Public Abstract

Title: Determining uptake of nitrate *vs* ammonium nitrogen in blueberry

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Blueberry is a major crop grown extensively in the southeastern US. Along with other members of the Ericaceae family, blueberry is thought to display a preference for ammonium as a nitrogen source instead of nitrate. The basis of such preference remains unclear. Also, it is not known if this preference exists at all levels of nitrogen available to the plants. It may be expected that under lower nitrogen availability, blueberry may display preference characteristics that are distinct from that displayed at higher concentrations. To understand such preference, we investigated the mechanisms of nitrogen uptake by southern highbush blueberry plants under low and high ranges of nitrogen supplied either as nitrate or as ammonium. In the low available nitrogen range, nitrate intake into plants increased with increasing supply but was saturable. While ammonium intake also increased with increasing nitrogen supply, this was linear and not saturable within the low range tested. At higher ranges of nitrogen supply, greater variability was obtained in the data. Nitrate intake further increased with increasing N supply at the high range and was again saturable. These data indicate that nitrate intake into blueberry plants may involve two mechanisms: one operable at lower nitrogen supply and another at a higher supply. These data need further validation with other approaches such as with labeled nitrogen.