

Introduction

Optimum growth of turf, flowers, fruits, and vegetables depends on many management factors, one of which is ensuring a sufficient supply of plant nutrients. There are at least 17 essential elements required for plant growth: carbon, hydrogen, oxygen, nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, zinc, copper, boron, molybdenum, chlorine, and nickel. Plants obtain carbon, hydrogen, and oxygen from air and water. The remaining elements are derived from the soil. When the soil cannot supply the amount of these nutrients required for adequate growth, supplemental fertilizer applications become necessary. Many urban soils are disturbed during the construction process. Top soil is often scraped off and removed and, as a result, nutrient and organic matter levels are often lower in these disturbed sites than in native soils. Adding organic matter as well as fertilizer may be necessary to improve the growth of plants on these sites.

Accurate fertilizer recommendations are important, because problems can result from either inadequate or excessive fertilization. Too little fertilizer leads to poor plant growth, but too much fertilizer can also reduce plant growth and quality. In addition, excessive applications of fertilizer can be harmful to the environment.

Fertilizer recommendations are based on the kinds of plants that are grown, the type of soil they are growing in, and the results of soil tests. Soil testing provides information on the availability of nutrients in the soil and is required for accurate fertilizer and lime recommendations.

This bulletin presents current fertilizer and lime recommendations for home lawns, vegetable and flower gardens, small fruits, tree fruits, and ornamental trees and shrubs. Basic recommendations for home lawns are also generally applicable to other turfgrass areas such as golf courses, athletic fields, parks, cemeteries, schools, industrial grounds, and commercial sod farms. Commercial nursery or greenhouse growers interested in fertilizer recommendations for container grown crops should use different soil tests. Contact the University of Minnesota Soil Testing Laboratory at 612-625-3101, or check online at <http://soiltest.cfans.umn.edu/> for the appropriate form for container grown crops.