

**NITROGEN ACCUMULATION PROFILES OF
SELECTED GRAIN AND VEGETABLE CROPS:
A BIBLIOGRAPHY (1940-1992)**

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Abstract

A bibliography of nitrogen accumulation profile data for 25 vegetable and grain crops reported between 1940 and 1992 is presented. The selected crops are asparagus, broccoli, brussels sprouts, cabbage, carrots, cauliflower, celery, corn, cotton, cucumber, field bean, field pea, garlic, lettuce, onions, peppers.

Key Words: uptake, asparagus, broccoli, brussels sprouts, cabbage, carrots, cauliflower, celery, corn, cotton, cucumber, field bean, field pea, garlic, lettuce, onions, peppers, potatoes, rye, snap beans, sorghum, soybeans, spinach, sweet potatoes, tomatoes, wheat

Introduction

A current program supported by the Tennessee Valley Authority's National Environmental Research Center is to develop controlled availability nitrogen products that supply adequate nitrogen to a crop while minimizing nitrate leaching to ground water. Slow-release nitrogen fertilizers such as sulfur-coated urea and urea formaldehydes are the most common controlled availability products on the market today. However, these controlled availability products were not developed to minimize nitrate leaching and there is little, if any, definitive data to support that assumption. In order to validate the concept that use of controlled availability fertilizers can reduce nitrate leaching with respect to conventional fertilizers, information on the nitrogen demand of various crops and cropping systems and the influencing variables is required. The nitrogen uptake profile of a crop and pattern of N supply from the soil are important considerations in optimizing the pattern of nitrogen release from controlled availability fertilizers. This bibliography is a compilation of literature references containing data on nitrogen accumulation patterns for selected crops.

Procedure

The Agricola (1970-1992) and CAB abstracts (1980-1992) databases were sources for the majority of the citations. Search terms used were: "the crop name," "nutrient or nitrogen," and "uptake or accumulation," which results in over 3500 citations. Publication selection was guided by the abstract contents. Each publication was examined for profile data. Any publication reference to other published reports that may contain profile data was examined as well. All citations earlier than 1970 were identified from publication references. The period of the bibliography is 1940-1992.

The publications cited contain nitrogen uptake information on either the whole plant or the above-ground plant parts. Those publications that reported uptake data for only selected above-ground parts of plants were not included. A majority of the cited publications graphically display nitrogen accumulation profiles and those without a profile contain the data to produce a profile. Appropriate nitrogen accumulation profile data were not found for asparagus, brussels sprouts, and carrots; but to indicate their inclusion in the search they are listed in the bibliography.

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