# Effect of fertiliser and rest period on grass composition in carpet grass dominated pastures

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**Abstract:** *The application of superphosphate, urea, lime or rest periods increased the proportion of more desirable species in carpet grass dominated pastures on the mid north coast; potentially increasing the yield and carrying capacity of these low-yielding pastures.*

**Key Words:** *pasture, carpet grass, paspalum, pasture composition*

## Introduction

Carpet grass pastures are common on the low fertility hillslopes of the Macleay Valley on the Mid North Coast of NSW. These pastures are dominated by carpet grass (*Axonopus fissifolius*) and have very low yields. However, a range of other species are present, but often at low frequency due to intense grazing pressure and low soil fertility (Rose *et al* 2005). One of the most valuable of these alternate species is paspalum (*Paspalum dilatatum*), which has the potential to produce a greater bulk of feed.

Trials were set up in 2005 at Bellbrook in the upper Macleay Valley and Collombatti in the mid Macleay to study how fertiliser and rest period affects grass composition in carpet grass dominated pastures.

## Methods

The trial was designed as described in Rose & Rose 2009a. The proportion of carpet grass, paspalum and other grasses was determined using 100 point quadrats per plot in May 2007 at Bellbrook. Data was averaged over rest periods, and calculated as a percentage of the carpet grass component. At Collombatti observations were made on the influence of rest period on setaria and Rhodes grass in the trial area.

## Results and Discussion

The proportion of paspalum increased relative to carpet grass under all fertiliser treatments, including lime alone (see figure 1). From being only 20% as common as carpet grass with no fertiliser, paspalum increased to 75% of the frequency of carpet grass using 500kg/ha single superphosphate. Lime, the lower rate of phosphorus and urea also increased the proportion of paspalum, but to a lesser extent. The application of both urea and single superphosphate had a lesser effect on the proportion of paspalum than either fertiliser applied alone. The proportion of other grasses also increased with increasing fertiliser rates; more so with superphosphate than urea application. These included barbed wire grass (*Cymbopogon refractus*), red grass (*Bothriochloa* spp.) and weeping grass (*Microlaena stipodes*) indicating that these natives can respond to increased fertility.

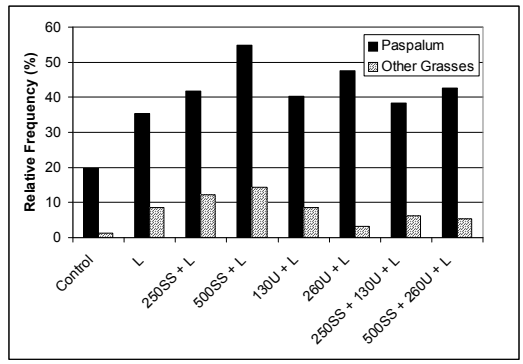


**Figure 1: Relative frequency of paspalum and other grasses as a percentage of the carpet grass component, at Bellbrook in May 2007, averaged over rest periods (SS = Single superphosphate, U = Urea, L =Lime) Note, all application rates are in kg/ha and lime was applied at 1000kg/ha to all treatments except for the control plots.**

At the Collombatti trial site, the land holder had sown setaria and Rhodes grass eight years prior to the commencement of the trial. A survey in October 2004 found that only carpet grass and paspalum were still present under the set-stocking regime. By 2007, setaria and Rhodes grass had become common within the trial site, but were still absent outside. This indicates the benefits of rest periods for these species.

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**References**

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