



4.- Techniques of Taking Cuttings

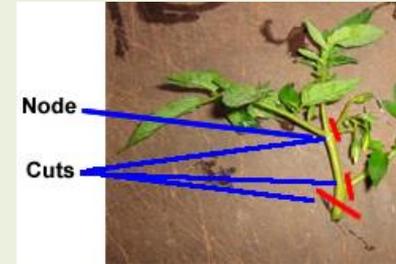
Techniques of Taking Cuttings

1. Cut at uniform lengths – terminal will usually develop quicker than lateral – At least 2 nodes.

- Cut just below the node.
- Cut tip off, transpires and grows.

2. Leaves – Great controversy.

- Usually remove bottom leaves to prevent rot but with good sanitation practices not necessary.
- Leave as many leaves as possible. (More photosynthesis).



Techniques of Taking Cuttings

3. Wounding – to expose more cambium.

- Slice the side on Dracaenas.
- Cut at sharp angle or peel heel.
- Cut through middle of stem.



4. Large leaf plants

- Cut leaves in half
- Wrap in rubber band.



5. Treat with root promoting substance – many times not necessary.

- Promote quicker root development.
- More rooting.
- Higher % take.

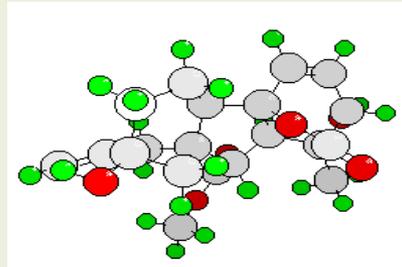
PLANT HORMONES:

Also known as phytohormones and 'plant growth substances' are chemicals that regulate plant growth. Plant hormones are signal molecules produced within the plant, and occur in extremely low concentrations. Hormones also determine the formation of flowers, stems, leaves, the shedding of leaves, and the development and ripening of fruit.

Auxins are a class of plant hormones (or plant growth substances).

AUXINS:

- indolebutyric acid (IBA). Most stable – Store out of direct sunlight
- Indole-3-acetic acid (IAA). Least stable - refrigerate
- naphthaleneacetic acid (NAA). Most stable



Methods of Application - Auxins:

Auxins are a class of plant hormones (or plant growth substances)

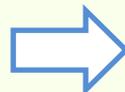
1. Concentrate liquid dip – 1,000 – 10,000 usually 5 seconds.

- Dip N-Gro 10,000 ppm IBA

- $C_1 \times V_1 = C_2 \times V_2$

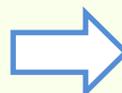
- $(10,000) \times (V_1) = (1,000) \times (64 \text{ oz})$

- $V_1 = \frac{(1,000) \times (64 \text{ oz})}{10,000}$

 $V_1 = 6.4 \text{ oz}$

- $(10,000) \times (V_1) = (500 \text{ ppm}) \times (64 \text{ oz})$

- $V_1 = \frac{(500 \text{ ppm}) \times (64 \text{ oz})}{10,000}$

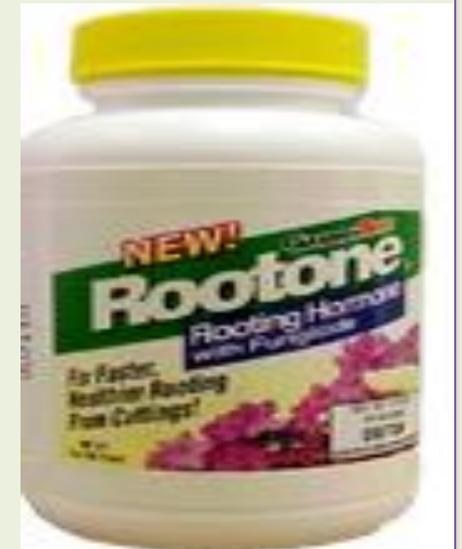
 $V_1 = 3.2 \text{ oz}$

Methods of Application:

2. Commercial Powders:

Hormodin, Hormex™, Rootone™.

