

The Bulletin

EPIPHYLLUM SOCIETY OF AMERICA



SUMMER 2016 • VOL 71 • NO. 4



PHOTOGRAPH: Paul Richter
Best Photo Winner – ESA Show

‘KIWI TREASURE BOX’

Hybridizer Yvonne & Andrew Brunton Reg. #13563

‘Elegans Lei’ × ‘Elinor Victoria Latimer’

Summer Culture Calendar

by Keith Ballard

Summer is the traditional season to repot, fertilize and/or prune epies, all of which can have a beneficial effect on the plants. However, understand that there are epi growers that repot all year-round. What follows are suggested approaches that I know work, but like other approaches to epi culture, other procedures may work as well.

Repotting: We repot to encourage growth, which hopefully also encourages blooming. We also hope that larger plants produce more blooms. So, the general basic rule of when to repot is when the epi stops growing or stops blooming. However, in practice, the actual time to repot needs to be tailored to one's best guess at the exact condition of the given epi.

Pot Sizing: In growing epies, there are some pot size considerations. The pot needs to be sized to the size of the plant. Epies like to "feel" the sides of the pot to bloom well, so pick a small pot for a small epi and vice versa. In addition, a pot that is too large for an epi runs the risk of retaining too much water. This may cause root rot, or rot the below-ground part of the epi branch. As an additional note, mushy places on a branch are a sign of too much water. The standard routine that I follow for repotting (from a cutting to the largest size) is: a cutting starts in a 3 1/4 inch pot; in a year or two (or when it gets so large it starts to fall over) repot to a 6 inch pot; and finally, in another year or so, to an 8 1/2 inch pot. Because of my space limitations, the 8 1/2 inch pot is the maximum size I generally use. In addition, I routinely repot at five year intervals if a given epi does not need special consideration.

An epi in a pot that is too small will become root-bound and stop growing. I have seen cases where an epi was left too long in a given pot, and probably without proper fertilization, where the mix turns a sickly yellow color and the plant was not doing well at all. It's important to repot when you need to, but when "up potting" (or repotting to larger pot) don't be in too much of a hurry to go to a much larger-sized pot.

Step by Step: Before you take anything out of a pot, plan ahead, and be completely ready to repot. Letting exposed epi roots dry out while still preparing mix, is just as bad as letting a plant completely dry out.

You can create a clean work surface for the root ball by covering the work area with a stack of newspapers. When finished with one plant, lift off the top sheet or two with all the leftover debris and throw them away. You automatically have a clean and disease-free working surface for the next plant. If the sheets get wet for one reason or another, use just one or two sheets at a time.

Try to be as gentle as is practical when removing the root ball from the pot. A technique that works well, is to insert a metal or

fiberglass rod at an angle through one of the pot's bottom drain holes and pry the ball out. If the pot has a hole in its side near the bottom, so much the better. You might consider drilling a hole near the bottom of your new pot before using it. I drill extra drain holes in the sides and bottom as a matter of course.

Assess the condition of the roots. This is the most important step of repotting. If they are firm and healthy, continue with the repot. If not, go to the section below on "Special Considerations."

If you are up-potting, preserve as much of the root ball as is practical, but loosen the roots on all sides as well as the bottom. If you leave the roots where they were circling the walls of the old pot, they may never grow out into the new mix and the epi will not grow. If you are replacing the mix and reusing the old pot, remove as much of the old mix with your fingers as you can. Some growers wash the roots to get rid of all the old mix.

At this point, I wash a pot that's going to be reused, including removing all the white mineral deposits. Stubborn deposits can be easily removed with a little plant acid (aka 0-10-10 liquid fertilizer) on a rag.

I start the refilling process by adding about an inch of rocks at the bottom of the pot, to improve drainage. On the top of the rocks I put a circular piece of window screen to keep the mix out of the rocks. The screen has enough open surface area so there is little danger of it plugging up and stopping water drainage. You should never put screen over any drain hole to keep mix from escaping the pot. Because of the small surface area across the drain hole, the screen can plug up and prevent drainage, resulting in root rot.

Fill the pot with new mix to the point that sets the plant at the original surface level or slightly deeper. Being deeper allows new areas to produce new roots. The new mix should be moist, but not wet. Fill in around the plant with new mix, but do not pack it. Slapping the sides of the pot will allow the mix to settle and fill any voids.

