The Splendid World of Succulents

Presented by
UC Master Gardeners of Placer County
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
Handouts
Welcome!

❖ WHO are Master Gardeners?
❖ WHO can grow succulents?
❖ WHAT are succulents?
❖ WHY grow succulents?
❖ HOW to grow succulents.
❖ HOW to manage pests & problems.
❖ Wrap-Up.
❖ HOW to propagate—next session.

Agenda
WHO Can Grow Succulents?

All of us in Placer County!

Our Sunset Climate Zone and USDA Plant Hardiness Zone

Sunset Zones: 1A, 7, 9, 14

USDA: 6a, 6b, 7a, 7b, 8a, 8b, 9a, 9b
### WHAT Are Succulents?

“**All cacti** are succulents, but not all succulents are cacti!”

<table>
<thead>
<tr>
<th>Succulents</th>
<th>Cacti</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Succu” = Latin = Juicy plant</td>
<td>Greek word = Prickly plant</td>
</tr>
<tr>
<td>A <strong>characteristic</strong> across ~ 70-80 plant families. ~ 12,000 varieties (species)!</td>
<td>A <strong>plant family</strong> = Cactaceae. 2000 + varieties (species).</td>
</tr>
<tr>
<td>A plant’s ability to store and use water in <strong>specialized tissues</strong> in its leaves, stems and roots.</td>
<td>Cacti are succulents w/spines! Unique only to cacti: <strong>Areoles</strong> (cushion-like buds).</td>
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Succulent or Cactus?
# Evolutionary Timeline

<table>
<thead>
<tr>
<th>Succulents</th>
<th>Cacti</th>
</tr>
</thead>
<tbody>
<tr>
<td>~ 50 million years old!</td>
<td>~ 20 million years old!</td>
</tr>
<tr>
<td>Convergent evolution across the plant kingdom.</td>
<td>Continued evolutionary process driven by land mass changes/climate changes.</td>
</tr>
<tr>
<td>Roots shallow, wide spreading. Leaves, stems &amp; roots modified.</td>
<td>Leaves to spines. Stems modified into pads, cylinders, joints.</td>
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<tr>
<td>Mostly native to Northern Europe and Far East. Large concentrations in Southern and Eastern Africa.</td>
<td>Native to Americas and surrounding islands (Galapagos, Caribbean).</td>
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</table>
Succulent Varieties for Placer County

Agavaceae (family name)

Agaves

❖ Artichoke agave (A. parryi)
❖ Century plant (A. Americana)*
❖ Miniature century plant (A. toumeyana)
❖ Parry’s agave (A. parryi huachucensis)
❖ Royal agave (A. victoriae-reginiae)

*UC Davis Arboretum “All Star”
Succulent Varieties for Placer County

Agavaceae (continued)

Yuccas

❖ Coral yucca/Hummingbird yucca*  
  (*Hesperaloe paryiflora*)
❖ Curved leaf/soft leaf (*Y. recurvifolia*)
❖ Gold edge (*Y. filamentosa ‘Variegata’*)
❖ Spanish dagger (*Y. gloriosa*).

*UC Davis Arboretum “All Star”
Photos: @ ncsu.edu; Yucca by Fritz Hochstatter, Dagger by KENPEI
Succulent Varieties for Placer County

Aizoaceae

Ice plants & Lithops

❖ Cooper’s ice plant
  *(Delosperma cooperi)*

❖ Ice plants *(Cephalophyllum)*

❖ Living stones/ Pebble plants
  *(Lithops).*

*UC Davis Arboretum “All Star”*
Succulent Varieties for Placer County

Aloaceae

Aloe

❖ Cape speckled aloe
  \textit{(A. microstigma)}

❖ Coral aloe \textit{(A. striata x saponaria)}

❖ Elias Buhr’s aloe \textit{(A. buhrii)}

❖ Mitre aloe \textit{(A. perfoliata)}
Aloaceae (continued)

Aloe

❖ Name that aloe!
Succulent Varieties for Placer County

Crassulaceae

Crassula

❖ Aeonium

❖ Echeveria

Aeonium sp.

Aeonium “Zwartkop” black

Echeveria “Doris Taylor”

Echeveria sp.

Graptopetalum sp.
Succulent Varieties for Placer County

**Crassulaceae (continued)**

**Crassula**

- **Sedum**
- **Sempervivum**
  - “Hens & Chicks”

Sempervivum sp.

Sedum “Elsie’s Gold”

Sedum & Sempervivum
Succulent Varieties for Placer County

Euphorbiaceae

Euphorbias and Spurges

❖ Crown of thorns (*E. Milii*)
❖ Firesticks (*E. tirucalli ‘Rosea’*)
WHY Grow Succulents?

