



Forage Species With Nitrate Toxic Principle Accumulation Capabilities for Cattle in Rangelands of Sonora, Mexico

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Nitrates are substances used by plants for protein synthesis; however, the metabolism of some plants is frequently altered accumulating them on leaves and stems under certain environmental conditions such as after frosts, drought and hail. This situation is important in rangelands where ruminants graze. Plants with nitrate levels of 0.5 to 1.5% dry matter bases are toxic because if animals consume the equivalent of 0.05% of their body weight, toxicity normally occurs. Nitrates in rumen are transformed to nitrites and are incorporated into the blood stream converting hemoglobin to metahemoglobin, reducing oxygen carrying capacity and producing asphyxia at cellular level. The objective of this study was to identify nitrates accumulating species (NAS), present in Sonora rangelands within 15 important vegetation types: 4 selected in Forest, 6 in Matorrales, 4 in grasslands and 1 in Selva Baja Caducifolia. Five sites were randomly selected in each type of 1 ha (20 x 500 m) each, and were monitored to identify NAS presence in summer and spring. Results show that there are 33 NAS, 28 of which were herbs (21 annuals, 7 perennials), 3 shrubs, one tree and one grass. There was 29 NAS in Matorrales, 11 in Grasslands, 6 in Forests and 4 in Jungles. The diversity and dispersion of NAS represent a risk for Sonora cattle. Range managers and ranchers must know the most important nitrates accumulating species and apply grazing management practices and control measures to reduce toxic effects.

2009. 62nd Society for Range Management Annual Meeting. Paper No. 1020-4.