

Soils and soil fertility

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- 6th ed

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About

Troeh and Thompson's Soil and Soil Fertility provides an excellent overview of soils for students in agriculture and the environmental sciences. Coverage includes basic topics such as soil chemistry, organic matter, mineralogy, water management, as well as more specialized areas such as urban and rural land use, artificial soils for greenhouses, and turf grass. The sixth edition incorporates discussions of GIS and GPS, humus and its function in soil structure and fertility, soil reclamation for sites contaminated by pesticides or petroleum spills, and advances in the understanding of water flow. A new chapter on soil mechanics explains the use of soils as foundation and construction material. Essential information from organic chemistry, geology, and biology is included for readers who lack that background. Students and instructors will appreciate the glossary and the useful study questions following each chapter. The book's practical emphasis increases its usefulness to horticulture students and enthusiasts, forestry students and practitioners, environmental professionals, agronomy students and consulting agronomists. Contents: 1) Soil 2) Soil Formation 3) Physical Properties of Soils 4) Soil Water 5) Soil Organic Matter 6) Soil Mineralogy 7) Soil Chemistry 8) Amending the Soil 9) Fertilizers 10) Nitrogen 11) Phosphorus 12) Potassium 13) Calcium, Magnesium, and Sulfur 14) The Micronutrients 15) Variations in Plant Composition 16) Soil Classification 17) Land Use and Soil Management 18) Water Management 19) Soil Erosion and Its Control 20) Soil Pollution

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Soil fertility is the ability of soil to sustain plant growth and optimize crop yield. This can be enhanced through organic and inorganic fertilizers to the soil. Nuclear techniques provide data that enhances soil fertility and crop production while minimizing the environmental impact. An integrated soil fertility management aims at maximizing the efficiency of the agronomic use of nutrients and improving crop productivity. This can be achieved through the use of grain legumes, which enhance soil fertility through biological nitrogen fixation, and the application of chemical fertilizers. Soil fertility management is very important for sustainable food production and maintenance of the environment. Fertilizer use and improved varieties were some of the major ingredients of the green revolution in Europe, Latin America, and Asia. Africa is the remaining region in the world with decreasing food production per capita. Soil scientists that focus on soil fertility are interested in managing nutrients to improve crop production. They focus on using commercial fertilizers, manures, waste products, and composts to add nutrients and organic matter to the soil. Sometime they also add chemicals that change the pH to a more optimum level for nutrient availability to plants. Soil fertility experts must also be careful to ensure that practices are environmentally sustainable. Inappropriate management of nutrients can lead to contamination of lakes, rivers, streams, and groundwater. In addition, adding amendments to th

Special Issue "Resource Stoichiometric and Fertility in soil" in *Biology and Fertility of Soils*. Call for papers. Special issue on the research legacy of Prof. Yoav Bashan: Application of beneficial microorganisms and their effects on soil, plants, and the environment. For more than three decades Prof. Bashan was a leading figure on the Plant Growth-Promoting Bacteria (PGPB) field; his research focused on bacterial inoculants, plant-bacteria interaction in terrestrial environments, microbial-assisted ecological restoration of disturbed environments, and microbiology of the desert.

Over time, soil organic reserves declined due to cereal cropping and frequent fallowing. This resulted in an increase in green manuring, thus an increase in the importance of legumes. After World War II, however, farming was rapidly mechanized and traditional "legume-cereal" rotations were abandoned as relatively cheap nitrogen fertilizers became widely available and they appeared more efficient than legumes in increasing grain yields. Growing concerns about declining organic matter, soil fertility and rising energy and nitrogen fertilizer costs have led to renewed interest in legumes. Thus, the role of legumes as a nitrogen supplier in the rotation and as a builder of soil organic matter will likely gain importance in the future.

Nitrogen Fixation. Biological Nitrogen Fixation. Donate to Soil Fertility & Plant Nutrition! We welcome donations to the Soil Fertility & Plant Nutrition Division enhancement funds. These funds are used to enhance division activities during the Annual Meeting. Thank you for your support! To donate to your division use the link below. Soil Fertility & Plant Nutrition. If you represent a company that would like to be a sponsor, please contact Eric Welsh (ewelsh@sciencesocieties.org). Soil Fertility and Plant Nutrition. soil chemistry, soil biology, soil physics, and plant science to. develop practices that provide the essential elements required. Beyond management of soil nutrients, soil fertility must also address factors contributing to the soil's ability to supply nutrients and the plant's ability to efficiently utilize nutrients present.