



# Propagation Basics



**NC STATE** EXTENSION

Master Gardener | Union County  
Volunteer Association

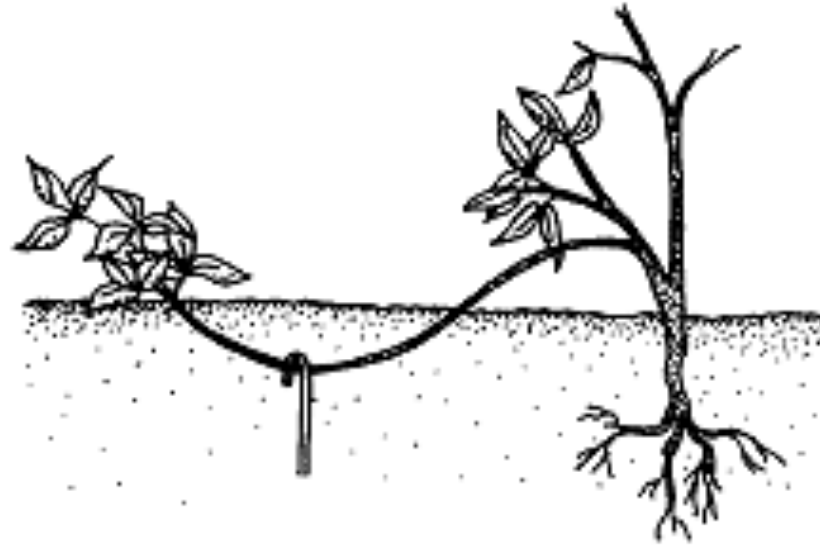
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## Basic Propagation Methods

- ▶ Layering
- ▶ Dividing
- ▶ Cuttings
- ▶ Seeds



# Propagation - Layering



## Layering Specifics -

- ▶ Simple Layering is the easiest form of propagation for the home gardener
- ▶ No or little cost
- ▶ Very little special equipment needed
- ▶ Usually successful
- ▶ Not strenuous
- ▶ Provides perfect copy of parent plant (in vast majority of cases)
- ▶ Takes several weeks or months to produce viable offspring
- ▶ Layering is in several forms - Tip Layering, Simple Layering, Air Layering, Compound Layering, Mounding
- ▶ Many plants can be propagated in this method



## What plants can be layered?

Grape	Azalea	Rhododendron
Climbing Rose	Blackberry (Tip)	Forsythia
Philodendron (Air)	Camellia	Daphne
Quince	Spirea	Hydrangea
Clematis	Jasmine	Honeysuckle
Magnolia	Wisteria	Pinks
Cotoneaster	Trumpet Vine	Strawberry
Rubber Plant (Air)	Fatsia	Loquat (Air)

And many others!

# Ready, Set....

- ▶ Determine the right time of year for your plant - generally spring
- ▶ Determine layering method (tip, simple, air)
- ▶ Get your gear!
  - ▶ Simple Layer
    - ▶ Rock/Brick/Pen
    - ▶ Knife/nips - clean and sharp!
  - ▶ Tip Layer
    - ▶ Spade/shovel/trowel
  - ▶ Air Layer
    - ▶ Plastic wrap
    - ▶ Knife - clean and sharp
    - ▶ Sphagnum peat moss
    - ▶ Aluminum foil
    - ▶ Twist ties
    - ▶ Rooting hormone



# Go Simple! Go Tip!

## ▶ Simple

- ▶ Take a flexible branch near the bottom of the plant
- ▶ Gently bend so that it touches the ground with about 6-12 inches continuing
- ▶ Gently bend the tip into a vertical position - don't snap it!
- ▶ Cover the part in touch with the ground with soil, and weigh down with rock/brick, or metal stake
- ▶ Prop up vertical tip with rock (to encourage it to grow up, and not out)
- ▶ Check in early fall for rooting. If not, just leave it to overwinter

## ▶ Tip

- ▶ Select a strong, flexible cane with new season growth
- ▶ Dig a 3-4-inch hole where the tip of the cane can comfortably reach
- ▶ Bury the tip in the soil
- ▶ Should see new growth in 3 weeks, will be ready to sever from parent plant in fall



