

More Please!

How to Propagate Succulents



Presented by
UC Master Gardeners of Placer County



University of California

Agriculture and Natural Resources

■ UCCE Master Gardener Program

Who Are Master Gardeners?

Master Gardeners of Placer County

- ❖ Extend **research-based**, sustainable gardening and composting information
- ❖ Present accurate, impartial information to **home gardeners**
- ❖ Encourage public to make **informed** gardening decisions



Who Are Master Gardeners?

Where to find us...

Online, in the Media, and Special Publications

- ❖ Hotline: Call **(530) 889-7388** or submit your questions online
- ❖ Website: pcmg.ucanr.org
- ❖ Facebook, Twitter, Instagram
- ❖ Gold Country Media monthly column
- ❖ *Curious Gardener* quarterly newsletter on our website
- ❖ *Gardening Guide and Calendar*



Who Are Master Gardeners?

Where to find us...

Workshops, Fairs and Festivals, and Special Events

- ❖ Speakers by Request
- ❖ Workshops (various venues, check website)
- ❖ Farmers' Markets (seasonal: Auburn, Roseville)
- ❖ Fairs and Festivals Booths (varies)
- ❖ Garden Faire (April)
- ❖ Mother's Day Garden Tour (May)



Visit our website: pcmg.ucanr.org

The screenshot shows the homepage of the UC Master Gardeners of Placer County website. At the top left is the University of California logo and the text "University of California UC Master Gardeners of Placer County". To the right are links for "SKIP TO CONTENT" and "SITE MAP", a search bar with the placeholder "Enter Search Terms", and a "GIVE" button. Below the header is a banner image of several bright yellow sunflowers. Underneath the banner is a navigation menu with categories: "Placer Pests", "Gardening Essentials", "Gardening Year Round", "Vegetables", "Landscape Plants", "Fruits & Nuts", and "UC Gardening Guides". On the right side of the banner area are "SHARE" and "PRINT" icons. A left sidebar contains a list of links: "Home", "2021 Gardening Guide and Calendar", "Join Our Email List", "Ask a Master Gardener", "School & Community Gardens", "Curious Gardener Newsletter", "About Master Gardeners", "How to Become a Master Gardener", "Contact Us", "Placer/Nevada UCCE", and "For PC Master Gardeners Only". Below these links is a red heading "Connect With Us!". The main content area features the title "UC Master Gardeners of Placer County" and a red heading "Mother's Day Garden Tour postponed until 2022". Below this is a section titled "Upcoming Events" with a table listing events. On the right side of the main content area is a blue box with the heading "HOTLINE UPDATE" and text explaining that the hotline office is closed to walk-in clients but available for questions via email or phone. At the bottom right is a button labeled "Ask a Master Gardener...".

University of California
UC Master Gardeners of Placer County

SKIP TO CONTENT SITE MAP Enter Search Terms Q GIVE

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Mother's Day Garden Tour postponed until 2022

Upcoming Events

Event Name	Date
Principles of Propagation Zoom Workshop	5/8/2021
Plant It and They Will Come: Planning for Pollinators Zoom Workshop	5/22/2021
Succulents Zoom Workshop: Part 1 Welcome to Succulents; Part 2 How to Propagate Succulents	6/12/2021
California Native Plants for Habitat Gardening Zoom Workshop	6/26/2021

Virtual Gardening Workshops

HOTLINE UPDATE

The Hotline office continues to be closed to all walk-in clients. We are, however, available to answer your gardening questions. You can submit them by using the Ask A Master Gardener link below or by leaving a message on our Hotline number shown at the bottom of this web page.

Ask a Master Gardener...

