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## Liveweight gain of beef calves and reproductive performance of beef cows on two bahiagrass cultivars in southern area of Japan

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**Key words:** bahiagrass, grazing, tropical grass, beef cows, beef calves

**Introduction** There are about 30000 hectares of abandoned fields from paddy fields and orchards in less favored areas (LFA) in southern area of Japan. Recently the fields are increasing because farmers are advancing in age. On the other hand livestock farming, especially beef calf production farming suffer hard times since free trade of beef. The purpose of this study was to develop a beef calf production system to reduce costs and save workload by grazing on tropical pasture having high nutritional value in LFA in southern area of Japan.

**Materials and methods** Japanese black cows and calves were grazed on tetraploid bahiagrass cv. Nanou and diploid bahiagrass cv. Pensacola pasture from June to November. Rotational grazing was based on 2 weeks rotations with stocking rate of 4 cows and 4 calves per hectare. Cows and calves were grazed without supplement feeding. Calves were weaned at four months of age. Liveweight was measured every week. Plasma concentrations of cholesterol, glucose and urea nitrogen of beef calves were measured every 2 weeks. Milk yield was measured every 4 weeks by the method of calf liveweight difference before and after suckling. Grass samples for chemical composition were collected every 2 weeks. The pasture was fertilized with 38 kg N, 38kgP<sub>2</sub>O<sub>5</sub>, 38kg K<sub>2</sub>/ha in May, July and September.

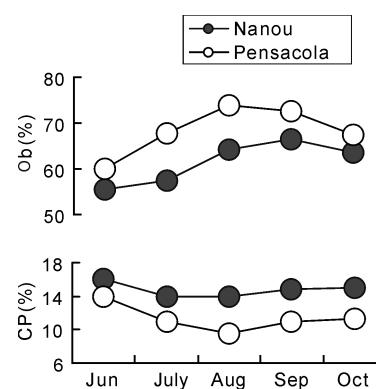
**Results** Percentages of crude protein of Nanou changed from 14% to 16% in summer. Its value was higher than that of Pensacola. Percentages of Ob (organic fraction b in cell wall) were lower than that of Pensacola. DM yield of two bahiagrass cultivars was similar. Average daily gain of calves on Nanou pasture was significantly greater than those on Pensacola pasture. Reproductive performance of cows on Nanou pasture was better than those on Pensacola pasture. Plasma concentrations of cholesterol and urea nitrogen of calves on Nanou pasture were higher than those on Pensacola pasture. Milk yield of cows on Nanou and Pensacola pasture was similar.

**Table 1** Live weight gain, blood biochemical level of calves and reproductive performance of cows.

Birthweight (kg)	31.8	30.7
Weaning weight (kg)	135.21	114.0*
Average daily gain (kg)	0.86	0.69*
Blood biochemical level <sup>⊕</sup>		
Urea nitrogen (mg/dl)	11.7	9.2
Cholesterol (mg/dl)	117.3	97.3
Glucose (mg/dl)	114.8	111.1
Gestation period (days)	289.6	286.2
Postpartum interval to first estrus (days)	56.8	63.8
Postpartum interval to conception (days)	61.6	73.0
No. of artificial insemination	1.2	1.4
Milk yield (kg/day)	5.7	5.5

<sup>⊕</sup> Means during grazing period

\* P < 0.05



**Figure 1** Chemical composition of two bahiagrass cultivars. CP crude protein, Ob organic b fraction in cell wall

**Conclusions** These results demonstrate that tetraploid bahiagrass cv. Nanou maintained high nutritional value and high productivity in summer in this area with the result that beef calves grew rapidly and beef cows maintained good reproductive performance. Nanou is, therefore, suitable tropical grass in this area.

### References

Higashiyama, M. and Hirata, M. (1995). Analysis of a Japanese black cattle rearing system utilizing a bahiagrass pasture. *Grassland Science*, 41: 104-113.