# Go Air!

## ▶ Air

- ▶ Select a strong stem 12 - 14 inches long
- ▶ Cut bark in a 1-inch-wide ring around stem, removing cambium layer
- ▶ Dust with rooting hormone
- ▶ Pack with sphagnum moss (pre-wetted and rung out)
- ▶ Cover with plastic wrap
- ▶ Secure with twist ties at top and bottom
- ▶ Cover with foil to protect against birds
- ▶ In 4 weeks, remove foil and see if roots are visible thru moss in wrapping.
- ▶ When plastic is full of roots, cut below section with a clean, sharp knife and put into pot to overwinter
- ▶ Can be planted in spring





# Propagation - Dividing



## Division Specifics -

- ▶ Easy way to create more plants
- ▶ No cost
- ▶ Allows plant to regenerate/rejuvenates blooming
- ▶ Minimizes rot in some plants
- ▶ Requires no special equipment
- ▶ Can be strenuous
- ▶ Generally successful
- ▶ Produces clone of parent plant
- ▶ Many plants can be divided
- ▶ Viable offspring available immediately



## Plants that can be divided -

Hosta	Grasses	Iris
Lily	Hellebores	Bee Balm
Chives	Mint	Aster
Rubeckia	Chrysanthemum	Fern
Moss	Canna Lily	Asparagus
Snake Plant	Iron plant	Rex Begonia
Mother-in-Law's Tongue	Peace Lily	Cyclamen
Phlox	Rhubarb	Lily of the Valley
Geranium	Vines/creepers	False Indigo
Horsetail	Bamboo	Horseradish

- Many herbaceous perennials with multiple fleshy stems can be divided
- Plants with tap roots, or grow from single stems can not (Lantana, rosemary)

## Get ready, set -

- ▶ Determine the right time of year to divide your plant -
  - ▶ Generally early spring or late fall
  - ▶ Avoid dividing during blooming
  - ▶ 4-6 weeks before frost
- ▶ Get your tools
  - ▶ Clean and sharp
    - ▶ Axe
    - ▶ Shovel
    - ▶ Saw
    - ▶ Nips
- ▶ Prepare your receiving site
  - ▶ Dig holes/prepare pots

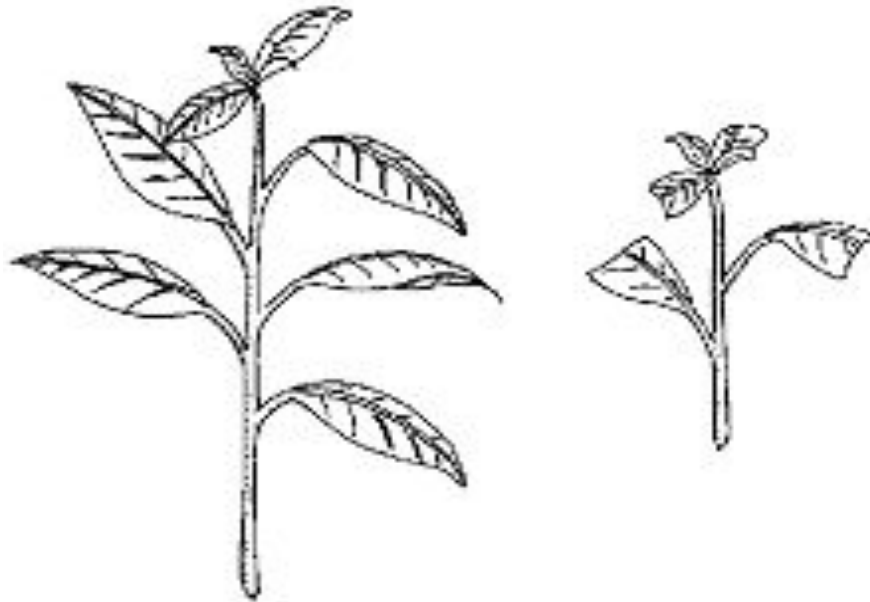


# Go!

- ▶ Dig 4-6 inches around the “mother” plant
- ▶ Gently lift from ground
- ▶ Wash/knock soil off root ball to see structure
- ▶ Separate
  - ▶ Pull apart
  - ▶ Chop with clean/sharp axe
  - ▶ Sever with spade
  - ▶ Saw apart
- ▶ Trim any damaged roots, leaves, stems
- ▶ Replant in receiving site
- ▶ Water consistently for 2-3 weeks - do not let dry out