Handouts

SUCCULENTS/CACTI FOR EASY PROPAGATION

Succulents/Cacti for Easy Propagation						
Genus	Leaf Cutting	Stem Cutting	Stem Section	Division: Offset, Rootstock, Tuber, Bulb	Seed	Grafting
Agave Century plant, Parry's agave, Coral yucca + more				X	X	
Aloe Most species		X		X	X	
*Cereus		X	X		X	X
Crassula (most species) -Aeonium ('Sunburst') -Echeveria (Hens & Chicks, Firecracker) -Sedum (Palmer's sedum, Jelly beans, Autumn Joy, Stonecrop) -Sempervivum (Kalanchoe, Jade plant, Fairy crassula)	X	X		X	X	
*Echinocactus Hedgehog + more		X			X	X
*Echinops Easter Lily cactus, Barrel cactus + more		X	X	X	X	X
*Epiphyllum Orchid cacti	X	X	X		X	X
Euphorbia (Spurge Family) Crown of Thorns, Firesticks, Glacier Blue + more		X			X	X
Gesneriad Ox tongues	X			X	X	
*Hesperaloe parviflora (Red cholla) Caster cactus		X	X			
Hesperaloe Zebra plant + more	X			X	X	
*Mammillaria Snowball pincushion + more		X		X	X	X
*Opuntia Prickly Pear cactus + more		X	X		X	X
Sansevieria Mother-in-law's tongue/Snake plant		X		X	X	
Senecio (Part of the Asteraceae/Daisy family) String of beads, Blue chalk fingers + more		X		X		
*Sphaeralcea Christmas & Thanksgiving cactus		X	X		X	X

*Cactus
The information provided in the chart is for general reference. For more detailed information on specific varieties and for the larger genera, please consult additional resources. Information provided is adapted from 1) The Complete Book of Cacti & Succulents, Hewitt, Terry, 1993 and 2) Plant Propagation, The American Horticultural Society, 1999.

UC Master Gardeners of Placer County are University of California Cooperative Extension (UCCE) ambassadors to the Placer County home gardening community. UCCE is part of the Division of Agriculture and Natural Resources (ANR) of the University of California. UCCE Placer County: 11477 E Avenue, Auburn, CA 95603, (530) 889-7385. UC Master Gardeners of Placer County Hotline: (530) 889-7385, Website: <http://ucanr.ucdavis.edu/> 5/1/2021

SUCCULENT VARIETIES FOR PLACER COUNTY

Succulent Varieties for Placer County	
Agavaceae (family name)	
Agaves (SG/WD)	<ul style="list-style-type: none"> • Arichoke agave (<i>A. parryi</i>) • Century plant (<i>A. Americano</i>)* • Miniature century plant (<i>A. truncayana</i>) • Coral yucca/Hummingbird yucca* (<i>Hesperaloe parviflora</i>) • Curved leaf/soft leaf (<i>A. recurvifolia</i>) • Gold edge (<i>A. filamentosa Variegata</i>) • Spanish dagger (<i>A. gloriosa</i>)
	<ul style="list-style-type: none"> • Parry's agave (<i>A. parryi huachuensis</i>) • Royal agave (<i>A. victoriae-reginae</i>)
Aizoaceae	
Ice plants & Lithops (SG/WD)	<ul style="list-style-type: none"> • Cooper's ice plant (<i>Oenothera cooperi</i>)* • Ice plants (<i>Cephalophyllum</i>) • Living stones/ Pebble plants (Lithops)
Aloaceae	
Aloes (WG/SD)	<ul style="list-style-type: none"> • Bitter aloes (<i>A. ferox</i>) • Candelabra aloes (<i>A. arborescens</i>) • Cape speckled aloes (<i>A. microstigma</i>) • Coral aloes (<i>A. striata</i> x <i>saponaria</i>) • Elias Buhre's aloes (<i>A. buhrei</i>) • Mitre aloes (<i>A. perfoliata</i>) • Mountain aloes (<i>A. marlothii</i>) • Short-leave aloes (<i>A. brevifolia</i>) • Spider aloes (<i>A. humilis</i>) • Tiger aloes (<i>A. variegata</i>)
Asphodelaceae	
Bulbine (WG/SD)	<ul style="list-style-type: none"> • Cape balsam (<i>B. frutescens</i>, 'Hailmark' and 'Tiny Tangerine')
Crassulaceae (Crassula)	
Aeoniums (WG/SD)	<ul style="list-style-type: none"> • Houseleek tree (<i>A. arborescens</i>) • Large purple aeonium (<i>A. Zwartkop</i>) • "E" Afterglow • E. "Black Prince" • Firecracker (<i>E. setosus</i>) • Fire & Ice (<i>E. subrigida</i>) • E. Graptopetalum • Autumn joy stonecrop (<i>S. spectabilis</i>) • Frosty morn (<i>S. erythrotaetum</i>) • Jelly beans (<i>S. rubrotinctum</i>) • Large red carpet stonecrop (<i>C. rodicans</i>) • Crassulas • Fairy crassula (<i>C. multicaulis</i>) • Hen and Chicks • Hopewell (<i>S. tectorum</i> ssp <i>greenii</i>) • Ginnie's delight • Sunburst (<i>A. decorum tricolor</i>) • Hens & Chicks (<i>E. imbricata</i>)* • Lipstick (<i>E. agavoides</i>) • Whitening echeveria (<i>E. albicans</i>) • Woolly rose (<i>E. Doris Taylor</i>) • Palmer's sedum (<i>S. palmeri</i>)* • Purple emperor (<i>S. x "Purple Emperor"</i>) • Showy stonecrop/everlasting (<i>S. spectabilis</i>) • S. "Rosy glow" • Jade rose • Jade plant (<i>C. ovata</i>) • Kalanchoes
Sedums (Stonecrops) (WG/SD)	
Sempervivums (WG/SD)	
Euphorbiaceae	
Euphorbias, Spurge (SG/WD)	<ul style="list-style-type: none"> • Crown of thorns (<i>E. Milii</i>) • Firesticks (<i>E. tirucalli</i> 'Rosea') • Glacier Blue (<i>E. characias</i>) • Poinsettia (<i>E. pulcherrima</i>)
And Many More!	
SG/WD	UC Arboretum "All Star"
WG/SD	Summer Growers/ Winter Dormancy (May-Aug/Nov-Feb) Winter Growers/ Summer Dormancy (and often rest period) (Nov-Feb/May-Aug)

