

# Vegetative Propagation



## Defining Propagation

### Sexual Propagation (Seed Germination)

- The union of pollen and egg, drawing from the genes of two parents to create a new individual.
- Involves the floral parts of one or more plants.

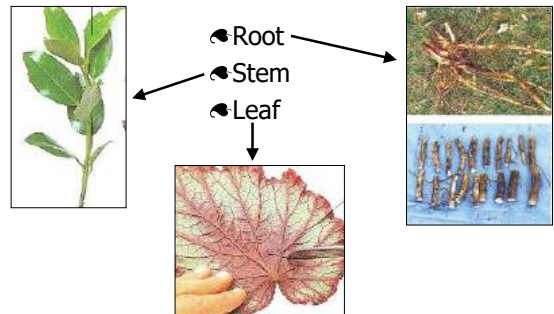
### Asexual Propagation (Vegetative Propagation)

- Involves regenerating a new plant from a vegetative part (root, stem, or leaf) of one parent.
- The new plant is genetically identical to the parent plant.

## Advantages of Vegetative Propagation

- ☛ It can be cheaper and easier than using seeds
- ☛ It's faster, especially for producing new trees and shrubs
- ☛ It may be the only way to grow some cultivars
- ☛ All offspring are uniform because they're genetically identical to the parent

## CUTTINGS



## Stem Cuttings

### ☛ Herbaceous Cuttings

- Taken from non-woody plants while they are still growing

### ☛ Softwood Cuttings

- First flush of new growth taken in spring or early summer from evergreen or deciduous woody plants before they start to harden

## Stem Cuttings

### ☛ Semi-hardwood Cuttings

- Taken later in summer when stems are firmer and buds have developed

### ☛ Hardwood Cuttings

- Are from fully mature wood taken in fall or winter when the plant is dormant

## TYPES OF CUTTING



## Advantages/Disadvantages of Cutting Types

### Softwood-

Advantage: has greatest potential for root growth

Disadvantage: loses water and wilts quickly

### Semi-hardwood-

Advantage: less prone to wilting, firmer stem tissue

Disadvantage: harder to root

### Hardwood-

Advantage: easiest to maintain growing conditions

Disadvantage: slowest to root

## Rooting Mediums

- ♣ You want one that gives optimum rooting in the shortest time
- ♣ A medium should be:
  - Sterile
  - Low in fertility
  - Loose and well-drained
  - Able to retain enough moisture to prevent stress to the cutting

## Types of Rooting Mediums

- ♣ Vermiculite
- ♣ Perlite
- ♣ Sand
- ♣ Peat Moss
- ♣ Coconut Fiber
- ♣ Potting Soil



## Tools to Take Cuttings

- ♣ Razor blade
- ♣ Sharp knife
- ♣ Sharp pruners

## Taking Cuttings

### ♣ Time of Day

- Best taken early in the morning when it is cool and the plant is turgid

### ♣ Plant Material

- Healthy
- Non-diseased
- Free of insects
- Preferably stems that have never flowered

## Sterilizing Tools

- ♣ Use rubbing alcohol
- ♣ Mixture of one part bleach, nine parts water

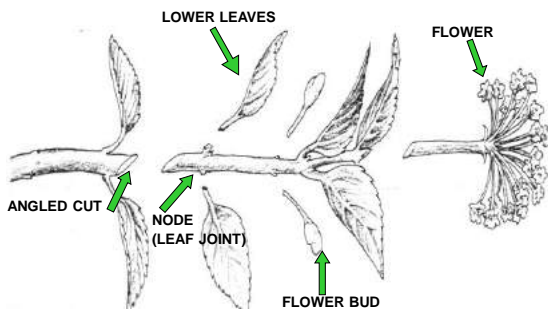
## Taking Cuttings

### Length

- Herbaceous 3-6"
- Softwood/Semi-hardwood 6-10"
- Hardwood 5-12"

### Where to cut

- Cut stem just below a node (leaf joint)
- Make cut at an angle



## Preparing the Cutting

- Remove any flowers, flower buds, or forming seeds
- Remove lower leaves where cutting will be inserted into the potting medium
- Leave several leaves on the stem for photosynthesis to take place
  - If stem has lots of leaves, remove some of the excess ones
  - Large leaves can be cut in half
- Consider removing the growth tip
  - Redistributes natural growth hormones
  - Forces new shoots to create bushiness

## Rooting Hormones

- Rooting hormones help to induce rooting
  - Promote faster rooting
  - Will increase the number of roots
  - Also encourages more uniform rooting
- Hormones can be liquid or powder form
  - The best ones also contain a fungicide

## Potting Your Cuttings

- Have pots filled with medium and ready to go before you take your cuttings
  - Pots should have been sterilized
  - Potting medium should be moist or watered lightly
- When inserting cutting don't jam it in the medium
  - Make a hole for it by using a pencil or dibble
  - Press potting medium gently around cutting
- Cutting should be at least an inch or more down into the pot
  - Never have cutting sit right on the bottom of the pot

## Environment for Successful Rooting

### Bright, indirect light

### Warm temperatures

- Will root better and faster on bottom heat from 65-80°F




### High humidity

- Cover or mist



## How Long Until My Cuttings Root?

- Rooting depends on several factors
  - The type of cutting
  - The species of plant
  - Whether or not it's been allowed to dry out
  - Rooting environment
- Herbaceous/softwood about 1-5 weeks
- Semi-hardwood may take 1-3 months
- Hardwood from 3-6 months 

## Is My Cutting Rooted Yet?

- To see if your cutting has rooted yet gently pull on the stem to see if there is any resistance
- If you notice new growth on the stem the cutting has usually rooted
- If leaves on the stem look perkier and greener the cutting has probably rooted

## DIVISION

- Division is the easiest method of vegetative propagation (especially for perennials).
- Division is dividing plants that have more than one rooted crown. Separating the crowns gives you more new plants.

## When to Divide?

- **Early Spring**
  - Divide perennials that bloom in summer or fall
    - Divide when you see signs of new growth up until shoots are 2-3" tall
      - Water loss is minimized because of lack of leaves
      - Roots grow quickly to reestablish the plant
- **Late Summer/Early Fall**
  - Divide spring or early summer bloomers
    - Don't divide too late in the season
      - Plants need time to acclimate and reestablish roots before cold/freezing weather hits

## Successful Division

The secret of successful division at any time is always to have more root than shoot. Cut away any excess foliage.



## Dividing Plants

- For plants without joined crowns, gently pull them apart
- For plants whose crowns are united by horizontal stems, cut the stems and roots with a sharp knife being careful to minimize injury to the division
- Plants can be separated to one crown, but most are best separated into a small clump of three to five shoots
- Always plant the new divisions back at the same soil level from which they came