

The place of fertiliser test strips in planning pasture fertiliser programs

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When planning a fertiliser program for pastures two questions need to be answered. What fertilisers to use? and at what rate to spread them?

Aids which can be used to help make the best decision possible on what fertilisers to use include the knowledge and experience of the farm manager, his neighbours and farm advisers, appearance of the pasture (deficiency symptoms, composition) soil and tissue testing and fertiliser test strips.

Observations and measurement of responses on fertiliser test strips give a direct assessment of what fertilisers will increase pasture growth. Alternative methods are less reliable because they are indirect (eg. soil test results) or subjective (eg. experience of farm manager).

No information is obtained from using fertiliser test strips, observation on the pasture and tissue testing unless pastures are green and growing. Soil testing and the knowledge and experience of people can be used at any time of the year.

Compared with the amount spent on fertilisers, and the total cost of running a farm, the cost of using any of the aids is minute.

Using fertiliser test strips, it takes between three months and three years to get a completely satisfactory answer about what fertilisers to use on a property (1). It takes between one and two months to get soil and plant samples analysed. Using experience, knowledge and observation, information is obtained very quickly.

Laying down and management of test strips requires some effort by the farm manager. Using the other aids requires very little effort.

Each aid has advantages and limitations. Which ones a manager chooses to use when deciding what fertilisers to spread on pastures will depend on the resources available, the advantages and limitations of the aids available to him and what risks he is prepared to take.

Where the fertiliser requirements are relatively complex, and the manager wants to minimize the risks he is taking, he will make extensive use of fertiliser test strips (1).

On properties where the results of using a fertiliser program are not those expected, test strips are often the best means of sorting out the problem (1).

Test strips are valuable in overcoming psychological barriers which may prevent the adoption of marked but very appropriate, changes to past fertiliser use (1).

Fertiliser test strips cannot be used to calculate the optimum rate at which to spread a fertiliser. Calculating this involves knowing the curvature of the production function for pasture (or animal) growth v's fertiliser rate. When studying the results of 250 rates of superphosphate experiments conducted on Victorian pastures, I. Maling (pers. comm.) found this parameter was very variable. This means that if it is to be defined for a farm to the point where the figure is better than using an average value determined from research projects such as Maling's, a lot of replication and careful measurement is necessary. This falls outside the scope of fertiliser test strips. Currently computer models such as Superate (Victoria) are the most accurate means of calculating the optimum rate at which to spread superphosphate on pasture. The situation for other fertilisers is not known.

Methods recommended for laying down, managing and evaluating fertiliser test strips have varied widely. They have recently been reviewed (1) and the key principles involved determined.

1. 1. Schroder, P. 1984. Technical Report Series No. 85. Department of Agriculture, Victoria.