

Tolerance of saline water by rusa deer (*Cervus timorensis*)

W Yape Kii, Gordon McL Dryden

School of Animal Studies, The University of Queensland, Gatton, QLD, 4343

There are no data on the ability of any deer species to tolerate salts in water. In this experiment we investigated the tolerance of rusa deer to saline water, especially its effects on water and feed intakes, and water balance.

Seven, 4.5 years old rusa stags weighing approximately 125 kg were confined in individual metabolism pens from 28 November 2001 to 17 February 2002. Over three, 21 day periods the deer were given medium-quality lucerne hay *ad lib* (approximately 3 kg/d), and water salinity treatments including control (570 mg/L total dissolved solids, TDS), and 'saline' water with TDS contents of 3,500, and 8,500 mg/L, obtained by adding NaCl to the control water. Total collections of feed offered and refused, faeces and urine were made for up to 5 days at the end of each period.

Rusa deer receiving 8,500 mg TDS/L consumed more water than those offered the control water, and had wet faeces. Some individuals showed signs of distress (head shaking, open orbital gland, very variable daily water intake) and were immediately removed from the treatment and given the control water.

	570 mg TDS/L ¹	3,500 mg TDS/L ¹	8,500 mg TDS/L ¹
Dry matter intake (kg/h.d ⁻¹)	2.02 ± 0.09	1.97 ± 0.09	1.82 ± 0.10
Drinking water (L/h ^{-d})	7.24 ± 0.62 ^a	7.81 ± 0.55 ^{ab}	9.63 ± 0.65 ^b
Total water intake (L/h ^{-d})	7.52 ± 0.63 ^a	8.08 ± 0.56 ^{ab}	9.87 ± 0.67 ^b
Total water loss (L/h ^{-d})	5.34 ± 0.69	6.04 ± 0.62	7.73 ± 0.75
TWI : FDMI	3.70 ± 0.16 ^a	4.05 ± 0.15 ^a	5.22 ± 0.17 ^c

Means followed by the same superscript letter are not significantly different ($P < 0.05$). ¹Is mean ± SE.

It appears that deer have similar responses to those reported for other ruminants (1). Our observations suggest that 8,500 mg/L may be near the upper limit of this species' tolerance to dissolved salts rich in NaCl.

Reference

1. Pierce AW. Studies on salt tolerance of sheep: I The tolerance of sheep for sodium chloride in the drinking water. *Aust J Agric Res* 1957; 8: 711–722.

Key words: rusa deer; salinity; drinking water