

# Textbook of Agricultural and Allied Sciences



Sunil Kumar  
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Neelam Kumari  
Dangi Pooja Arun  
Anjali Verma



# **TEXTBOOK OF AGRICULTURAL AND ALLIED SCIENCES**

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# CONTENTS

<i>Preface</i>	<i>v</i>
<i>List of Contributors</i>	<i>vii</i>
<b>1. Integrated Farming System.....</b>	<b>1</b>
<i>Mohd Shah Alam, Jay Nath Patel, Suraj Singh and Pankaj Chaurasiya</i>	
<b>2. Climate Change and Extension Models in Promoting Climate Change Adaptation.....</b>	<b>16</b>
<i>Sunil Kumar and Anjali Verma</i>	
<b>3. Cyber Extension and ICT Worldwide Innovations.....</b>	<b>28</b>
<i>Dangi Pooja Arun and Neelam Kumari</i>	
<b>4. Expert System, e-Agriculture and m-Agriculture.....</b>	<b>36</b>
<i>Neelam Kumari and Dangi Pooja Arun</i>	
<b>5. Geoinformatics in Agriculture .....</b>	<b>50</b>
<i>Ashish David, Tarence Thomas and P. Smriti Rao</i>	
<b>6. Heroes of Indian Agriculture.....</b>	<b>61</b>
<i>Ashish David, P. Smriti Rao, Ashima Thomas and Tarence Thomas</i>	
<b>7. Nanoscience in Sustainable Agriculture .....</b>	<b>69</b>
<i>Ashish David, P. Smriti Rao and Tarence Thomas</i>	
<b>8. Soils Nutrients.....</b>	<b>87</b>
<i>P. Smriti Rao, Tarence Thomas and Ashish David</i>	
<b>9. Rural Development Schemes in India through Years ..</b>	<b>96</b>
<i>Sunil Kumar, Anjali Verma</i>	
<b>10. Soils of India .....</b>	<b>110</b>
<i>P. Smriti Rao, Tarence Thomas and Ashish David</i>	
<b>11. Natural Farming.....</b>	<b>119</b>
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# 8

## SOILS NUTRIENTS

*P. Smriti Rao, Tarence Thomas and Ashish David*

Soil is a natural living, breathing organism made up of solids, liquids, and gases. Soil serves five key purposes:

- It provides a home for organisms.
- Waste items are recycled.
- Water is filtered.
- It's used as a building material.
- Provides a growing substrate for plants.

The fifth function will be the centre of our attention. Soil offers structural stability for plants and absorbs and releases water and nutrients required for plant growth in this role.

A perfect soil for plant growth has 50% pore space and 50% solids, with the pore space filled with equal parts air and water. Because pore space fluctuates with soil texture and treatment, this distribution is uncommon. Tilling, for example, expands pore space, but poor drainage and compaction reduce it.

Mineral components and organic substances make up soil solids. Sand, silt, and clay are common mineral elements found in worn rock of various sizes. Plant breakdown and microbial remnants make up the organic matter. Various soil types have different proportions of pore space, mineral, and organic content. However, most soil scientists agree that a 50 percent pore space, 45 percent mineral matter, and 5% organic matter ratio is best for plant growth.

### Soil pH

Soil pH is a measurement of the relative acidity or basicity of the