❖ Drought tolerant.
❖ Unique shapes, textures and flowers.
❖ Low maintenance.
❖ Source for pollinators.
❖ Large number of varieties.
❖ Versatile growing options.
❖ Commercial commodities.
WHY Grow Succulents? (continued)

Aesthetics
WHY Grow Succulents? (continued)

Horticultural
- Used indoor & outdoor, ornamental gardens, ‘live’ fence.
- Agave: rope, bio-fuel.
- Beauty & health products.

Food
- Agave sweetener, liquors (tequila).
- Indigenous people.
- Livestock food.
Creative Ways to Grow Succulents
Creative Ways to Grow Succulents
HOW to Grow Succulents
Seven Elements to Consider

1. “Choose the right plant for the right place!”
2. Consider growing and dormant periods.
3. Temperature requirements.
4. Lighting conditions.
5. Watering requirements.
6. Planting mix or well draining soil.
7. Fertilizing needs.
1. “Choose the right plant for the right place!”

- Identify your gardening zone:
  - Sunset and USDA Hardiness zones.
- Consider microclimates.
- Is plant “tender” or “cold hardy”? 
2. Consider plant’s growing and dormant seasons.

❖ Know the “particulars” of your succulent.

❖ **Growth cycle** is in response to temperature and water.

❖ **Dormancy cycle** is in response to cooler temperatures and lower moisture.
2. Consider plant’s growing and dormant seasons. (continued)

- **Summer grower** = Winter dormancy
  (May-Aug) (Nov-Feb)
  • Agave, Echeveria, Euphorbia, Lithops...

- **Winter growers** = Summer dormancy
  (Nov-Feb) (May-Aug)
  • Aeonium, Aloe, Bulbine, Crassula, Hawthoria, Kalanchoe, Sedum...
3. **Temperature**
   - Check individual succulent requirements.
   - Provide good air circulation.
   - Cooler temperatures—usually 40° minimum.
   - **FROST KILLS!** Cover if frost expected or move to protected area.
   - Protect from wind.
   - Maximize microclimates.
4. **Lighting**

   - Some varieties don’t tolerate direct sun.
   - Greatly influences plant growth and flower development.
   - Bright light generally okay.

   - Provide proper sun exposure:
     - Southern, SW or SE facing slope.
     - Some exceptions: Christmas, Easter and Thanksgiving cacti...
5. Water

❖ Overwatering = #1 cause of succulents dying!!!

❖ Water thoroughly only when needed, when almost dry.

❖ Minimal watering during dormant season:
  • Begin withholding water in fall.
  • Exceptions: Christmas, Easter and Thanksgiving cacti...
HOW to Grow Succulents
Seven Elements (continued)

6. **Planting Mix or Well Draining Soil**
   - Use cactus/succulent mix or make your own.
   - Use light, well-draining mix.
   - Amend soil with the mix when planting in the ground.
   - Mulch top of mix/soil with volcanic rock, perlite or similar (not wood mulch).
7. Fertilizer

❖ Fertilize during growing season:
   • Know your succulents’ growing season.
   • Usually spring and summer.
   • Mid-summer, many succulents “resting”.

❖ Use ¼ to ½ strength of a balanced fertilizer (10\text{Nitrogen} \cdot 10\text{Phosphorous} \cdot 10\text{Potassium}).

❖ Foliar fertilizers not recommended!!!
HOW to Manage Pest & Problems
HOW to Manage Pest & Problems

Pests/Animals

❖ Aphids
❖ Birds
❖ Deer
❖ Gophers & Rodents
❖ Mealy bugs
❖ Rabbits & Squirrels
HOW to Manage Pest & Problems

**Pests/Animals**

- Scale insects
- Snail/Slugs
- Red Spider mites
- Thrips
- Worms/Caterpillars

Photo by David Rosen.
HOW to Manage Pest & Problems

Environmental

❖ Cold damage

❖ Etiolation

❖ Mechanical/Physical

❖ Over-watering

Over-watering created “water mold”
HOW to Manage Pest & Problems

Environmental

- Phototoxicity (chemical w/direct hot sun)
- Pot bound
- Scorch damage
- Under-watering

Underwatered Gymnocalycium friedrichii
HOW to Manage Pest & Problems

Fungus and Other

❖ Fungus:
  • Anthracnose
  • Black sooty mold
  • Black spot
  • Grey mold
  • Fusarium wilt
  • Powdery mildew
  • Root (Black stem) & Crown rot
Wrap-Up

❖ WHO are Master Gardeners?
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❖ WHAT are succulents?
❖ WHY grow succulents?
❖ HOW to grow succulents.
❖ HOW to manage pests & problems.
❖ HOW to propagate—next session.
Thank You!

Any Questions?

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