



NUTRIENT MANAGEMENT



for
AGRONOMIC CROPS
in Nebraska



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Nutrient Management for Agronomic Crops in Nebraska

The University of Nebraska
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Preface

Richard B. Ferguson
UNL Professor of Agronomy

Nebraska is blessed with fertile soil and vast supplies of groundwater which combine to create an environment well-suited to the production of corn, wheat, grain sorghum, alfalfa, edible beans, and other agronomic crops used for human or animal consumption. Much of the Nebraska economy is based on producing agronomic crops and the livestock to which they are fed. In 1997, Nebraska's total cash receipts from agricultural products was \$10.1 billion, which placed it fourth in the nation behind California, Texas and Iowa. Cash receipts from crops were \$4.55 billion, and from livestock, \$5.54 billion in 1997. Nebraska ranks among the 10 leading states in corn, grain sorghum, alfalfa hay, dry edible beans, soybean, oats, rye, and sugar beet production.

For most Nebraska crops, at least some fertilization is required to supplement soil nutrient levels for optimum yield potential. Much of the required fertility has come from commercial fertilizers, although Nebraska producers in recent years have become increasingly aware of the need to account for nutrients from a variety of sources such as manure, compost, legumes and irrigation water, and have accounted for these resources prior to applying fertilizer. In 1997, Nebraska producers purchased 2.42 million tons of all types of fertilizer. Of this, the largest share was for 1.67 million tons of nitrogen (N), mostly as anhydrous ammonia and nitrogen solutions. Over the past 20 years, producers have more carefully managed nitrogen fertilizers, as well as irrigation water on irrigated fields, to minimize nitrogen loss to ground and surface water. Consequently, even though average crop yields continue to increase, the rates of nitrogen applied to corn have tended to plateau or even decline. Producers have continued to adopt practices such as delayed nitrogen fertilizer application, crop rotation, band application, nitrification inhibitor use, efficient irrigation water application, and others that have increased fertilizer efficiency throughout the state.

This manual is a guide to nutrient use from all sources for the production of Nebraska's major agronomic crops: corn, winter wheat, grain sorghum, oats, alfalfa, dry edible beans, soybean, sugar beets, popcorn, sunflower, millet, potatoes, and cool and warm season grasses for hay and pasture. Part I of the manual contains information focusing on basic principles of soil fertility for the primary, secondary and micro nutrients, as well as chemical and physical properties of soil and soil management. Part II contains chapters devoted to each crop, with information on current fertilizer recommendations for each.

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