



ROHINI
COLLEGE OF ENGINEERING & TECHNOLOGY
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(AUTONOMOUS)

Department of Agricultural Engineering

Course Name : **Protected Cultivation**
Course Code : **AI3015**
Regulation : **R2021**
Year/Semester : **III / 06**
Faculty : **Mr. ARUNPANDIAN N (Asst. Professor)**

UNIT - III

PROTECTED CULTIVATION OF FLOWER CROPS

PART 3 : SPECIALTY AND TROPICAL FLOWERS

3.1 Anthurium (*Anthurium andraeanum*)

Protected Cultivation Requirements:

- Shade: 70-80% (30000-40000 lux optimal)
- Temperature: 18-28°C with <5°C daily variation
- Humidity: 70-80% RH
- Media: Well-drained, porous (coconut husk, fern root, charcoal)

Production Systems:

- Pot Culture: 15-20 cm pots, 9-12 plants/m²
- Bed Culture: Raised beds (30 cm height), 12-15 plants/m²

Varietal Classification by Spathe Color:

- Red: Tropical, Red Dragon
- Pink: Pink Champion, Mystral
- White: Acropolis, Midori
- Green: Midori, Manoa Mist
- Orange: Safari, Nitta

Harvest: When spadix is $\frac{3}{4}$ developed, spathe fully colored

3.2 Orchids

Major Commercial Groups:

1. Dendrobium (40% of cut flower orchids)
 - Spray types: Sonia, Emma White
 - Standard types: Big White, Big Pink
2. Phalaenopsis (Moth Orchid)
 - Hybrids: Cassandra, Lippstadt

3. Cymbidium (Cool climate orchids)

- Standard: Red Beauty, Showoff
- Miniature: Golden Elf, Ice Doll

Production Technology:

- Growing Media: Coconut chunks, sphagnum moss, fern fiber, bark chips
- Climate Control:
 - Warm: 20-30°C (Dendrobium, Phalaenopsis)
 - Intermediate: 18-25°C (Cattleya, Oncidium)
 - Cool: 10-20°C (Cymbidium)
- Light: 15000-30000 lux (shade 50-70%)

Flowering Control:

- Temperature Induction: 15°C nights for Cymbidium spike initiation
- Hormonal Treatment: GA₃ (50-100 ppm) for flowering synchronization

3.3 Cut Foliages and Fillers

Major Categories:

Category Examples Uses Production System

Green Foliages Leatherleaf fern (Rumohra), Ming aralia, Salal Background filler Shade houses (70-80%)

Colored Foliages Cordyline, Croton, Caladium Color accents Temperature controlled

Fillers Baby's breath (Gypsophila), Limonium, Solidago Bulk filler Open/partial shade

Trailing Types Ivy, Asparagus fern, Money plant Cascading effects Hanging baskets

Production Guidelines:

- Propagation: Mostly vegetative (cuttings, divisions)
 - Planting Density: Varies with growth habit (9-25 plants/m²)
 - Harvest: Early morning, immediately plunged in water
 - Postharvest: STS (Silver Thiosulfate) for ethylene sensitive types
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