Wait ten days or so before starting to water, and at first, water sparingly.

My epies are watered automatically every week via a drip system. For newly repotted plants, I hand-water for four weekly intervals with a B1 Solution mixed with one tablespoon for each gallon of water.

My standard former mix (which I used for all potting) is two parts Coir (shredded coconut husk), two parts LGM potting mix, two parts Perlite (Size 3), one part mixed large and medium orchid bark and one cup azalea fertilizer per 5 gallons of mix. This is a very light mix. I live within a few miles of the ocean, and 90+ degree days are rare. You may have to reduce the percentage of Perlite and bark for a heavier mix to provide more water retention, depending upon your location.

Special Considerations: So much for the routine, what about special cases? To repeat, the primary question is: what is the condition of the roots? If you don't like the looks of a plant, or are suspicious about the condition of the roots (for example, say the epi bloomed alright, but shows no new growth or it bloomed little

and is not growing), it very well might be time to repot. You can first try a shot of fertilizer outside your normal schedule, but if the plant doesn't respond to that, it more than likely is time to repot. If the roots turn out to be plentiful and are firm, repot normally. If there are no roots, or what is there is soft and rotted, cut off the rotted material before repotting. Some growers dust major cut ends with sulfur to protect from disease, then repot with fresh mix. Keep the plant in a shady place, but do NOT start to water for four weeks. I then use the B1 mix for an additional four weeks.

After blooming heavily, an epi may look "tired" for a while, showing sunken areas. Epies do rest for a short time after blooming. However, if the condition persists, it may indicate the presence of root mealybugs. If you are concerned, water the plant with a Malathion solution (at one tablespoon per gallon of water). The epies don't seem to mind the solution. If you do repot and find root mealybugs (which look like little spots of white fluff), the same treatment applies. In this case, dip the roots in a Malathion solution at the above strength. The epies not only don't seem to "mind" this bath, in fact, they seem to "like" it, and it seems to improve growth. There are growers who routinely use this bath as part of their repotting procedures. Just be aware that some organic material's mildew presents as little white spots, and if there is only a spot or two, it probably is not mealybugs. Still, if you decide to do the Malathion bath it won't hurt, and it might even help.

Fertilizing: My normal fertilization schedule is as follows: starting on Groundhog Day (February 2nd) use 0-10-10, and every six weeks thereafter, until the flowers are gone or the first of June, whichever comes first. Then use fertilizer containing some nitrogen around the first of June and the first of September.

One year for my June and September applications I used a "Designer Fertilizer" with a makeup of 7.5-22-10, then the 0-10-10 as usual. As a test, one group also got the 7.5-22-10 for the first application of the year rather than the 0-10-10. Because of this extra Designer Fertilizer used in February, I think that generally the flowers that year were bigger and there were more of them.

Was it the fertilizer or just the weather? I will try to figure that out. The average number of blooms this year was 5.1 blooms per blooming plant for the overall garden. The average for the group that got the first application of 7.5-22-10 was 5.6 per blooming plant. The sample was statistically too small to draw any hard conclusions, but it indicates a much larger study is in order.

Pruning Proper pruning of an epi can have significant benefits. It makes little sense to make an epi plant continue to nurture a branch that has few live areoles. Flowers all come from the areoles, and removing a nearly useless branch encourages new branch growth with many new areoles and flower possibilities. Dr. Kohlschreiber states the general pruning rules best:

Prune any branch that offends you, up to half of the plant.

When repotting, prune at least the longest branch.



José Salcedo

Highlights of Recent Meetings

HIGHLIGHTS OF THE APRIL 5th MEETING. ESA member and Ikebana master instructor, José Salcedo, was our primary guest lecturer for April. The popular guest again amazed us with his demonstration of floral arranging in order to get us ready to participate in this category in our Flower Show on May 15th. José is a member of the Ikebana Society of Los Angeles. José is a software designer by profession, but his avocation is Ikebana instruction and floral arrangement.

Ikebana (生け花, "living flowers") is the Japanese art of flower arrangement, also known as kadō (華道, the "way of flowers"). There are a number of schools of Ikebana with fixed rules of design, which do allow for various levels of expertise of the arrangement designer. For us, José concentrated on creating beautiful displays rather than emphasizing the rules. He did note that his demonstration arrangements had a inclined main stem, and he demonstrated a number of ways to anchor the stem to hold its position. He also stated how important it is to balance the arrangement.

