CHAPTER 14

The Value of Pasture Weeds

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Encroachment on permanent pastures by forbs (broadleaf weeds) is well known and rued by farmers. Forbs denote poor grazing management and a decline in yield and for many farmers, encroachment by forbs signals the need for costly reseeding. Graziers are often also concerned over a rise in invasive, unpalatable species or the propagation of potentially toxic species on their pastures, especially on permanent pastures that are difficult to renovate. These species may threaten the performance of their cattle. However, positive effects of typical pasture forbs on nutritional quality are often overlooked. We studied species composition and mineral composition of about 30 pasture swards on various soils in the Aspen Parkland region of northeastern Saskatchewan. These pastures had contrasting propositions of grasses, legumes and forbs. We found that, on average, the herbage from all pastures contained ratios of molybdenum (Mo):copper (Cu) which were greater than 1.0, whereas desirable ratios are less than 0.5.

More detailed examination of the swards showed that the plant components had strikingly different mineral compositions (Table 1). We found that the 'unwanted' forbs contained higher concentrations of the essential animal nutrients Ca, Mg, K, S, Zn, Se and Cu than the seeded and volunteer grasses. Perhaps most importantly to local graziers was that the ratio of Mo:Cu was much lower for forbs and for alfalfa compared to both fine and coarse grasses, although even the forbs had somewhat excessive Mo:Cu ratios.

Based on Mo:Cu ratios as well as concentrations of Mg, K, S and Se, the diverse pastures rich in forbs and legumes were more desirable for grazing cows than pastures that are more purely grass. It is perhaps not surprising that a more diverse mixture of pasture species provided a more balanced mineral diet for the cattle. Regrowth herbage in late summer and fall consists mainly of smooth bromegrass and alfalfa since there is not much regrowth of many forbs and fine grasses; the presence in the sward of alfalfa can compensate for low availability of forbs at this time of year

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Table 1. Concentrations of essential minerals for ruminant livestock and the ratio of Mo:Cu in grasses and broadleaf plants sampled in 30 pastures in the Parkland region of Northeast Saskatchewan (unpublished data).

	Ca	Mg	K	S	Zn	Se	Cu	Mo	Mo:Cu
SPECIES	%				ppm				ratio
Smooth bromegrass	0.42	0.15	2.1	0.17	36.8	0.37	5.5	12.4	2.25
Fine grasses	0.35	0.14	1.8	0.17	47.6	0.31	5.0	9.6	1.92
Alfalfa	1.83	0.29	1.9	0.18	38.8	0.66	7.3	8.5	1.16
Dandelion	1.64	0.32	5.0	0.27	92.6	0.50	10.3	9.0	0.87
Other forbs	1.18	0.25	2.5	0.18	75.4	0.41	7.6	8.7	1.14