

Residual effects of phosphorus fertilizers:- H. G. Zandstra, Melfort

Ammonium phosphate fertilizer was broadcast on crested wheatgrass-alfalfa and bromegrass-alfalfa stands over a period of 3 years. This resulted in an accumulation of up to 29 ppm of sodium bicarbonate soluble phosphorus in the top 6 inches of the soil, with most of it accumulated in the top 2-3 inches. The levels of available phosphorus in the fertilized and unfertilized areas were very high with the result that two grain crops grown on the area did not respond to the original or added phosphorus fertilizers. However, two years of cropping substantially reduced and practically equalized available phosphorus levels. Fertilizer additions of up to 35 lb P per acre to both crops failed to maintain soil test levels in the original plots. These results indicate that a large amount of fertilizer phosphorus is changed to unavailable forms or that substantial amount of excess phosphorus is removed through "luxury consumption" by the crop. These possibilities are being further investigated.