Signal grass-friend or foe?

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Signal grass ***(Brachiaria decumbens)*** is used widely on cattle properties throughout Papua New Guinea (PNG). With an estimated area of more than 10,000 ha it represents the major species of improved pasture in use. It has been sown to provide high quality feed for lactating cows and weaners. It is a vigorously growing stoloniferous grass producing 15-24 tonnes of dry matter per year with crude protein levels of 8% at 6 weeks of regrowth (Loch, 1977).

A trial with Brahman weaners (75 to 160kg)atRamu Sugar showed no difference in growth rate with molasses/urea licks and mineral blocks between signal grass and kunai grass (*Imperata cylindrica*). This supports data collected from a number of ranches in the area (Table 1). Weight gains (kg/head/day) for weaner cattle range from 0.13 to 0.29, irrespective of supplementation regime. Animals weaned into the dry season perform better than those weaned into late wet season. Some ranches annually experience photosensitisation in weaned calves (around 5%) and suckling calves grazing signal grass. Intakes of signal appear to be low with pastures appearing untouched after 3 months grazing.

Photosensitisation problems have been reported in both sheep and cattle grazing young regrowth with little data available on liveweight gains on such pastures. Analysis of samples of signal grass fiom PNG by the University of Waikato has shown the presence of 2 steroidal saponins, yamogenin and diosgenin. These compounds have been associated with photosensitisation of sheep grazing a number of *Panicum spp* pastures. Bile crystals found in affected sheep have, for many of these plants, been found to be salts of the saponins (Miles et *al.* 1993).

Signal grass, while having highly desirable agronomic characteristics, does not appear to be entirely suitable for young weaner cattle. Low liveweight gains for 200 days postweaning associated with this grass may be due to apparent low intakes and/or the presence of steroidal saponins which are associated with liver dysfunction. Such rates of gain equate to a liveweight loss of at least 60 kg per head in the first year of life and may be responsible, at least in part, for slaughter ages of 3.5 to 4.5 years.

References

Loch, D.S. (1977). *Brachiaria decumbens* (Signal grass) - a review with particular reference to Australia. *Tropical Grasslands* **11,** 141-157.

Miles, C.O., Wilkins, A.L., Munday, S.C., Flaoyen, A., Holland, P.T. and Smith, B.L. (1993). Identification of insoluble salts of the β-D-glucuronides of episarsasapogenin and epismilagenin in the bile of lambs with alveld and examination of *Narthecium ossifragum, Tribulus terrestris* and *Panicum miliaceum* for sapogenins. *Journal of Agricultural Food Chemistry* **41**, 914–917.

Table 1 Liveweight gain (kg/head/day) of Brahman weaners grazing signal grass for 200 days postweaning.

Ranch	Year	LWG	Supplement
Gusap Downs	1992/3*	0.14	molasses/urea; mineral blocks
	1994*	0.13	molasses/urea; mineral blocks
Dumpu	1990*	0.15	none
	1990*	0.17	copra meal/palm kernel meal/ rice pollard/molasses/urea
	1990*	0.06	none
	1990*	0.16	copra meal/palm kernel meal/ rice pollard/molasses/urea
	1991#	0.20	none
	1991#	0.29	copra meal/palm kernel meal/ rice pollard/molasses/urea
	1991#	0.24	none
	1991#	0.24	copra meal/palm kernel meal/ rice pollard/molasses/urea

*wet season weaning
#dry season weaning