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SOME EFFECTS OF NITRATE AND AMMONIUM
NITROGEN ON THE MINERAL COMPOSITION OF
PASTURE GRASSES

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SECTION I

INTRODUCTION

Nitrogen is unique among the major plant nutrients derived from soils in that it may be taken up by plants either as an anion or cation. Nitrate and ammonium comprise the pool of assimilable nitrogen, but their proportionate contribution varies considerably under differing climatic and soil conditions.

Bear (1950) formulated a general rule for a constant balance between the number of equivalents of cations and anions in the herbage of growing plants. From this it may be suggested that the uptake of cations and anions, other than ammonium and nitrate, will be markedly influenced by changes in the ionic form of nitrogen being absorbed by non-legumes. That uptake of ionic nitrogen normally exceeds that of any other ionic species, supports this suggestion.

Experiments undertaken in this investigation were designed to test the validity of the foregoing postulate, using pasture grasses, with a view to establishing whether changes in the nitrogen regime in the field could be of agronomic significance. An elucidation of the relationships between the form of mineral nitrogen available and certain physiological processes within the test plants, was also sought.