

# Soil Fertility: Evaluation and Management

BIJAY-SINGH AND YADVINDER-SINGH

*Upon handful of soil our survival depends. Husband it and it will grow our food, our fuel, and our shelter and will surround us with beauty. Abuse it and the soil will collapse and die, taking humanity with it. — Atharava Veda, the Sanskrit Scripture, 1500 BC.*

## 22.1. Introduction

Fertile and productive soils are vital components of stable societies because they ensure growth of plants needed for food, fibre, animal feed and forage, medicines, industrial products, energy and for an aesthetically pleasing environment. Fertility of the soil refers to its capacity to support the production of crops. It is a scientific discipline that integrates the basic principles of soil biology, soil chemistry, and soil physics to develop the practices needed to manage nutrients in a profitable and environmentally-sound manner. Thus, *soil fertility can be defined as the capacity of the soil to supply sufficient quantities and proportions of essential plant nutrients required for optimal growth of specified plants as governed by the chemical, physical and biological attributes of soil.* As pollution of soil, air and water must also be prevented while optimization of the nutrient status of soils for crop production, modern soil fertility practices take into account both environmental protection as well as agricultural productivity.

A productive fertile soil can support optimal plant growth from seed germination to plant maturity by providing adequate soil volume for plant root development, water and air for root development and growth, chemical elements to meet the nutritional requirements of the plants, and anchorage for the resultant plant structure. These attributes of the soil can be distinguished as inherent or dynamic soil quality indicators. Inherent soil quality indicators cannot be manipulated in crop production and include soil texture, depth and mineralogy. Dynamic soil quality indicators include soil organic matter content, nutrient- and water-holding capacity, and soil structure. Among these, soil fertility is one of the most important dynamic soil parameters, which can be maintained or improved through appropriate management for enhancing productivity of agricultural soils.

# Soil Fertility Evaluation And Management Researchgate

**E Durkheim**



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