Defoliation dynamics, pasture intake and milk production of dairy cows grazing lucerne pastures in a Partial Mixed Ration system

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ABSTRACT

The effect of lucerne pasture allocation on defoliation dynamics, pasture intake and animal production was investigated in a sub-tropical Partial Mixed Ration dairy system (PMR). The study took place at the Gatton Research Dairy, South-East Queensland, with a 28-day adaptation period followed by an eight-day treatment period during November and December 2016. Twenty-four multiparous Holstein-Friesian dairy cows were offered 11 kg DM/cow.day as PMR, and four levels of daily pasture allocation measured to 5 cm residual pasture height (30.6, 20.5, 15.1 and 10.9 kg DM/cow.day).

Cows with lower allocations were forced to graze further down the vertical plane and pasture intake and milk yield significantly declined ($P<0.001$). Cows grazed the top grazing stratum (TGS) across 80% of the pasture area before regrazing an area of the paddock, regardless of allocation level. Pasture intake (kgDM/ha) of the TGS was at least 2.9 times higher than lower strata, regardless of allocation level. Therefore, the decline in pasture intake was explained by the transition from grazing the TGS to grazing lower strata. When the horizontal utilisation of the TGS approached 100%, the proportion of un-grazed, un-contaminated pasture (PUP) approached 0% of the area and intake and milk production declined. Grazing management strategies for lucerne should allocate pasture to lactating dairy cows to achieve horizontal utilisations approaching 0% PUP to maximise intake and production. Secondary grazing herds or mechanical methods should be used to remove residual pasture to the ideal height for pasture regrowth.