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COMMON PESTS, PROBLEMS & SOLUTIONS

Common Pests (See: UC Davis Integrated Pest Management www.ipm.ucdavis.edu)		
SYMPTOM	PROBABLE CAUSE	REMEDY
Aphids	Spray off with water. Use beneficial insects. Caution w/insecticidal soaps—know your succulent!	Control/eliminate aphids or scale causing "honeydew". Neem oil. Remove leaves, tolerate if not severe.
Caterpillars	Identify caterpillar, then treat. Hand pick off. Use beneficial insects. Neem oil (caution-can burn leaves in direct sunlight). Bacillus thuringiensis (BT).	Remove plant from pot/soil. Disinfect pot/roots. Cut infected area off. Repot propagate healthy section. Change watering practices.
Fungus (Anthracnose, Black sooty mold, black spot, Grey mold, Fusarium wilt, Powdery mildew, Root & crown rot)	Remove affected stem or leaf. Avoid overhead watering. Provide good air circulation and a dry environment. Use appropriate fungicide.	Remove plant from pot/soil. Disinfect pot/roots. Cut infected area off. Repot propagate healthy section. Change watering practices.
Mealy bugs	Use rubbing alcohol on cotton swab to remove (gently). Insecticidal soap. Beneficial insects. Clean/isolate plant. Repot/throw away soil.	Remove plant from pot/soil. Disinfect pot/roots. Cut infected area off. Repot propagate healthy section. Change watering practices.
Scale	Scrape or gently rub off w/alcohol. Remove leaf/stem. Insecticidal soap. Neem oil (caution-can burn leaves in direct sun). Throw away plant with soil/potting mix.	Remove plant from pot/soil. Disinfect pot/roots. Cut infected area off. Repot propagate healthy section. Change watering practices.
Snails/Slugs	Pick off. Use non-toxic snail bait.	Remove plant from pot/soil. Disinfect pot/roots. Cut infected area off. Repot propagate healthy section. Change watering practices.
Spider mites (Arachnid/spider)	Brush webbing/mites off right away onto paper. Repot-throw away soil. Neem oil (caution-can burn leaves in direct sunlight).	Remove plant from pot/soil. Disinfect pot/roots. Cut infected area off. Repot propagate healthy section. Change watering practices.
Thrips	Insecticidal soap. Neem oil (caution-can burn leaves in direct sun).	Remove plant from pot/soil. Disinfect pot/roots. Cut infected area off. Repot propagate healthy section. Change watering practices.

