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Grazing behaviour of yak (*Bos grunniens*) in warm-and cold-season paddocks of *Potentilla fruticosa* alpine rangeland in Northern Qinghai-Tibetan Plateau

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Key words: yak, grazing behaviour, two-season-rotational grazing, alpine rangeland, Qinghai-Tibetan Plateau

Introduction Authors have been investigating the behaviour of yaks (*Bos grunniens*), botanical diversity and material circulation in rangelands of Qinghai-Tibetan Plateau (Hasegawa *et al.*, 2006; Song *et al.*, 2006). Two-season-rotational grazing system between warm-and cold-season paddocks is increasing in Qinghai-Tibetan Plateau under settlement policy of nomads by Chinese government. In this study, grazing behaviour of yak cows was investigated in northern rangeland of Qinghai-Tibetan Plateau to evaluate the two-season-rotational grazing system.

Materials and methods This study was carried out in August and December, 2005 in warm-and cold-season paddocks (WSP and CSP) of *Potentilla fruticosa* alpine rangeland in Mengyuan Prefecture, Heibei State, Qinghai Province, China. Behaviour of 3 yak cows was observed on the grazing time and bite numbers in a patch and the numbers of steps in a patch, between feeding stations and between patches. Positions of 5 yaks were recorded by GPS.

Results WSP was significantly greater than CSP ($p < 0.001$) in bite number per patch, bite rate in a patch, number of feeding station per patch and number of steps within a patch, and was significantly smaller than CSP ($p < 0.01$) in number of steps between patches (Table 1). Those two were not different in other items. Figure 1 shows the distribution of yaks in WSP and CSP. Distance of yaks from gateway of night paddock averaged 449.2 m in WSP and 334.2 m in CSP.

Table 1 Grazing behavior of yak cows in rotationally grazed warm- and cold-season paddocks in alpine rangeland.

Item	WSP ¹⁾	CSP ²⁾	p ³⁾
No. of patches observed	218	367	-
No. of patches visited, patches/min	0.9	1.0	ns
Grazing time, sec/patch	55.9	52.4	ns
Bite number, bites/patch	67.4	37.2	***
Bite rate within a patch, bites/sec	1.2	0.7	***
No. of feeding stations, FS/patch	7.1	5.9	***
No. of steps within a patch, steps/patch	6.1	2.5	***
Step rate within a patch, steps/sec	0.17	0.16	ns
Moving time between patches, sec	10.5	8.6	ns
No. of steps between patches, steps	4.4	5.8	**
Step rate between patches, steps/sec	0.86	0.85	ns

Values are expressed as mean. ¹⁾ WSP: paddock grazed in warm seasons and ²⁾ CSP: paddock grazed in cold seasons by yaks for over 20 years. ³⁾ * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ and ns = no significance by Wilcoxon test.

Conclusions Behavioural difference of yaks between WSP and CSP was considered to show that yaks were not able to compensate the decreases of edible plants and intake even by changing grazing strategy in CSP.

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References

- Hasegawa N., Song R., Kozono M., Idota S., Nishiwaki A., Li G., Fukuda A., Zhou Q. (2006). Differences in yak (*Bos grunniens*) grazing behaviour and chemical composition of feces in the southern and northern Qinghai-Tibetan Plateau in China. *Acta Prataculturae Sinica*. 15 (suppl.). 286-288.
- Song R., Hasegawa N., Idota S., Li G., Nishiwaki A., Jiu C., Xu N., Zhou Q. (2006). Botanical composition, aboveground biomass and grazing behaviour of yak (*Bos grunniens*) in the southern rangeland of Qinghai Province, China. *Acta Prataculturae Sinica*. 15 (suppl.). 289-291.

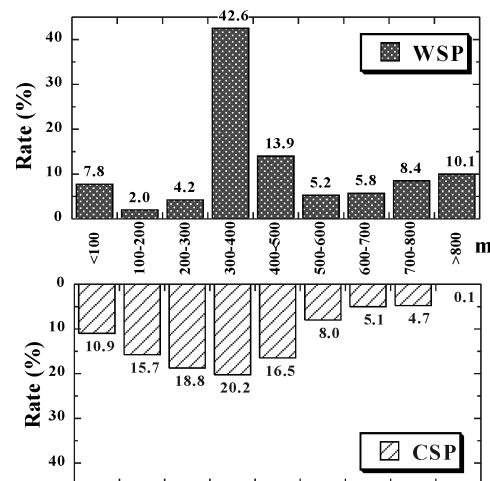


Figure 1 Distribution of yaks in WSP¹⁾ and CSP²⁾ by the distance from gateway of night paddock. ^{1, 2)} Refer to Table 1.