- Dip cuttings at once – freshly cut.
- Lightly tap to remove excess.
- Don't put powder back into container.
- Can overdo – inhibit bud development, cause yellowing and dropping of leaves, blackening of the stem, and eventual death of the cuttings.



Methods of Application:

3. Auxins – Root Development

Cytokinins – Zeatin – Kinetin – and 6-Benzyladenine.

- Cuttings with high Cytokinins levels have been difficult to root.
- Have mixed with auxins on leaf cutting to promote bud and root development.
- Have used on some root cutting to promote shoot development.



Gibberellins:

- Block auxin activity
- Promote earlier flower development

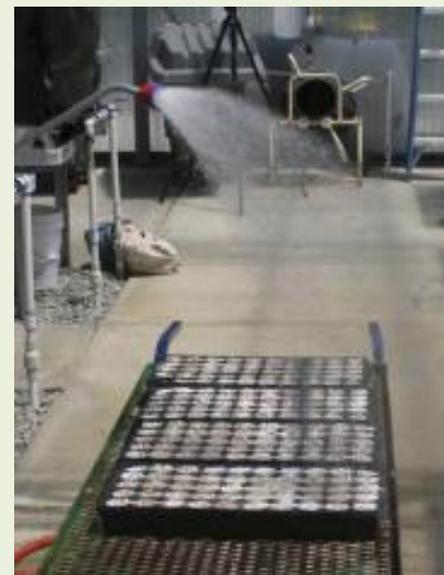
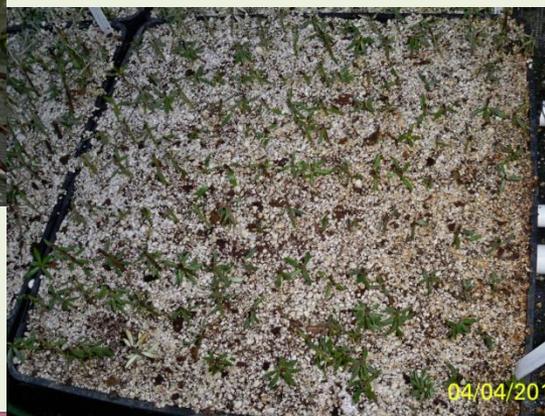


6-Benzyladenine



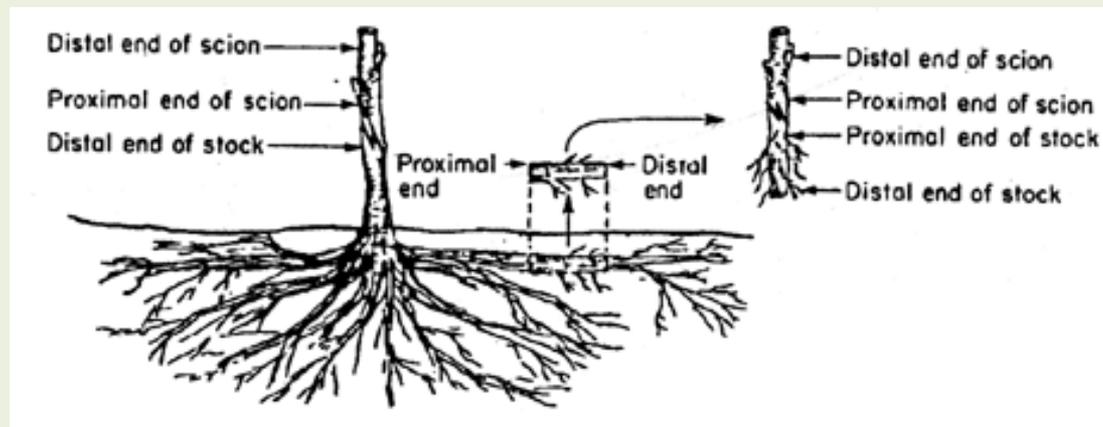
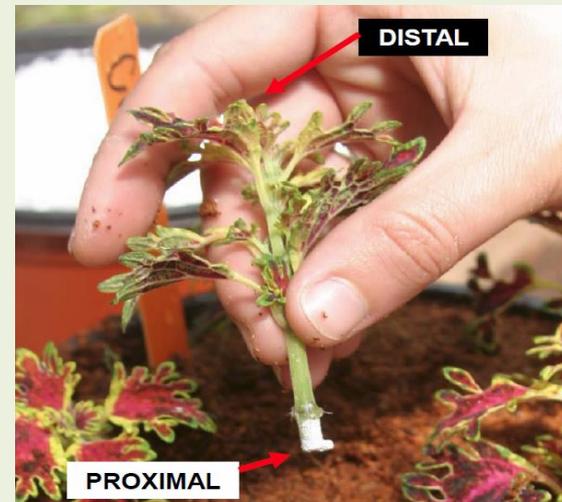
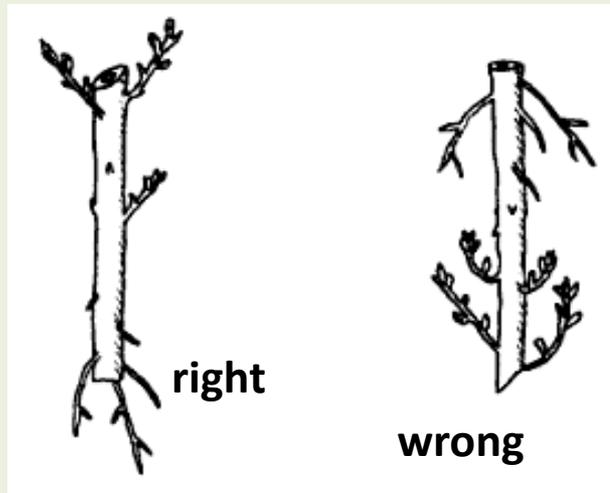
4. *Put in Flat*

