SODIUM CONTENT OF LUCERNE IN SOUTHERN NEW SOUTH WALES

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Lucerne *(Medicago satiua)* accumulates only small quantities of sodium in its leaf tissues compared to most temperate grasses which usually have 4 to 10 times the sodium concentration of lucerne (Smith and Middleton 1978). Sheep and beef cattle, respectively, require about 0.04% and 0.06% sodium in their diet (National Research Council, 1975 and 1976) and lucerne often contains less than these levels. Sodium supplements have increased the liveweight gain of sheep and cattle grazing lucerne containing 0.03% sodium by up to 65% and 48% respectively in certain areas of New Zealand (Joyce and Brunswick 1975). Although lucerne stands are often grazed by sheep and cattle in southern N.S.W., salt is not routinely supplied.

Lucerne plants were sampled from 76 sites in an area of southern N.S.W. bounded by Narrandera, Holbrook, Gundagai and Temora between 1977 and 1979. In addition, 26 of these sites were sampled for grass and clover pasture, or for weeds. The sodium content was determined using a nitric-perchloric acid digest followed by atomic absorption analysis.

Sodium content of the pasture samples averaged $0.12 \pm 0.13\%$, and the frequency distribution in lucerne was as follows:

% Na	<0.02	0.02-0.04	0.04-0.06	0.06-0.08	0.08-0.10	>0.1
	9	29	13	9	2	14

Paterson's curse (*Echium plantagineum*) and capeweed (*Cryptostemma calendula*), common winter and spring growing weeds of southern N.S.W.; contained about 0.9% sodium. A preliminary survey of springs, dams and other watering points in the region indicated a NaCl range of 0.0004 to 0.3% sodium with many sources having less than 0.01%. Thus many water sources would supply negligible sodium to the diet.

Sodium content of 50% of the lucerne samples was below 0.04%; a concentration below the recommended requirements for all livestock. Livestock can obtain salt from many weeds, soil and drinking water and thus it is not possible to predict whether sheep and cattle would respond to sodium supplementation when grazing these sampled lucerne pastures.

The results indicate that many lucerne pastures in southern N.S.W. do not contain adequate sodium for maximum animal production. If the diet is predominantly lucerne, and the salt content of water is low, then liveweight gains may result from supplementation. There is a need to sample thoroughly lucerne pastures and drinking water for sodium content, and confirm by experimentation whether sodium supplementation is feasible. Because lucerne does not accumulate sodium even when seemingly adequate salt is present in the soil (Smith and Middleton 1978) many other areas of Australia may have a situation similar to southern N.S.W.

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