Common Problems/Solutions (See: UC Davis Integrated Pest Management www.ipm.ucdavis.edu)		
SYMPTOM	PROBABLE CAUSE	REMEDY
black grimy soot on leaves & stems.	black sooty mold.	Control/eliminate aphids or scale causing "honeydew". Neem oil. Remove leaves, tolerate if not severe.
black spots on leaves.	Fungus: Black spot.	Remove plant from pot/soil. Disinfect pot/roots. Cut infected area off. Repot propagate healthy section. Change watering practices.
black or brown stem (lower part of plant).	Fungus: Root rot.	Remove plant from pot/soil. Disinfect pot/roots. Cut infected area off. Repot propagate healthy section. Change watering practices.
Elongated growth (etiolation).	Not enough light.	improve light conditions.
Failure to bloom/very few flowers.	Fertilizer: Too much nitrogen or fertilized during dormancy.	Use balanced fertilizer at 1/2 strength. Give plant "summer rest".
Failure to make new growth.	Over-watering. Compacted soil. Roots decaying	Change watering practices. Repot. Amend soil. Use cactus/succulent mix.

Agenda

Welcome!

- ❖ WHO are Master Gardeners?
- ❖ WHO can propagate succulents?
- ❖ WHAT is propagation?
- ❖ HOW to propagate succulents.
- ❖ Wrap-Up.



WHO Can Propagate Succulents?

- ❖ Anyone can propagate succulents!
 - One of the easiest plants to propagate.
- ❖ Succulents lend themselves to multiple methods of propagation.
- ❖ Many varieties can grow in Placer County and are easy to propagate.
 - See handout “Succulents Easy for Propagation”.



Definition of Propagation

- ❖ “Plant propagation is the process of increasing the numbers of a given species.”

(California Master Gardener Handbook, 2nd ed., p. 110)

- ❖ Two types of propagation:

1. Seeds (sexual reproduction)

- From the floral parts of a plant.

2. Vegetative (asexual reproduction)

- From the nonfloral parts of a plant.
- Leaves, stems & roots.



Propagation Fundamentals

- ❖ Choose best propagation method for succulent variety.
- ❖ Avoid using very young plants.
- ❖ Determine your succulent's growing and dormant seasons.
 - See handout "Succulent Varieties for Placer Co."
- ❖ Propagate beginning of active growth period, often early spring up to June.



Propagation Fundamentals (continued)

- ❖ Sterilize tools and other equipment.
- ❖ Keep out of direct sunlight.
- ❖ Provide good air circulation.
- ❖ Don't overwater!
- ❖ Patience! Rooting time varies depending on succulent variety:
 - can take weeks to months to see any roots.
 - often the “mother” leaf will begin to wither.
- ❖ Transplant.



HOW to Propagate Succulents



Three Easy Methods

1. Seed germination.
2. Cuttings:
 - Leaves and stems.
3. Division:
 - Offsets and roots.

HOW to Propagate Succulents

1. Seed Germination

- ❖ Mostly used for cacti.
- ❖ Need time and patience.
- ❖ Seeds from retail or collect your own.
- ❖ Usually sown in April for germination in late spring.



HOW to Propagate Succulents

2. Cuttings: Leaf

- ❖ “Cleanly” pull/cut healthy leaf away from plant.
- ❖ Lightly dust cut end of leaf with rooting hormone/fungicide.
- ❖ Allow leaf to form callus (1-2 days to 1 week).



HOW to Propagate Succulents

2. Cuttings: Leaf (continued)

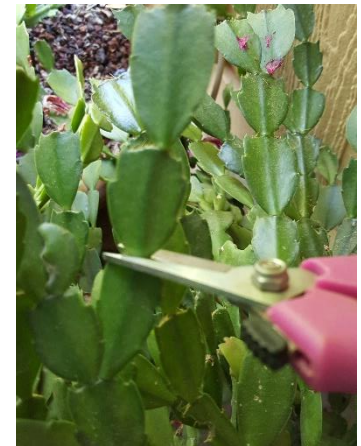
- ❖ Lay callused leaf on top of succulent mix with perlite or small gravel on top of tray or pot or...
- ❖ Lightly “firm in” callused end.
- ❖ Label, water and allow pot/tray to drain completely. Keep slightly moist.
- ❖ Transplant when ready.