- Usually 3 – 4" deep.
- Insert cutting half of its total length.
- Screed – Do a row.
- Then firm.
- Water media before then afterwards.
- 15 by 15 rows of cuttings.
- Large leaves might only get 100.
- Small leaves we can get 600 per flat.



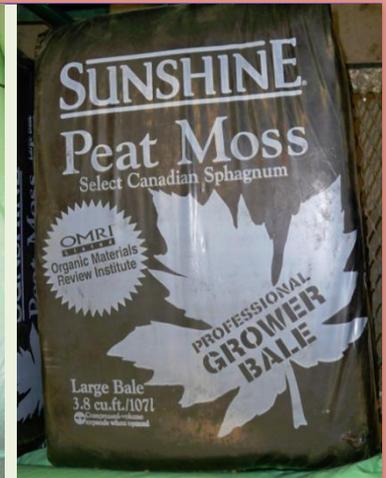
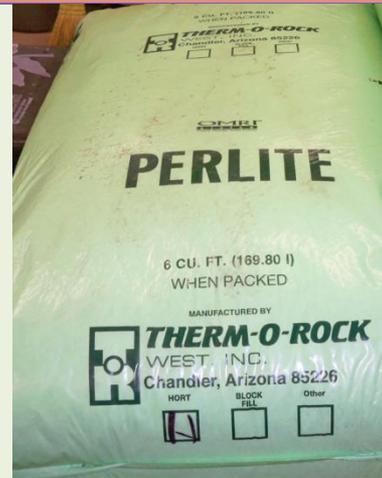
5. *Polarity: stick cutting right side up*

- Stem cuttings form shoots at the distal end (nearest the shoot tip).
- Roots form at the proximal end (nearest the crown).
- Bud is always above petiole.



6. Rooting Media:

- 20% Peat & 80% Perlite.
- Well drained – but hold moisture.
- Light weight.
- hold some nutrients.
- Disease free.
- Permit air to the base of the cuttings.
- Calcium has been used with mixed results.
- 2:1 perlite : vermiculite (natives, CA) plants that rot easily.
- Soil root direct --- Rhododendrons.
- H₂O – but oxygen is best.
- Soil Drench: Water in with cutting drench (Terraguard, Cleary 3336).



Comparison

	Carbohydrates	Transpiration	Cell Division
Softwood	Low	High	High
Semi- Hardwood	Medium	Medium	Medium
Hardwood	High	Low	Low