He then created, on the spot, a number of beautiful arrangements, starting with a "Beginners Arrangement" and went on to create other arrangements with increasing complexity.

HIGHLIGHTS OF THE MAY 3rd MEETING. This meeting consisted of two parts: Annual Show Preparation and the first of a new series conceived by Jim Nones entitled, "Members' Gardens". The Members' Gardens presentations are not limited to only your epies, but can include whatever else you are growing in your garden and can be from ten minutes to one hour long.

President Kuettle gave an overview of what to expect at our upcoming Annual Show. He noted that the Show Rules are the same as last year's rules. There were copies available, and he recommended that we all read them. Because of this year's weather, the number of flowers was expected to be down.

In order to try to increase the amount of flowers that could be brought to the show in what was expected to be a down year, Keith Ballard gave a quick oral description of Galen Pittman's method for extending the life of epi blooms. This description included the following instructions: Into a small sealable box, such as a shoe box, place a water-saturated bath towel. Put the "to be preserved" epi bloom in a coffee filter, a #6 is ideal, and place the bloom in the box with the filter touching the towel. Add more epies if desired, but their coffee filters must touch the towel and become saturated. Put the box cover on the box and put the closed box into a frost-free refrigerator. Avoid opening the box until bloom placement at the show. Galen felt that this method could often preserve flowers for as long as a week. However, you must understand that the preserved flowers, once removed from the box, will only last around a half day, but that should be long enough for them to be judged in the show.



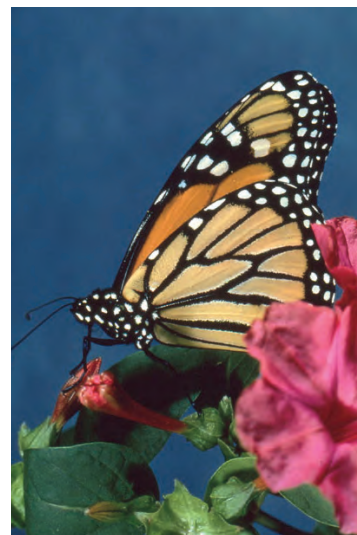
Paul Richter's Dragon Fruit Blooms



Paul Richter

For the rest of the meeting, Paul Richter gave a really wonderful first presentation of Members' Gardens. First, Paul showed a video presentation of some samples of registered epi blooms from his garden. These were followed by some of his own originations. This was followed by pictures of a number of rare fruits that he is growing, including some dragon fruit. Finally, he really "wowed" us with pictures of his growing and releasing Monarch butterflies. Paul has planted milkweed in his garden (which is the only host plant for Monarch caterpillars), to attract the butterflies. He has also made an enclosure to protect them during the various stages of their development. Monarch females lay one egg at a time on the underside of a milkweed leaf, then Monarchs go through four distinct

stages in their development: egg, larvae or caterpillar (in which they molt 5 times, getting larger and more colorful each time), chrysalis and finally adult. Paul said that his caterpillar-to-butterfly survival rate is 85%. The survival rate in the wild is well less than 10% and perhaps as low as 3%. Incidentally, milkweed and Monarchs are poisonous, which makes them distasteful to predators. Their bright orange coloration is a warning signal to predators not to eat them.



Paul Richter-Raised Monarch Butterfly



Paul Richter's Cherimoya Fruit



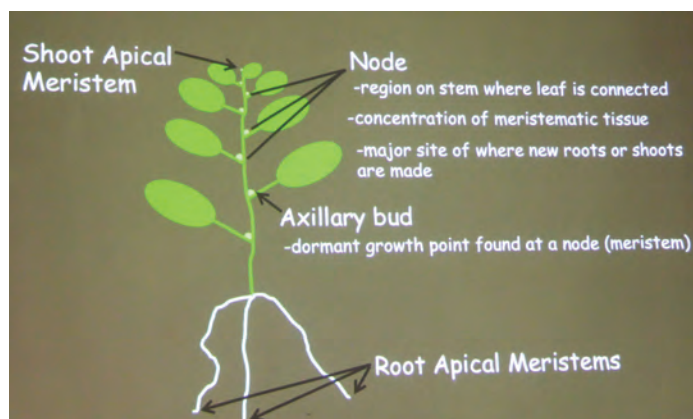
Ernesto Sandoval

HIGHLIGHTS OF THE JUNE 7th MEETING: This meeting was also in two parts: First, was The 2016 Annual Show Awards Ceremony, which was followed by a very informative presentation by the Collection Manager for the UC Davis Botanical Conservatory, Ernesto Sandoval, on Plant Hormones for Pruning and Propagating Epiphyllums.

