Pasture Growth Forecasts for Temperate Regions in Southeastern Australia

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Introduction Climate is one of the main drivers of pasture growth variability in southeastern Australia. Autumn is a time of large pasture growth variability, with the timing of the onset of autumn rains is also an important issue for producers in this region. Biophysical models that combine daily climate and soil moisture information with historical climate data can be used to assess the likely growth rates over the coming months. A case study from autumn 2007 in southwest Victoria is illustrated.

Materials and methods DairyMod (Johnson *et al*. 2008) was used to simulate perennial ryegrass (*Lolium perenne*)/white clover (*Trifolium repens*) pasture growth rates at Terang (38°16′S, 142°53′E) in southwest Victoria during the first half of 2007. A pasture growth forecast for 1 February to 30 June was produced using climate data up to 31 January, together with 50 historical climate scenarios using 1 February to 30 June climate data from 1957-2006. The growth rate forecast was updated on 1 April and 1 June. The forecasts are presented as boxplots, showing the 90th, 75th, 50th (median), 25th and 10th percentiles, of mean daily pasture growth rate (kg DM/ha.day) for each week of the forecast period.

Results & Discussion The pasture growth rate forecasts are shown in Figure 1. An 80 mm rainfall event in late January stimulated February pasture growth, but the median pasture growth rate forecast in February indicated that a return to low growth rates by early March was most likely (Figure 1a), although higher growth rates were possible if follow-up rain occurred. Subsequent simulations (Figure 1b) show that the growth rate during February and March was close to the median predicted in February. This analysis also indicates that updated forecasts using the latest seasonal conditions can narrow the range of the likely predicted pasture growth responses; for example the range of pasture growth in June predicted on 1 February (Figure 1a) was greater than that predicted on 1 June (Figure 1c).

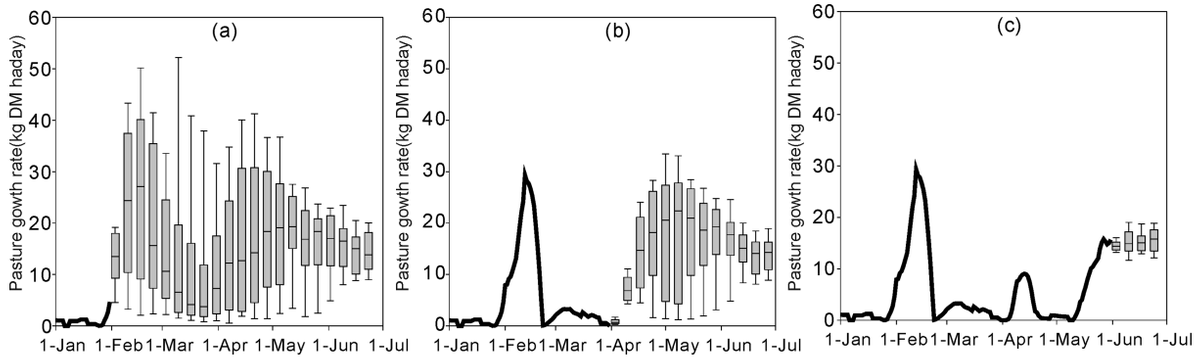

Figure 1 *Pasture growth forecasts at Terang for the period 1 January to 30 June 2007 updated on (a) 1 February, (b) 1 April and (c) 1 June. The solid black line shows the modelled pasture growth rate based on actual rainfall.*

Conclusions Pasture growth rate forecasts combining up-to-date climate and soil moisture characteristics with historical climate data in simulation models can help to predict pasture growth responses. This approach can be adapted for a range of environments and grazing systems, helping farmers to plan their grazing strategies and feed requirements through the season.

Reference

Johnson IR, Chapman DF, Snow VO, Eckard RJ, Parsons AJ, Lambert MG, Cullen BR (2008) DairyMod and EcoMod: Biophysical pastoral simulation models for Australia and New Zealand. *Aust. J. Exp. Ag.* 48(3), in press.