

Grazing suitability of various Napier grass varieties in paddocks of different ages

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Introduction Previous studies have demonstrated that late-heading type dwarf (DL) Napier grass (*Pennisetum purpureum* Schumach) introduced to Japan from Thailand by the Dairy Promotion Organization of Thailand was able to overwinter in the lowland areas of southern Kyushu (Mukhtar *et al.*, 2003). The species has a higher proportion of leaf blade than other normal and dwarf varieties. These studies were conducted to assess the suitability of the various Napier grass varieties for grazing (Mukhtar *et al.*, 2004). The objective of this study was to examine the grazing suitability, herbage quality and wintering ability of three Napier grass varieties for dairy cows on newly-established and four-year-old pastures in 2003 in Kyushu, Japan.

Materials and methods Three varieties of Napier grass were used: the normal variety of Wruk wona (Wr) and dwarf varieties of late-heading (DL) and early-heading (DE) types obtained from the Department of Livestock Development, Thailand. One paddock (9 m × 36 m), divided into 6 plots with 2 replicates, was prepared using rooted tillers of the 3 varieties in mid-September, 2000 and again on May 3, 2003. Rotational grazing was practiced in the paddock employing rest periods of 30-77 and 21-42 days in 2000-2002 and 2003, respectively. Length of day-grazing was 7.5 hours and 15-16 head of dairy cows were used. Wr was cut twice to reduce stem elongation after grazing on 1 July and 2 September, 2003.

Results The percentage of overwintered plants (POP) and number of tillers that resprouted (RTN) over the 4-year period are shown in Figure 1. Both POP and RTN were highest in DL, followed by Wr and lowest in DE over the 4-year period. Changes in *in vitro* dry matter digestibility (IVDMD) and crude protein (CP) concentration of leaf blades (LB) from pre-grazing herbage are shown in Figure 2. Both IVDMD and CP concentration tended to be higher in dwarf varieties than in Wr. Percentage utilization was higher in dwarf varieties than it was in Wr except where grazing followed cutting.

Conclusion This study demonstrated that under conditions of grazing by dairy cows at low altitudes in Kyushu, Japan, DL Napier grass exhibited superior overwintering characteristics and maintained higher quality of herbage when compared to other Napier grass varieties.

References

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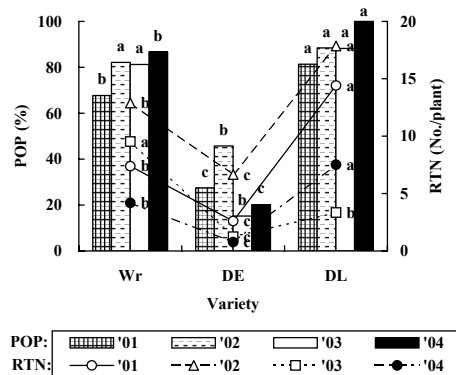


Figure 1 Changes in POP and RTN among 3 varieties in 2001-4. Values with different letters denote significant difference among varieties in the same year at 5% level

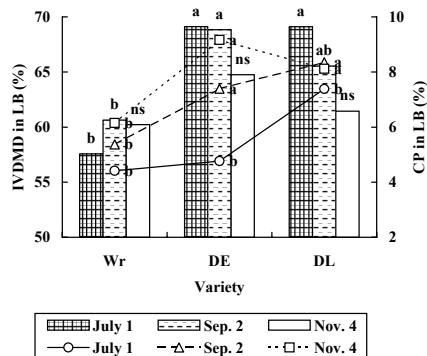


Figure 2 Changes in IVDMD (column) and CP (dot) of LB in 2003. Values with different letters denote significant difference among varieties in the same date at 5% level