddocks? In *Proceedings of the 16th Annual Conference of the Grasslands Society of New South Wales, Gundagai.*