

# **NRBMRI**

## **(SYLLABUS)**

**Course: - Cane and Bamboo cultivation course.**

**Duration: - 6 Months.**

### **SEMESTER 1**

#### **UNIT 1**

#### **Basic System Physiology – Plants.**

- Photosynthesis: - Light harvesting complexes, mechanism of electron transport, photoprotective mechanisms, CO<sub>2</sub> fixation- C<sub>3</sub>, C<sub>4</sub> and CAM pathways.
- Respiration and photorespiration: - Citric acid cycle, plant mitochondrial electron transport and ATP synthesis, alternate oxidase, photorespiratory pathway.

- Plant hormones: - Biosynthesis, storage, breakdown and transport, physiological effects and mechanisms of action
- Sensory photobiology: - Structure, function and mechanisms of action of phytochromes, cryptochromes and phototropins; stomatal movement; photoperiodism and biological clocks.

## **UNIT 2**

### **Physiology of Bamboo**

#### **(Structure, morphology and functions.)**

- Structure: - The complete structure of bamboo (all important species).
- Morphology: - Morphology of bamboo including the morphology of its shoot, culm, sheath, blade, ligule etc.
- Functions: - various functions of different parts of bamboo and its commercial uses.

## **UNIT 3**

### **Physiology of Cane**

#### **(Structure, morphology and functions.)**

- Structure: - The complete structure of Cane (all important species).
- Morphology: - Morphology of cane including the morphology of its root system, stalk, leaves, and inflorescence.
- Functions: - various functions of different parts of cane and its commercial uses.

## **Unit 4**

### **Commercial aspects and scope of bamboo and cane industry.**

- Commercial aspects of Bamboo: - Scope for development of Bamboo culture and its commercial market.
- Commercial aspects of cane: - Scope for development of cane culture (farming) and its commercial, market.
- Business development and financial planning: - different systematic plans for the initial business development of cane and bamboo culture.
- Biotechnological aspect: - A brief introduction to Plant Biotechnology aka Plant Tissue Culture (PTC).