Fertilizer effects on accumulation of NO₃-N in bromegrass

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Where available N is present in the soil, either from mineralization or nitrogen fertilizer applications, NO₃-N contents in bromegrass normally increase during the early part of the growing season, shortly after vigorous growth begins. Subsequently, the levels decline as dry matter production increases more rapidly, and at the hay stage the NO₃-N levels are usually very low or absent.

With applications of up to 160 lb N/acre to established bromegrass on Scott loam, plant analysis during the 5-year period 1964-68 showed that NO₃-N did not increase in bromegrass forage above a level of 0.30% even at early stages of growth, and was generally below 0.05% at the hay stage.

Applications of N to bromegrass at rates in excess of 200 lb N/acre can result in substantial accumulation of NO₃-N in the forage in early stages of growth, and relatively high levels may persist at the hay stage. Spring N applications tend to result in somewhat higher NO₃-N levels in forage than fall applications.

An application of 500 lb N/acre as 33.5-0-0 to an established stand of bromegrass on Loon River loam in the spring of 1964 resulted in a NO₃-N content in the forage of 0.872% on June 11, and 0.523% at the hay stage on July 8.

Although NO₃-N levels in grasses vary from season to season, there is little danger of increasing NO₃-N contents of bromegrass pasture or hay to toxic levels with application of recommended rates of N fertilizers.