A picture of the awards and awardees is included in this Bulletin. Also, a listing of who-won- what can be found in the article, "56th Annual ESA Show Results."

First, we needed a couple of definitions in order to understand Ernesto's presentation: A "plant hormone" is a natural chemical that, for this situation, controls the growth of the stems or roots of a plant. A "meristem" is a formative plant tissue usually made up of small cells capable of dividing indefinitely and giving rise to similar cells or to cells that differentiate to produce the definitive tissues, such as stems and roots. In the epiphyllum world we call the meristems "areoles."

Looking at Ernesto's included sketch of meristem locations may help with understanding the rest of his presentation. On the sketch; if you take away the leaves; but leave the meristems where they are and fatten-up the stem, you would have a sketch of an epiphyllum.



Ernesto's drawing of meristem locations

The Major Hormones and their productions, functions, effects or synthetic forms

Auxins

1. Produced at active/ growing shoot meristems and young leaves
2. Travel toward the roots by gravity
3. Move in sugar transport tissue (phloem)
4. Inhibit axillary bud growth
5. Promote root growth at low concentrations
6. Synthetic forms: IBA, NAA, IAA &??

Ethylene

1. Promotes ripening cell maturation & death
2. Produced in leaves that use more Sugar than they produce

Cytokinins

1. Produced at active growing Root meristems
2. Travel toward shoots & leaves
3. Move in water transport tissue (xylem)
4. Promote axillary bud growth
5. Keiki paste, Cytokinin in lanolin

Giberellins

1. Produced throughout the plant
2. Broken down by sunlight
3. Promotes cell elongation (stretching)
4. Promotes seed germination
5. Produced in
 - a. Bonzi (Poclobutrazol)
 - b. Inhibits GA Synthesis

Of this listing, the most interesting for us is Auxins (#5) and Cytokinins (#4), specifically as relates to the effects on plant stem or root growth. The impact of Auxins (#5) is that if the plant stem is cut, or the Shoot Apical Meristem (of the sketch) is otherwise lost, the Auxin concentration drops and root growth is stimulated. Likewise, if enough roots are cut or broken and enough Root Apical Meristems are lost, branch growth is stimulated. Apparently our epies are a special case as branching growth is very common, and the plants do not require physical repotting to be stimulated to branch. The problem for us is that a simultaneous repot and trim may activate both the shoot and root growth control centers and it may be an extended time period before one of them takes control and growth starts. Ernesto's recommendation here is: don't do a heavy branch trimming when repotting. A better approach might be to repot and then trim later, when the new growth is underway.

I repot around 100 epies a year, and their recovery times vary widely. Recovery ranges from blooming shortly after repotting, to sulking for months and apparently doing nothing, just sitting there. During repotting, I automatically trim off branches with all dead areoles or branches that generally look "bad." Some of my plants lose up to 50% of their branches during this trimming. Maybe Ernesto's observation above is the explanation for the variation in my plants' recovery rates, and maybe there is only a certain amount of trimming that a given epi can tolerate. This threshold may be hard to find, as the amount of damage to the root ball is hard to judge, but I'll keep Ernesto's advice in mind in the future

EPICON XV REPORT

by Keith Ballard

EPICON XV was held on May 28, 2016 at the South Coast Botanic Garden in Rancho Palos Verdes, California, and was hosted by the South Bay Epiphyllum Society (SBES). This is a short report of what transpired.

The day began with registration and a continental breakfast.

Report of the Societies: Status reports were given by the respective presidents of the Southern California Epi Societies. President Janice Wakefield reported for the San Diego Epi Society (SDES). The Society is celebrating its 45th year this year. They are presently planting 1000 cuttings, and have obtained a number of donated collections from members that have passed or are no longer able to care for them. Membership is in the 280 to 290 range. They have a new digital newsletter and the website is up again.

President Tony Yanko reported for the South Bay Epi Society (SBES), which was founded in June 1986. They also have a new digital newsletter. This year's annual Sale and Show was successful, and they had a lot of epi plants and cuttings on offer at their sale.