HOW to Propagate Succulents

2. Cuttings: Stem

- ❖ Choose a healthy, sturdy stem (too long will wilt, flop over).
- ❖ Cut straight across, directly below a leaf node, stem joint or bud.
- ❖ Cut at stem segment for Christmas, Easter Cactus.
- ❖ Trim stem to 2-4" in length.



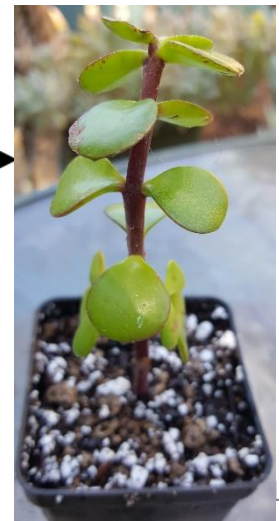
HOW to Propagate Succulents

2. Cuttings: Stem (continued)

- ❖ Gently remove lower leaves of stem & allow to callus.
- ❖ Top succulent mix w/small, ground lava or perlite.
- ❖ Gently push cutting in slightly moistened succulent mix.
- ❖ Be patient while roots develop!



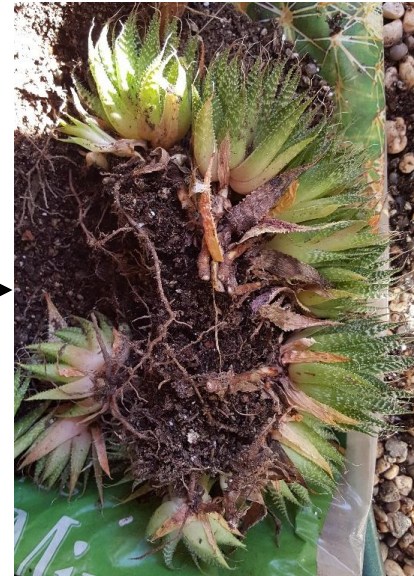
Nodes = Potential
New Roots



HOW to Propagate Succulents

3. Division: Clumping Offsets/Pups

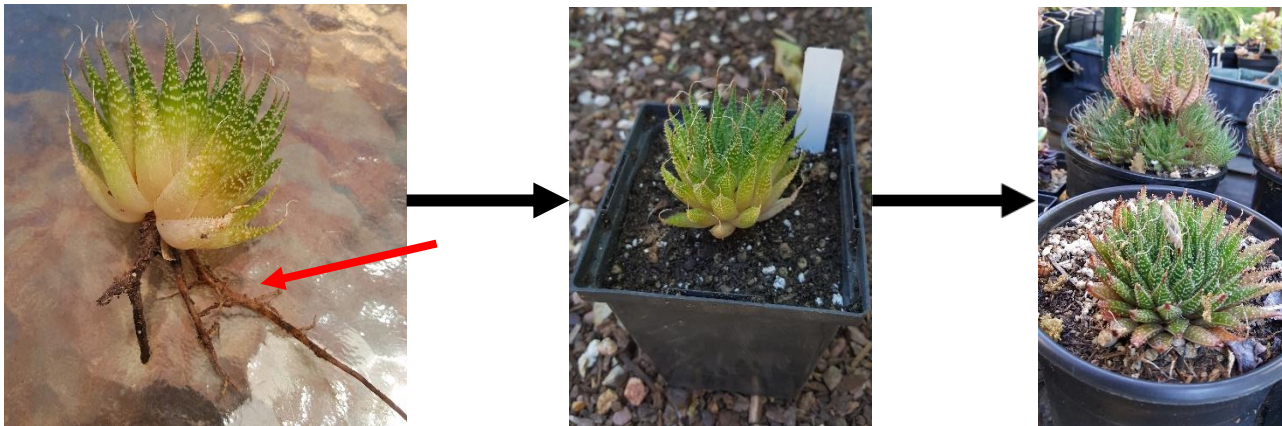
- ❖ Dig up succulent or remove from pot.
- ❖ Pull, tease or cut away offsets from base of plant.



