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Deficiencies of sodium and iodine in grazing sheep in northern China

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An examination of the mineral status of grazing sheep at 3 sites in northern China has provided evidence of inadequate mineral intakes (Masters *et al*, 1993, Asian Austral J Anim Sci, 6, 99-113). Because of the small number of sites used in these studies, it is necessary to be cautious in generalising from the results. Consequently, the aim of the study reported here was to provide more extensive data by evaluating the mineral status of sheep on 15 farms in northern China.

Five farms were selected in each of the Xinjiang Uygur and Inner Mongolia Autonomous Regions, 3 in Gansu Province and 2 in Qinghai Province. On each farm, 20 breeding ewes were sampled at 4 times during the year, and plasma, parotid saliva, faeces

and pasture collected. Samples of milk were collected once. These samples were analysed for a range of elements ; results are presented here for sodium and potassium in saliva and iodine in milk.

The table shows the range of seasonal means. Many of the sheep had a sodium : potassium (Na:K) ratio in saliva indicative of an inadequate intake of sodium (10:1), the Na:K ratio was below 10:1 on 6 of the 15 farms in summer. Sheep on 3 farms produced milk with an iodine level below or close to the level that indicates an inadequate iodine intake (76 µg/l). It is concluded that production from grazing sheep in some regions of China may be depressed by a lack of sodium and/or iodine at some times of the year.

Province	Farm	Potassium in saliva (mM)	Sodium in saliva (mM)	Na:K ratio	Iodine in milk (µg/l)
Gansu	Sunan	8.3 - 11.9	140 - 157	14 - 17	443
Gansu	Tianzhu	6.9 - 31.4	114 - 148	4 - 29	227
Gansu	Shandan	7.5 - 10.5	154 - 160	14 - 20	178
Qinghai	Sanjiaocheng	4.5 - 31.1	119 - 148	4 - 33	96
Qinghai	Heka	5.4 - 23.8	127 - 142	6 - 28	134
Xinjiang	Altai	1.9 - 11.4	95 - 166	15 - 74	238
Xinjiang	Baicheng	7.0 - 11.8	134 - 140	13 - 21	132
Xinjiang	Bazhou	9.5 - 11.8	90 - 144	10 - 15	118
Xinjiang	Gongnaisi	7.3 - 11.8	106 - 141	13 - 18	247
Xinjiang	Tacheng	4.0 - 12.8	92 - 135	10 - 84	157
Inner Mongolia	Balinyouqi	4.1 - 64.9	98 - 137	2 - 36	213
Inner Mongolia	Tonghetai	2.9 - 7.2	129 - 141	23 - 77	92
Inner Mongolia	Honggetala	4.6 - 21.0	123 - 149	6 - 34	202
Inner Mongolia	Wuyi	4.7 - 10.6	129 - 140	16 - 39	70
Inner Mongolia	Gaolinton	3.0 - 7.6	128 - 150	17 - 57	431

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