**Euphorbia pulcherrima**

Poinsettia

The #1 potted flowering crop

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**Euphorbia Facts**

- Origin is Mexico
- Sales begin in early November & end at Christmas
- Grown in many different container sizes
- Cut flower production is increasing - ‘Winter Rose’

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**Facts, cont…..**

- The poinsettia “flower” is really a modified leaf called **bract**
- True flowers are **cyathia**
- Cyathia are subtended by boat-shaped nectaries

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**Related Plants of Commercial Importance**

- *E. mili*i **Crown of thorns**
- *E. marginata* **Snow-on-the-mt.**
- *E. fulgens* **Scarlet plume**

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**Cultivars**

- Free - branching
  - numerous axillaries
  - most cultivars
- Restricted - branching
  - 2-4 axillaries
  - Ex: Celebrate

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The free-branching characteristic is **graft transmissible to restricted branching cultivars**

New cultivars are developed by grafting to transmit the phytoplasma
Poinsettia Cultivars

- Today there are 125 cultivars
- Growth rates vary
- Respond differently to chemical plant growth regulators
- Growth can be controlled by cultivar selection

Cultivars vary by:

- Height
- Foliage color
- Response group
- Leaf retention
- Postharvest life
- Flowering date

'Silverstar' has variegated foliage

Response group = Time from start of short day to flowering

Propagation

- Terminal stem cuttings are used
- Growers can produce their own cuttings or purchase unrooted or rooted cuttings

Cuttings are rooted in foam blocks

To propagate their own cuttings, growers.....

- Order stock plants to arrive from March to June
- Allow original rooted cutting (stock plant) to develop 9-11 nodes before the first harvest of cuttings
- Axillary shoots should have only 2 nodes remaining after cuttings are taken
- Most growers harvest cuttings weekly

Important points to remember

- Determine whether it is more economical for your business to start your own or purchase cuttings
- Refer to the Ball Red Book for scheduling
- Cuttings should have thick stems and short internodes and be healthy
- High quality cuttings produce high quality plants
Or let the specialist propagator provide cuttings for you…

- Paul Ecke Ranch www.ecke.com
- Fischer, U.S.A. www.fischerusa.com
- Oglevee www.oglevee.com

Pinching

- Pinching (one cutting per pot) vs. growing straight-up (multiple cuttings per pot)
- Pinch for 4-7 blooms per plant
- Pinch when roots are visible on outside of media ball (2 weeks after planting)
- No. nodes left = No. flowers produced
  - “Hard pinch” = leave 3-4 nodes
  - “Soft pinch” = leave 5-7 nodes

Flowering

- Poinsettias are Short Day (SD)/Long Night plants
- Nights must be at least 11.75 hours long to initiate flowers
- Around September 25 (late Sept. - early Oct.)
- ‘Freedom’ initiates in early September
- Response groups vary from 6.5 - 10 weeks

4 Events for Scheduling Crop

- Pan date depends on cultivar and root growth
- Pinch date depends on cultivar vigor and pot size (2 - 8 weeks)
- Short days start depends on response group
- Sell date depends on market

Manipulating photoperiod to flower for market date

- Early: To market before Thanksgiving, plants may need SD (blackcloth) before September 25
- Late: LD (mum lighting) after Sept 15 for late marketing after Dec 10

Temperature

- Propagation 75-77 (media)
- NT 65-68 (air)
- NT >70 may delay flower initiation
- NT >75 may delay flower development
- NT 55-60 (air) for last 2 weeks
- Cultivars respond different to temperature
Light

- 700 - 900 µmol·s⁻¹·m⁻² dark foliage
- 1000-1200 µmol·s⁻¹·m⁻² for light foliage
- In south, 10-30% shade cloth for 1-2 weeks after planting rooted cuttings
- 400 µmol·s⁻¹·m⁻² after bracts are mature will reduce fading

Water and Nutrition

- Do not allow plants to wilt - what happens?
- 225-300 ppm N (overhead)
- 100-225 ppm N (sub-irrigation)
- Optimum EC 1.5-2.0 dark green foliage and 2.0-2.5 light green foliage (saturated paste)
- Optimum pH 5.8 - 6.3

Growth Control Challenges

- More height specifications from mass marketers
- More cultivars with various growth habits
- More chemicals growth regulators to choose from

Growth Control

- Cultivar selection
- Water application or lack of
- Fertilizer application or lack of
- DIF or DROP temperature control
- Chemical plant growth retardants
- Scheduling
- Sunny, warm weather = shorter plants

Growth Retardants and Rates

- Arest • 25 to .5 ppm
- Cycocel • 1000 - 3000 ppm
- B-Nine/Cycocel • 2500/1500 ppm
- Bonzi • 10 - 30 ppm
- Sumagic • 2 - 10 ppm

Chemical growth regulators are applied:

- Control height
- Darken foliage
- Strengthen stems
- Increase resistance to stress
PGR Application

- After the pinch
- When axillaries are 1.5 – 2 inches long
- In the morning when it is cool
- Never spray late in production because bract size may be reduced

Possible Undesirable Side Effects

- Reduced bract size
- Crinkling of bracts
- Blotchy yellowing of leaves
- Marginal leaf burn
- Delayed flowering

A very good practice is to leave some plants untreated so you can gauge the treatment effects better

Poinsettia Marketing

- Early - pre-Thanksgiving
- Primary - Thanksgiving to Dec. 10
- Late - Dec. 11 to 24

Insects

- Whiteflies
  - Greenhouse
  - Silver leaf
- Fungus gnats
- Spider mites
- Thrips

Diseases

- Root and stem rots
- Botrytis blight
- Bacterial stem and leaf rot
- Powdery mildew
- Fungal blight and leaf spots
- Viruses

Botrytis blight

Physiological Disorders

- Bract necrosis
- Leaf edge necrosis
- Cycocel damage
  - Leaf drop
- Stem breakage
  - Splitting
  - Leaf crippling
Physiological Disorders con’t

- Center bud drop
- Rabbit tracks

Rabbit tracks

Postharvest

- Reduce temperature, nutrition and light 2-3 weeks before shipping
- Harvest when bracts are expanded and pollen is visible on 1-2 cyathia
- Keep temperatures above 50 during shipping
- Sleeving is good but remove promptly to prevent ethylene damage (epinasty)

Stem Breakage

due to low light during production

May be reduced by:

1. Leaf removal – the removal of the top 2 leaf blades at the time of pinching to increase light penetration into plant canopy
2. PGR application ASAP after pinch
3. Close spacing at the beginning of production to help develop V-shaped stem architecture
4. Cultivar selection
5. Use of rings but they add to production costs

Minimum direct costs for a 6-inch pinched poinsettia – does not include overhead costs.

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<thead>
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<th>Item</th>
<th>Cost in cents/6”</th>
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<tr>
<td>Royalty</td>
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Total direct costs = $2.47
With foil & bow = $3.20
Minimum overhead for a commercial grower = $2.00
Total costs overhead and direct costs = $5.40
What are you going to sell them for?