Stock Plant Management

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Floriculture Research

Common Vegetatively-Propagated Plants

- Poinsettias
- Garden mums
- New Guinea impatiens
- Geraniums
Plant Patents

- New plants are developed yearly.
- Illegal to propagate
- Firms collect royalties.
- The industry is carefully monitored.
- Expire in 17 years

The “Others”

- Coleus
- Sweetpotato vine
  - ‘Blackie’
  - ‘Pink Frost’
- Rex begonias
- Persian Shield
- Plectranthus
The Propagation Industry

- Plant Breeders
  - Virus Removal
- Offshore Propagation
  - (stock plant managers)
- Propagator
  - (rooting stations)
- Broker
- Grower
- Consumer

The Propagation Industry

- Ball FloraPlant
- Oglevee
  - Breeders and Producers of Quality Young Plants
- Fischer
  - The True Art of Floral Technology
- The Flower Fields
- Proven Winners
Mist and Bottom Heat

Stock Plants

Tip Cuttings

Rooted

Successful Propagation

Successful Product
Stock Plant Environment

- **Light**: 3,000 to 7,000 fc
- **Temperature**
  - Day: 70 to 75°F
  - Night: 65 to 68°F
Stock Plant Culture

- 2 to 3 cuttings per 6.5 to 7.5 inch pot
- Spacing – 0.5 to 1.5 sq. ft. per 6.5 to 7.5 inch pot
- Nutrition
  - 150 to 250 ppm N
  - pH = 5.8 to 6.2
  - EC (PourThru)= 2.5 to 4.0 mS/cm

Stock Plant Establishment

Conduct a “soft” pinch 2 weeks after potting
Stock Plant Establishment

Conduct “hard” pinches 4-8 weeks after potting

Cutting Quality

- Hedging vs. selective harvesting
- Caliper, leaf area, and shoot length
- High respiration/low chlorophyll

Uniformity
The Vegetative Cutting

- Shoots
  - 5 to 6 leaves
  - Healthy tissue
- Roots
  - Adventitious
  - Fibrous
  - “Heavy” stem
  - No flowering

Shoot Problems

- Over-fertilization
- Shoot Maturity
- Under-fertilization
Rooting Problems

- Poor Rooting Percentage
- Callus
- Poor Root Production
- Poor Root Development

Propagation Stages

1  2  3
Stage 1

- Light: 500 to 1,000 fc
- Temperature
  - Bottom heat: 68 to 80ºF
  - Air temperature: 70 to 80ºF
- Moisture
  - Mist: 5 to 10 min/ 3 to 8 sec
  - Media: moist, not saturated
- Fertility: < 0.75 mS/cm
Stage 2

- **Light**: 1,300 to 1,800 fc
- **Temperature**
  - Bottom heat: 68 to 73°F
  - Air temperature: 68 to 73°F
- **Moisture**
  - Mist: 10 to 20 min / 3 to 5 sec
  - Media: moderate level
- **Fertility**: 50 to 75 ppm N weekly

Stage 3

- **Light**: 1,500 to 2,300 fc
- **Temperature**
  - Bottom heat: 65 to 68°F
  - Air temperature: 65 to 68°F
- **Moisture**
  - Mist: discontinue, syringe
  - Media: reduce moisture
- **Fertility**: 50 to 100 ppm N weekly
Stage 4

- Light- 2,000 to 4,000 fc
- Temperature
  - Bottom heat: 60 to 65°F
  - Air temperature: 58 to 65°F
- Moisture
  - Mist: none
  - Media: allow to dry
- Fertility- 125 to 250 ppm N weekly
<table>
<thead>
<tr>
<th></th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
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<tbody>
<tr>
<td><strong>Light</strong></td>
<td>500 to 1,000</td>
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<td>1,500 to 2,300</td>
<td>2,000 to 4,000</td>
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<td><strong>Moisture</strong></td>
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<td><strong>Mist</strong></td>
<td>5 to 10 min/3 to 8 sec</td>
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<td>Discontinue, syringe</td>
<td>Begin overhead, subirrigation</td>
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<tr>
<td><strong>Media</strong></td>
<td>Moist, not saturated</td>
<td>Moderately moist</td>
<td>Reduce moisture</td>
<td>Allow media to dry</td>
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<td><strong>Fertility</strong></td>
<td>&lt; 0.75 mS/cm</td>
<td>50 to 75 ppm N, low P/ NH₄-N</td>
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<td>125 to 250 ppm N, toning MgSO₄, iron chelate</td>
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