# Propagation - Stem/Leaf Cuttings



# Stem/Leaf Cutting Specifics

- ▶ Relatively easy way to create more plants
- ▶ Relatively low cost, but requires equipment for both cutting and sticking
- ▶ Not strenuous
- ▶ Creates perfect clones of parent plant
- ▶ Great way to “save” dying plant/share large specimens
- ▶ Much wider variety of plants can be propagated with cuttings
- ▶ Cuttings can be in several forms, Hardwood, Semi-hardwood, Softwood, Leaf, Greenwood
- ▶ Could be several months before viable offspring, depending on plant



## Plants from cuttings -

Azalea	Begonia	Franklinia
Edgeworthia	Silverbell	Beech
Rhodenderon	Mountain Laurel	Anise
Dogwood	Viburnum	Acuba
Abelia	Conifers	Mulberry
Vitex	Daphne	Boxwood
Yew	Camellia	Maple
Fothergilla	Fringe Tree	Dawn Redwood
Loquat	Holly	Stewartia
Magnolias	Virginia Sweetspire	Butterfly Bush
Gardenia	Rosemary	Lantana
Coleus	African Violet	False Indigo
Russian Sage	YellowWood	Lilac

And many, many more!



# Ready, Set....

- ▶ Determine the right time of year to take your cuttings -
  - ▶ Softwood - Fresh, new growth. Spring, early summer
  - ▶ Semi-hardwood - More mature growth. Midsummer
  - ▶ Hardwood - Fully mature growth, sometimes dormant. Fall-Spring
  - ▶ Greenwood - Herbaceous, non-woody plants. Spring-summer
  - ▶ Leaf - anytime for houseplants
- ▶ Get your kit!
  - ▶ Leaf/greenwood:
    - ▶ Knife / nips / scissors - clean and sharp!
    - ▶ Clean pots with free-draining soil/medium or clean jars for water-based method
      - ▶ Note - any container works, if it has drainage
    - ▶ Rooting hormone (not essential, but speeds the process up)
    - ▶ Plastic bag/clear container
    - ▶ Plant tag/pencil
  - ▶ Softwood/Semi-hardwood/Hardwood:
    - ▶ See Hardwood Stem Cuttings instructions (separate hand-out)

# Go Greenwood!

- ▶ For Greenwood (non-woody herbaceous perennials) cuttings in soil
  - ▶ Fill clean pots with fast-draining soil. Water thoroughly.
  - ▶ Take cutting, either by removing a leaf or by trimming top 4-6 inches. Take stem cuttings below a leaf node
  - ▶ Remove bottom third of leaves, careful not to strip the bark, trim leaves if needed
  - ▶ Make a clean cut on the diagonal on the bottom of the stem with a clean knife
  - ▶ Dab the stem in rooting hormone (if using)
  - ▶ With a pencil, chopstick, or plant tag, poke a hole in the soil for the cutting
    - ▶ Note: you can place multiple cuttings in a single pot, if the leaves do not touch
  - ▶ Introduce the cutting into the hole, careful not to rub off any of the rooting hormone
  - ▶ Press the soil tightly around the stem
  - ▶ Tag the plant!
  - ▶ Water and let drain
  - ▶ Place pot in a clean plastic bag or container and put in a place where it can have light but not direct light.
  - ▶ Leave alone for four weeks. If rooted, pot into larger container and harden for garden
- ▶ For Softwood/Semi-hardwood/Hardwood - see Hardwood Stem Cuttings instructions (separate hand-out)

# Go Greenwood!

- ▶ For Greenwood (non-woody herbaceous perennials) - cuttings in water
  - ▶ Add clean water to a clean jar until about 2/3 full. Let stand until at room temperature
  - ▶ Take cutting, either by removing a leaf or by trimming top 4-6 inches. Take stem cuttings below a leaf node
  - ▶ Remove bottom third of leaves, careful not to strip the bark. Trim leaves if needed
  - ▶ Make a clean cut on the diagonal on the bottom of the stem with a clean knife
  - ▶ Place the cutting in the water jar so that the cut is covered, about ½ - 1 inch in the water. Don't completely submerge the cutting
  - ▶ Place jar in indirect light, changing water out every 3-5 days
  - ▶ Leave alone
  - ▶ Pot into soil when at least 2 inches of root is visible, water well and tag
- ▶ For Softwood/Semi-hardwood/Hardwood - see Hardwood Stem Cuttings instructions (separate hand-out)

