

ISBN: 978-93-93980-08-3 e-ISBN: 978-93-93980-09-0

Pages: 202 2023

Printed Copy

Hardbound ₹ 2495/-

Textbook on Fundamentals of

SOIL SCIENCE

About the Book

Soil contain a combination of organic matter, minerals matter, soil air, soil water and organisms that mutually sustain life. Soil science is the study of soil as a natural body including soil formation, classification and mapping; physical, chemical, biological, and fertility properties of soils. The soil deliver the essential nutrients, water, oxygen and root support that our food-producing plants require to produce and thrive. This book has been collected to deliver a wide ranging understating knowledge and to improve the practical capability of the under graduate students based on the curriculum. The subject contents have been introduced to make it easy and simple for the students. This book aims at understanding the many aspects of fundamentals properties of soil which have direct as well as indirect effects on the growth and development of crops. Thus in a broad sense the book will be very beneficial for undergraduate agricultural students to enrich their knowledge and understating of soil . this book is having more scope for preparing, JRF, SRF, NET based examination.

M. Yuvaraj

(Contents)

- Soil Definition—Soil as a Three Dimensional Natural Body Pedological and Edaphological Concepts
- Components of Soil-Soil A Three Phase System-Composition of Earth Crust
- Soil Genesis: Soil Forming Rocks-Definition, Formation, Classification of Rocks-Igneous, Sedimentary and Metamorphic Rocks
- Description of Rocks and Mineralogical Composition
- Minerals-Formation, Occurrence, Classification-Primary Minerals, Silicate and Non-Silicate Minerals, Ferro and Non Ferro Magnesium Minerals
- Formation of Secondary Clay Minerals and Amorphous Minerals
- Weathering of Rocks and Minerals-Physical, Chemical and Biological
- · Factors of Soil Formation-Active and Passive Soil Forming Factors
- · Fundamental and Specific Soil Forming Processes
- · Soil Profile Description-Master Horizons- Pedon and Polypedon
- Soil Texture- article Size Distribution-Textural Classes-Textural Triangular Diagram-Significance of Soil Texture
- Soil Structure-Definition—Classification-Genesis-Factors Influencing Soil Structural Stability-Significance of Soil Structure
- Soil Bulk Density-Particle Density-Porosity
- Soil Colour
- Soil Consistence-Cohesion-Adhesion-Plasticity-Atterberg's Constant-Plastic Limit-Significance of Soil Consistence

- · Soil Water-Forms of Water-pF Scale
- Soil Water Potential-Gravitational-Matric-Osmotic-Soil Moisture Constants and Soil Moisture
- Movement of Soil Water-Saturated and Unsaturated Flow-infiltration-Hydraulic Conductivity-Percolation-Permeability-Drainage
- Soil Air-Compostion-Gaseous Exchange-Problem and Effect on Crop Growth
- Source-Amount and Flow of Heat in Soil-Soil Temperature and Crop Growth
- Soil Reaction (pH)
- · Soil Electrical Conductivity
- Soil Colloids
- Silicates Clay-Classification 1:1-2:1 Expanding and Non Expanding-2:2 Clay Mineral-Amorphous Mineral
- Sources of Charge-Ion Exchange-Positive and Negative Charge
- Ion Exchange-Cation and Anion Exchange Capacity and Base Saturation
- Soil Organic Matter
- · Humic Substances-Fractionation-Theory of Humus Formation
- · Soil Biology-Soil Organisms-Soil Enzymes
- · Soil Carbon Sequestration and Carbon Trading
- Soil Pollution-Behaviour of Pesticide and Inorganic Contaminants
- · Prevention and Mitigation of Soil Pollution
- References



For e-version of the book or sample chapter for personal perusal contact: info@brillionpublishing.com www.brillionpublishing.com