President Robert Kuettle reported for the Epiphyllum Society of America (ESA) and noted that the ESA, which was founded in 1940, currently has around 240 members. The summer issue of the ESA's quarterly Bulletin (which is also delivered digitally to most members) is almost ready to send out. The current update to the "Registry of Hybrids and Species" and the Registry itself are available for purchase. We are integrating Galen Pittman's epi collection into the Society's Collection, called the Pentico Memorial Collection, and we are almost out of room at the Pentico.

A special report was included here by Dr. Rudi Dorsch for the German Epiphytic Society (EPIG). Rudi had attended an EPIG meeting in Heidelberg, Germany, which had toured the Botanical Gardens there. He then also visited Dr. Ralf Bauer's home.



A huge specimen of Ercaceae Ceratostema Rauhii Luteyn Peru Type Plant



A Scene in the Heidelberg Botanic Garden



Entrance Gate to Heidelberg Botanic Garden



Dr. Rudi Dorsch Relaxing in Germany

Pitahaya/Dragon Fruit: Edgar Valdivia, who was one of the pioneers of dragon fruit's introduction, gave this presentation. Edgar told us that when he retired as an engineer, he wanted to



Edgar Valdivia holding a Dragon Fruit

do something significant, and felt dragon fruit development was it. There were originally five growers. Now there are many hundreds all over the world. The French took the plant to Vietnam to lower the cost of hand work in production. There were originally six species, one each from the countries of origin, but there are now eight. The Species are (from Edgar's chart): *Hylocereus Undatus* (USA) – white flesh; *H. vietnamese* – white flesh – self fertile; *H. polyrhizus* (Nicaragua) – red flesh; *H. Gutatemalensis* – pink flesh; *Mexicana* (Grullo) – red flesh; *H. megalanthus* – yellow, red flesh; 'Frankie's Red' – pinkish orange skin, pink flesh and *H. peruvianus* – white flesh (Columnar).



Dragon Fruit Pollination

Growing pitahaya/dragon fruit is easy. You will need the following conditions: warm climate, some humidity, shade and rich soil. Edgar thinks that San Diego is an ideal place to grow them. It only requires some hand fertilization (with pollen) and maybe some grafting. Edgar feels that hybridization is the best way to improve the fruit. The hybridization steps are as follows. (1) Start with mature species plants and cross them. Also see Walter's chart herein entitled "Pitahaya, Dragon Fruit Flower" for more information on the process. (2) When the resulting fruit is ready, don't eat it! Collect its seeds. There will be a lot of them. Waiting a second year may improve the results. (3) Plant the resulting seeds. (4) Wait four years for your new hybrid plants to fruit, and try the resulting fruit. (5) Remember that taste is everything in dragon fruit. If you hybridize a delicious new dragon fruit, a new variety is born! Name the fruit and record the parents.



Young Dragon Fruit Plants



Dragon Fruit – *Hylocereus undatus*

Dragon fruit can be eaten fresh directly out of hand, dried, in fruit salad, in ice cream and made into wine.

Lunch: A very tasty catered buffet lunch was then provided for all in attendance.

Discovering the South Coast Botanic Garden: Laurel Woodley (A Trustee of the Garden) started her presentation by telling us the history of the South Coast Botanic Garden. In the early 1900's the Dicalite Company began mining diatomaceous earth at the future location of the garden.



Diatomaceous earth mine at the future site of the SCBG

Diatomaceous earth consists of fossilized remains of diatoms, a type of hard-shelled algae. It is used as a filtration aid, mild abrasive in products, including metal polishes and toothpaste, mechanical insecticide, absorbent for liquids, matting agent for coatings, reinforcing filler in plastics and rubber, anti-block in plastic films, porous support for chemical catalysts, cat litter, activator in blood-clotting studies, a stabilizing component of dynamite, and a thermal insulator.

By 1956 the deposits were almost gone and the mining operation left the site.

From 1957 to 1965 the area was used as a landfill for residential and commercial trash from the South Bay by the Los Angeles County Sanitation Department. During the dump's existence, a total of 1,150,000 vehicle loads brought in 3,500,000 tons of trash. That phase of the site's existence ended with the covering of the trash with soil.

In 1959, Frances Young, a district director of California Garden Clubs & Horticulture Societies, began to promote the landfill as a potential site for a future regional botanic garden. Her picture hangs in the hall where this EPICON was held.



SCBG Founder Frances Young

The Garden staff has always been relatively small, being only eight at the present, and much of the garden work has always been and is currently still being done by volunteers.