## One more thing....

- ▶ You may propagate patented plants only for your own use
- ▶ Cutting tools should be very sharp - you want very clean cuts
- ▶ Keep cuttings cool/protected prior to sticking - hold moisture in
- ▶ Always clean your tools between plants
- ▶ Avoid using bleach as a cleaner (rubbing alcohol is better)
- ▶ When using rooting hormone, be sure to pour the powder into a separate cup and dip into it - never the bottle
- ▶ Patience! New plants can take months to come to size from cuttings
- ▶ Persistence! You will lose cuttings - do not get discouraged!

# Go leaves! Four ways!

- ▶ Prepare pots - free-draining soil/medium, water well
- ▶ Select a healthy leaf from the plant. Choose your method:
  - ▶ Leaf stem cutting - trim from parent plant, make a clean cut at the leaf stem, dip in hormone (if using) and introduce to medium, press snug to stem - African violets
  - ▶ Cone Cutting - trim petiole area from leaf, curl to make a “cone”, dip in hormone (if using) and introduce to medium. Press soil snugly.
  - ▶ Postage Stamp cutting - cut leaves (veined) into postage stamp sizes, being sure to capture the thickest veins. Dust with rooting powder (if using) and either lay flat or plant vertically. Press into medium.
  - ▶ Vein Cutting - cut the veins only on the leaf, keeping the rest intact. Dust with rooting hormone (if using) and press into medium. Weigh the leaf down with small rocks/marbles to keep contact between vein and soil
- ▶ For each above, water, allow to drain and cover with a plastic bag. Use straws/chopsticks, toothpicks to keep the plastic from touching the leaves
- ▶ Check for tiny plants to begin growing in about 4 weeks.



## A word about soil.....

- ▶ Drainage is key - avoid soils/mediums that are designed to hold water
- ▶ Cuttings cannot take up nutrients as they have no roots. Avoid soils/mediums with lots of extra fertilizer, inert is best
- ▶ If using compost or heavy mix, add soil conditioner, perlite, vermiculite to improve drainage
- ▶ Do not use soil directly from your garden plot. It can carry pathogens that rooted plants can withstand but cuttings cannot
- ▶ Soil does not need to be completely sterile - but if questionable, sterilize it before using. (place questionable soil in a black bag, leave in sun for a few days)
- ▶ If using a medium such as perlite or vermiculite exclusively - you must plan to keep cutting moist - dries out very quickly
- ▶ Water pots and soil completely (draining out the bottom) prior to introducing the cutting



# Seeds



## Seed Specifics -

- ▶ Seeds should be started for Spring gardens 6-8 weeks before last frost date (15 April)
- ▶ Seeds are viable roughly 3-5 years
- ▶ Test your seeds early!
- ▶ Use a seed starting mix
- ▶ Seeds should be sown on damp soil, and pressed in gently
- ▶ Light should be direct and close - 2 inches off soil - raise as plants grow
- ▶ Keep moist - cannot recover a dried-out seedling
- ▶ Use a fan to help strengthen stems after “real” leaves emerge
- ▶ Thin as seeds mature to prevent overcrowding
- ▶ Transplant in the garden as per packet instructions
- ▶ Don't let the weather fool you!
- ▶ Plant only what you like!





# Germination Test

- ▶ Get your gear!
  - ▶ Packet of seeds
  - ▶ Paper towel, soaked and wrung
  - ▶ Plastic zip-lock bag
  - ▶ Pen/sharpie
- ▶ Ready, set, go!
  - ▶ Lay your towel out (on counter, table, any surface)
  - ▶ Write the name on the towel of the variety of seed
  - ▶ Place about 10 seeds on the towel
  - ▶ Fold the towel so the seeds cannot fall out
  - ▶ Dunk quickly for extra moisture
  - ▶ Put the towel into the plastic bag and seal (write on outside of bag as well)
  - ▶ Put the bag in a warm place (75 degrees) and ignore for 7-10 days
  - ▶ At 10 days, check the seeds, you may see germination thru the bag, if not, open to see if any seeds are sprouting. If none, wait about 3-5 days. (Depending on plant!)

# Questions?



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