Soil Mineral-Nitrogen Supplies under central Alberta Pastures. (C06-baron154941-Poster)

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Abstract:

Prairie grasslands are noted for low soil mineral-N supplies (MN). Little information exists on MN for short term, managed pastures. MN and N-uptake were determined for five pasture crops (grazed and un-grazed), grazed for 100 d, during 3 yr. Pastures were 30-yr.-old high (HI) and low (LI) input grass, 3-5 yr-old alfalfa (A) and meadow bromegrass (MB) and annual-cereal (AN). HI, MB and AN received 100 kg/ha fertilizer-N; all except LI, received 30 kg/ha P2O5 and K2O. MN flux was determined using paired cation and anion probes (PRSTM) inserted and removed into identical soil slots biweekly from May to October. The grazing effect was small or nonexistent. MN peaked during May-June and decreased until October. MN flux for A and AN averaged over the season was 4 to 5 times HI and LI. In May-June AN had highest MN flux, but by October MB and AN were similar to HI and LI, lower than A. Nitrate to ammonium-N flux ratio diminished from spring to fall and was 5 to 20 times lower for HI and LI than other pastures. N-uptake for A, AN, and MB was twice that of HI and LI. Dynamics of soil-MN supply vary quantitatively and temporally among pasture crops in central Alberta.

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