Rose Garden at the South Coast Botanic Garden



Another scene from the South Coast Botanic Garden



Rare Chilean Wine Palm – Jubaea chilensis

1961 saw the first plantings. There have been 40,000 donations of plants to the garden, including a large donation of trees and shrubs from the Los Angeles County Arboretum and Botanic Garden. A great deal of work has been accomplished in the planting of those and other trees and shrubs, and what was once a muddy depression on the site became a beautiful lake (which is currently waiting to be restored again). The Garden now covers 87 acres and has around 150,000 trees and plants.

There are, however, a couple of lingering problems in the Garden arising from the site's history as a landfill. Over time, the trash decomposes and shrinks, and as a result, the ground sinks. Then, pipes break and things fall over or are uncovered. In fact, there are buildings with buried concrete foundations that are now almost all above ground level, including concrete stairs that no longer touch the ground. The trash decomposition also produces some other less noticeable problems with heat generation and gas production methane, carbon dioxide and sulfur mix.

Another unrelated problem is that over time, the identification of many of the various trees and other plants have been lost. Trees are identified with a metal information plate nailed to the tree. Over time, growing tree bark has covered some plates and the identification information has been lost. For one reason or another, the ID plates of many other things have also disappeared. This problem is currently being tackled with volunteer teams that include a knowledgeable Botanist to re-identify things and the tree IDs are now being monitored and moved as necessary.

Pictures of recently registered Epi hybrids: Robert Kuettle, ESA President, gave a presentation of 2014 and 2015 epi hybrid registrations. (Part 1 of a 2 part photo article on the 2015 registrations begins on page 128).

Results of the Silent Auction: At about 4:00 p.m., it was announced that the silent auction was over and the attendees gathered their winning bids and paid for them.

Hybridizer Panel: The hybridizers who remained at this time gathered. They viewed a video of some of Derek Obayashi's and Evelyn Shiraki's new originations. Then there was a very brief question and answer session which was presided over by Don Burnett.



From left: Don Burnett, Jim Nones, Darryl Miyamoto, Paul Richter, Don Patterson, Barb Alvarez (in front) Derek Obayashi & Evelyn Shiraki (in front)



Epicon Silent Auction in Progress

ESA Award Winners



The Best In Show - Galen Pittman Award Plate



**President's Choice: 'Kiwi Treasure Box' -
Don Burnett**



Best In Show: 'Turbo' - Evelyn Shiraki



Best Extra Large: 'Red Chrome' - Evelyn Shiraki



**Best Seedling: 'Vanilla Sunset' x 'Meadowlark'
Hybridizer Derek Obayashi**



Best Small: 'Cassis' - Robert Kuettle



Best Plant:
'Evening Delight' x 'Vanilla Sunset'
Grower/Hybridizer -Darryl Miyamoto



Best Floral Arrangement: "Peaceful" - Marrie Caldiero

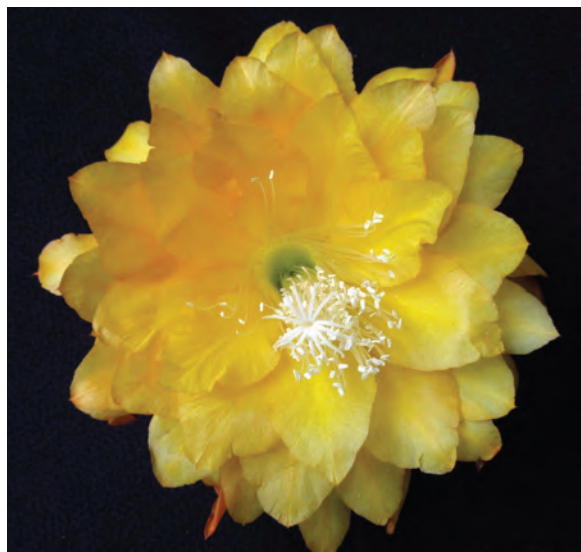
1st Place Winners



'Arctic Land' - Geneva Coats



'White Splendor' - Jerry Merkle



'Yellow Tang' - Keith Ballard



'Tijuana Brass' - Robert Kuettle



'Mariah' - Nina Bashoura



'Beth Jackson' - Derek Obayashi



'Raymond Eden' - Paul Richter



'Glow Bug' - Keith Ballard