HOW to Propagate Succulents

3. Division: Clumping Offsets/Pups (continued)

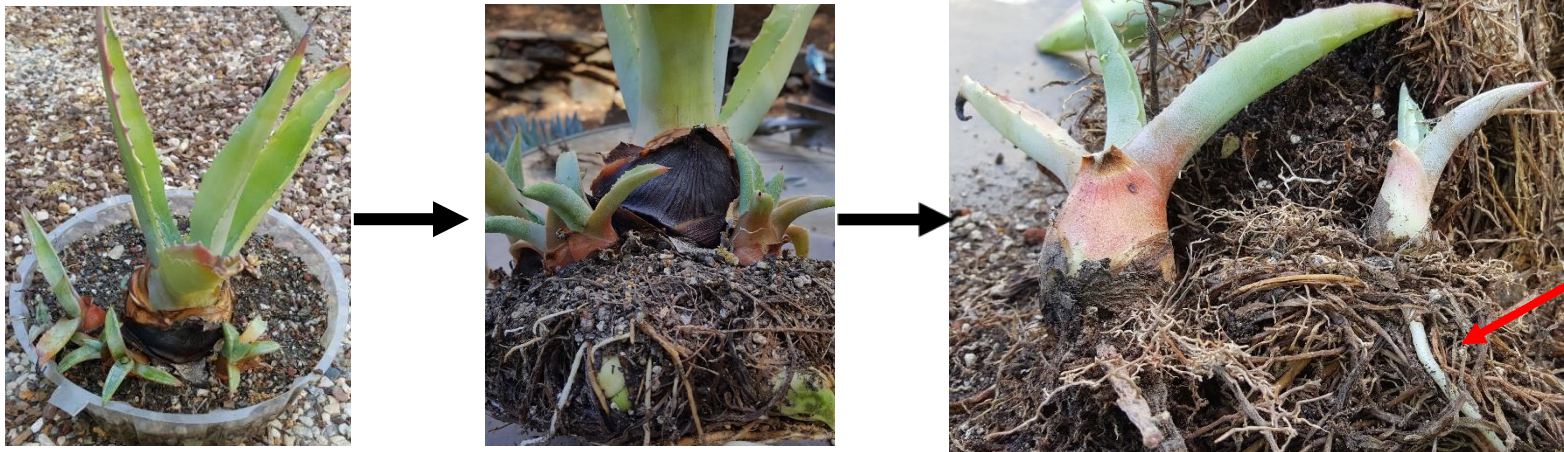
- ❖ Each offset should have:
 - its own vigorous roots
 - at least one growing point, shoot.
- ❖ Allow to callus.
- ❖ Top succulent mix w/small, ground lava or perlite.
- ❖ Gently place offset in slightly moistened succulent mix.
- ❖ Lightly water after 2-3 days to avoid root rot.



HOW to Propagate Succulents

3. Division: Rootstock

- ❖ During dormant season, dig up or remove parent plant from ground or pot.
- ❖ Use a sharp knife to cut rootstock or tubers into sections.
- ❖ Each section should have:
 - its own vigorous roots
 - at least one growing point, shoot.



HOW to Propagate Succulents

3. Division: Rootstock (continued)

- ❖ Remove any damaged, old or woody part of section.
- ❖ Allow to callus.
- ❖ Replant into succulent mix.
- ❖ Lightly water after 2-3 days.



A Plethora of Succulents!



Wrap-Up

- ❖ WHO are Master Gardeners?
- ❖ WHO can propagate succulents?
- ❖ WHAT is propagation?
- ❖ HOW to propagate succulents.



Thank You!

Any Questions?

Master Gardener Hotline: **(530) 889-7388**

Rot Line: **(530) 889-7399**

Master Gardener Website: **pcmg.ucanr.org**



UC Master Gardeners of Placer County