PLANT PROPAGATION PRIMER

Many gardeners, including some who have been at it for years, have experience dividing plants and sowing seed, but hesitate to dive into other methods of obtaining new plants from old because it all sounds too complicated. Linda Petite, Head Gardener at the Horticulture Center of the Pacific (HCP), dispels the mystery for the uninitiated.

Plants propagate themselves naturally in the wild, using all kinds of ingenious techniques. Propagation is an easy way for gardeners to obtain new material from their favorite plants. At the HCP, we propagate the plants we sell from seed, division and cuttings. Some plants can only be successfully generated using one or two of these methods, so it helps to know your plants and also be familiar with all of the following techniques.

By Division

Perennial division is best carried out in the early spring or fall. Divide plants that have died out in the middle or become overcrowded, or whenever you simply want more of the same to spread around the garden or give away to friends.

- Dig out the entire clump and divide into new sections using two forks back-to-back, a spade or a dividing knife. At this point I cut back top growth by ½ or more. If the centre of the plant lacks vigour, discard it.

- To make sure that you don't have any unwanted invasive roots, wash all the soil away from the division.

- Pot up or plant into the garden.

Clump-forming plants like Sempervivum sp. (Hens & Chicks) and agave produce new plants at the base of the parent plant. These offsets (pups) can be cut away using a sharp knife. Pot up immediately in a well-drained, sandy growing mix.

By Cuttings

Softwood Cuttings

Softwood cuttings are taken in the spring from fast-growing stem tips.

- Sterilize your secateurs with a 10% bleach solution between each set of different materials.

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- For best results, take 4 - 6 inch cuttings in the early morning and place them in water immediately.

- Trim the cuttings on a slant, remove the lower leaves and make sure there are 2 nodes to go below the soil, where new roots will form. Pinch out the growing tip. Dip the cutting into rooting powder (see below) and tap off excess.

- Remove all flowers and flower buds. Cuttings with large leaves should be reduced by half.

- Prepare a cutting mix with perlite or sand (we use 2/3 perlite to 1/3 #4 sunshine mix). It should be damp and pressed into the container so that there are no air pockets.

- Use a chopstick to make a hole in the media and insert a cutting, make sure it touches the bottom of the cell pack so that it's close to the bottom heat of the propagation table. We place several cuttings in each cell and find that the natural auxin produced by the plants encourages root growth.

- Make sure you label each group of cuttings with their proper name and date.

- Clean any fallen leaves away from the rooting cells and keep them moist until roots develop. Depending on the plant and the time of year, this may take a few weeks or several months. Cover them to make a mini-greenhouse for extra humidity, and keep out of direct sunlight.

- Once rooted, pot up into 4" pots with a soilless growing mix.

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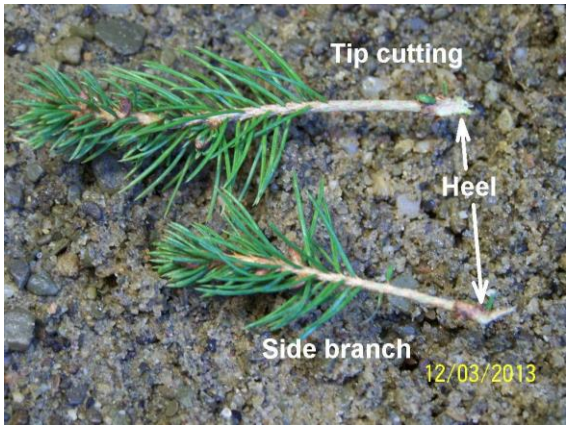
Heel Cuttings

Heel cuttings should be taken from vigorous side shoots of the current season's growth. This method works particularly well with conifers. Make sure the shoots are firm and slightly woody.



- Pull small lateral stems away carefully leaving a part of the stem at the base of the cutting. They contain hormones that help in root formation.

- Trim the heel tail and dip into rooting powder, coating the heel. Shake off excess and follow the same procedure as with softwood cuttings, above.

Conifer cuttings always need a heel and are slow to root, taking up to 6-12 months. Plants such as clematis and other vines can be propagated by internodal cuttings; these do not have a node directly above the cut. Some other plants can be reproduced by taking basal heel cuttings at ground level: remove 5-6" shoots and pot them up.

Hardwood Cuttings

Hardwood cuttings are taken from dormant plants in the late fall or winter.

- Take pencil-thick stems 10-12 inches in length and place them in a pot or an outdoor trench.

- Cut each stem on a slant below a node. Make a slice into the bark and remove a strip at the base. Rooting will occur in the spring. This works well for Cornus and Salix spp.

Don't give up if your cuttings fail. Often conditions are too warm in the greenhouse, or the slips were under- or over-watered. Try again!

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By Seeding

Seed can be sown directly into the ground, usually in the fall or spring, or sown indoors before the growing season starts. The seed packet or purveyor's website will tell you what method gives the best chance of success; and will provide extra information when needed, such as sowing depth, germination rates, and requirements for scarification (abrading or soaking the seed coating to break dormancy) or for stratification (which seeds need cold or warm conditions to break dormancy). Be sure to read the directions on the seed packet!

- Always use fresh seed or do a viability test on your old seed.
- Check to see what requirements are needed for germination.
- For indoor rearing, use a sterile soilless medium and containers with drainage holes. Label each with plant name and date of sowing.
- Water as needed and place in a propagator, greenhouse or on a window sill.
- Once the true leaves appear, seedlings are large enough to handle. Prick out individual seedlings and place in slightly larger pots for growing on and, eventually, planting out.

If you're saving your own seed, collect when ripe (brown/dry seed pods). Place the seed pods in a warm, dry place to ripen. When they're ripe, separate the seed from the chaff and package in an envelope with the plant name and date of collection. Store in a cool, dry place until you're ready to sow.

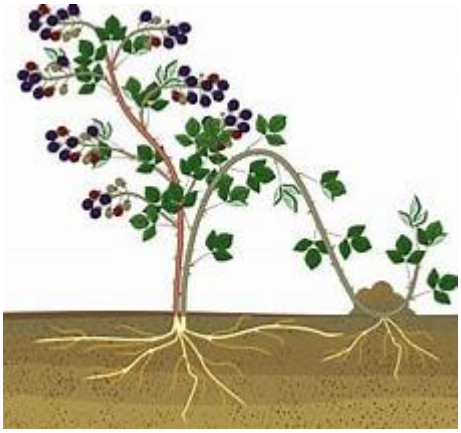
A Note on Rooting Powders

The following are rooting powders you should have on hand (they generally come in three strengths depending on the percentage of Indole-3 butyric acid (IBA) involved):

- #1 for softwood cuttings taken in spring and for houseplants
- #2 is for semi-hardwood cuttings taken in summer
- #3 for hardwood cuttings taken in winter

By Layering

Layering is a form of vegetative propagation where cuttings are made to form adventitious roots while the cutting is still attached to the mother plant. Stems of the mother plant are covered in a growing medium in various ways to exclude light, increase the moisture level, and stimulate root growth. Once roots are formed the new plant (layer) can be clipped from the mother, dug and transplanted to the desired location.



References

1. "Cuttings Through the Year" by Joy Spurr et al, WA Arboretum Foundation. It tells you which cuttings to take each month throughout the year.

2. University of Washington State University Extension Program: https://depts.washington.edu/propplnt/Chapters/Layering%20and%20grafting.pdf