COUMESTROL CONTENT OF LUCERNE IN NEW SOUTH WALES

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Coumestrol is a phyto-oestrogen often found in lucerne and some clovers. In New South Wales, lucerne is often grazed by ewes at joining and by dairy cattle throughout the year. When lucerne containing greater than 25ppm coumestrol is ingested ovulation rate can be reduced in ewes (Smith et al. 1980) and irregular oestrous cycles and cystic ovaries may occur in cattle (Adler and Trainin 1960). Levels are usually well below 25 ppm and unimportant, unless the plants are diseased or stressed for some other reason (Bickoff 1968). This paper describes a survey of coumestrol levels of lucerne pasture in New South Wales.

Samples of lucerne were harvested from eight localities between Kyogle on the North Coast, and Bega on the South Coast and from various sites in Central N.S.W. Coumestrol content was determined using thin layer chromatography (Isoflavone laboratory, Department of Agronomy, University of Western Australia), and samples categorised into coastal or inland, healthy (complete absence of disease lesions) or diseased (usually pepperspot or common leaf spot). Leaf and stem portions were separated and results combined after analysis.

The level of coumestrol found in healthy lucerne from inland areas or the coast is unlikely to result in reproductive problems of sheep or cattle grazing this lucerne (Table 1). The average coumestrol content of diseased coastal lucerne and for some diseased inland samples is above the levels which have caused sub-optimal fertility in sheep (Smith et al.1980).

Table 1 The coumestrol content (ppm) of diseased and healthy lucerne stands, from coastal and inland localities of New South Wales

	Diseased lucerne				Healthy lucerne			
	n	$\bar{x}$	SE	Range	n	$\bar{x}$	SE	Range
Coastal	62	37.4	32.12	0-159	6	1.6	3.87	0-9.5
Inland	26	10.5	16.90	0-57	30	0.6	3.47	0-19

Much of the lucerne on the coast is grazed by dairy cattle and thus investigations are warranted to determine the extent of reproductive problems, if any, and to ensure varieties of lucerne selected for coastal areas are foliar disease resistant.

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