

Effect of nutrient and fungicide seed coating on the emergence and dry matter production of tall fescue and red clover

D.B. Cameron<sup>1</sup>, J.M. Scott<sup>1,2</sup>, and A.V. White<sup>1</sup>

<sup>1</sup>Department of Agronomy and Soil Science, University of New England, Armidale NSW 2351

<sup>2</sup>CSIRO Division of Animal Production, Private Bag, Armidale NSW 2350

Seed coatings provide an opportunity to apply materials close to the seed so they can effectively influence the growth and development of each seedling. Such close placement of materials may improve the likelihood of pasture establishment because each seedling has first access to those materials, giving it a competitive advantage during early seedling growth. Previous glasshouse trials have shown the seed coating of nutrients to be more effective than equivalent rates of drilled fertiliser (1). A field trial on the Northern Tablelands of NSW during 1989 showed the need for fungicide seed treatment to control seedling diseases (2). An experiment was therefore conducted to look at the effects of combining nutrients and fungicide on the emergence and early growth of tall fescue, *Festuca arundinacea*, and red clover, *Trifolium pratense*.

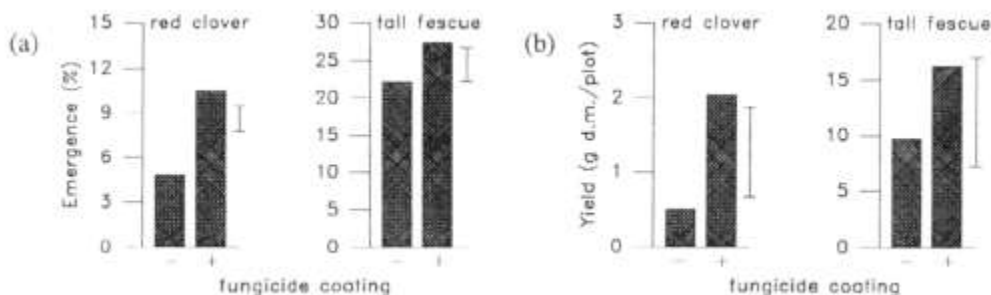
## Methods

On the seed of tall fescue and red clover combinations of phosphorus (P), nitrogen (N), and sulphur (S) as nutrient coatings were compared to raw seed and two drilled fertiliser treatments, single superphosphate (9.1 %P, 11.5%S) and Starter NP (19.9%P, 19%N, 3%S). Each nutrient treatment was sown with or without fungicide seed treatment (metalaxyl). The field site, a granite soil low in P and N and dominated by the weeds rat's tail fescue, *Vulpia* spp., and sorrel, *Rumex acetosella*, was intensively grazed and then sprayed with glyphosate 10 days prior to sowing in early June, 1991. Seedling numbers were recorded at 4 and 8 weeks after sowing and a dry matter harvest taken at 24 weeks after sowing.

## Results and discussion

Rainfall was excellent for germination and emergence, however, there was little follow-up rain and, as a result, large variability developed within the trial. Despite the dry season, the application of fungicide to the seed resulted in significant increases in seedling numbers of tall fescue and red clover over untreated seed at both 4 weeks (Fig. 1(a)) and 8 weeks after sowing, and significant increases in red clover dry matter production (Fig. 1(b)). The increase in dry matter production of tall fescue was not significant (Fig. 1(b)).

Figure 1. Effect of fungicide seed treatment on (a) % emergence at 4 weeks, and (b) dry weight



Tall fescue seedling number was unaffected by nutrient seed coating, except when coated with P and S which significantly reduced emergence. Red clover seedling numbers were reduced by all nutrient coatings. Work is currently underway to improve the safety of these coatings to seedling germination and emergence. Because of the high variability in the trial by spring, no significant differences were found in dry matter production due to nutrient treatments.

## References

1. Scott, J.M. and Blair. G.J. 1988. Aust. J. Agric. Res. 39: 447-455.
2. Scott, J.M.. Duncan, M.R.. and Brown. J.F. 1989. Proc. 5th. Aust. Agron. Conf. p453.