

Warm Climate Production Guidelines for *Echinacea*

Dr. Rick Schoellhorn and Alexis A. Richardson

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Echinacea – Celebrate diversity



Mixed *Echinacea* hybrids exhibiting the new color forms being released in 2004-5. Photo courtesy of ItSaul Plants

This is one of the great moments in time when a renowned but limited perennial flower has the roof blown off of its genetic potential. The advances in *Echinacea* breeding we will be seeing emerge on the market in the next few years are some of the most exciting changes I've seen a long time. I'm hoping this is the beginning of not only some fantastic new hybrids but also increased awareness of some of the lesser known species.

Magnus has ruled the roost for many years. It is a great seed produced cultivar (*E. purpurea*) with

strong purple toned flowers a vast improvement over the species. It received the Perennial Plant Association "Plant of the Year" award in 1998. There have been an assortment of varying tones of purple to rose to cerise toned hybrids over the years, with some really cool novelty forms popping up in fringe markets as well. It is through the work of Jim Ault at the Chicago Botanic Gardens and Richard Saul that we are looking at the release of yellow and orange toned hybrids that combine striking colors with strong performance. The release of these new lines indicates that we will soon be seeing all the other shades of color between red and yellow on the market in the next few years.

ItSaul Plants - Richard Saul of ItSaul's plants has been breeding *Echinacea* for about ten years and the releases coming out of ItSaul's program are revolutionary. Scheduled for release in early 2005 are two cultivars in the Big Sky series. Sunrise^{PPAF} is a clear pale citron yellow and Sunset^{PPAF} is a strong orange. For release late in 2005 (summer or fall) is Twilight^{PPAF} a rose with a red cone. The flowers of these newer rose toned hybrids are actually a lot of different iridescent tones and a little hard to describe, but truly beautiful! For 2006, and later, be looking for bi-colors, dark yellows, peach, coral and other intermediate shades. Saul's releases are crosses between *Echinacea purpurea* and *E. paradoxa*, but the Big Sky Series resembles *E. purpurea* with broad deep green leaves, overlapping petals, and multiple blooms. The Big Sky Series is coming out of tissue culture and only available as a vegetative liner. Both Sunset & Sunrise are in licensed to propagation to a variety of plug producers, but there is likely not going to be enough of this crop to go around the first year, place orders early. The Big Sky series has a long shelf life as a cut and is fragrant as well.

The Chicago Botanic Gardens – Jim Ault with The CBG also released the first of their new hybrids in 2004. The Meadowbrite SeriesTM beginning with Orange Meadowbrite^{PPAF} is emerging in exclusive catalogs and select nurseries (See suppliers' listings below). The flower is a strong orange tone with more

the leaf type of its *E. paradoxa* parents. That means the leaves are thinner and more strap-like and flower petals are slightly separated. Mango Meadowbrite^{PPAF} is a yellow toned release. Lots of colors including the elusive rose tones are coming in 2005 and beyond. Same story for the Chicago releases; supplies are limited and many suppliers are already sold out.

Other great novelty types:

It was an amazing discovery to see what is out in the industry as novelty forms of this crop. My knowledge of potential cultivars went from about 5 to over 25 colors and forms I had not heard of prior to researching this article. In addition to many seed produced forms including Benary Seed's Primadonna Deep Rose. The truly strange vegetative forms were also amazing. I encourage anyone who wants to learn more about these unusual forms to look for 'Doppelganger' where petals erupt from the top of the cones giving each blossom a "Mophead" and doubling the color impact of the flower. 'Double-decker' is just what the name implies with secondary flowers arising from the cone of the lowest bloom on the stalk, this hybrid looks a bit like a *Leonotus* with stacked flowers on each stalk. 'Razzmatazz' is what chrysanthemum producers would call an anemone form with small petals entirely encasing the cone of the flower, so that it appears double but all inner petals are quite small. 'Prairie Frost' and 'Sparkler' are both variegated types with single flowers, but the variegation is quite different in each case. The variegated forms of *Echinacea* may need a little more shade to protect the leaves from scorching under high light, they are also a little less vigorous than their green leaved counterparts.

Commercial Production guidelines for *Echinacea*

Fertilization – 75-150 ppm Nitrogen is usually sufficient. Avoid high ammonium forms as they will weaken stems and elongate leaves.

Watering – Normal production irrigation is fine.

Media –All commercial peat lite media and bark peat mixtures work fine, pH optimum 5.5 to 7.0 for most cultivars. Slightly alkaline media is tolerated by many cvs.

Production Temperatures –Temperatures of 50-60F night and 70-75F daytime are adequate. Cooler

temperatures as flowers color up will also give deeper color to the blooms.

Light level – High light or over 1000 $\mu\text{mol m}^{-2} \text{s}^{-1}$, for most green leaved cultivars, however variegated types may need lower light levels to avoid scorching.

Propagation – Patented varieties aside, division and softwood cuttings are easy to grow, but most growers go for then uniformity of either seed or vegetative liners.

Crop timing – From seed to flower plan on about 6 months, from liner to sale it depends on the time of year but around 6 weeks for quarts and 8 weeks for gallons.

Growth regulators – For those of you more comfortable with Daminozide (5,000 ppm), or Daminozide and Chlormequat tank mixes (5,000 ppm/1500 ppm) you can do it but you will doing multiple applications and stop as flowers emerge so you aren't reducing flower size. For growers more comfortable with Paclobutrazol a 30 ppm drench, or repeated 30 ppm sprays will work. Uniconazole will be less than 30 ppm for sprays, but remember the rates and cultivars are all going to perform differently depending on where you are in the country, so do your own tests on which PGR works best for you.

Flowering – A note about vernalization – Most suppliers' state that *Echinacea* do not require vernalization, but all will tell you 4-8 weeks at 40F will give you a faster crop with more uniform flowering. That sure sounds like vernalization to me!

This crop has such an interesting history of a market as a perennial, expanding into a market for medicinal use and now an explosion of new colors. The future of Coneflowers will never be quite the same.

Commercial Sources for *Echinacea*:

Jackson and Perkins - <http://www.jproses.com>

Monrovia Nurseries - <http://www.monrovia.com>

ItSaul Plants - <http://www.cone-crazy.com>

Yoder Brothers/ Greenleaf Perennials

<http://www.yoder.com>

Purdue University has a nice description of native forms and species at:

<http://www.hort.purdue.edu/newcrop/ncnu02/v5-506.html>

Sunny Border Nurseries -

<http://www.sunnyborder.com>

Wayside Gardens - <http://www.waysidegardens.com>
 Plant Delights - <http://www.plantdelights.com>

Table 1: Cultivar Information

Cultivar	Suppliers	Liner	Color	Height
Abendsonne	Many	Seed	Cerise Pink	32-36"
Alba	Many	Seed-Veg	Creamy White	36"
Big Sky Sunrise ^{PPAF}	ItSaul Plants	Veg	Yellow	34-36"
Big Sky Sunset ^{PPAF}	ItSaul Plants	Veg	Orange	24-30"
Bravado	Many	Veg	Rosy Red	24-30"
Bressingham Hybrids	Many	Seed	Rose-Red	32-36"
Bright Star	Many	Seed	Rose-Red	26-36"
Crimson Star	Many	Seed-Veg	Crimson-rose	30-36"
Dwarf Star	Many	Seed	Rose	12-24"
Fragrant Angel	Canning Perennials	Veg	White	30"
Kim's Knee High	Sunny Border Nurseries	Seed	Purple-Rose	12-18"
Kim's Mophead	Sunny Border Nurseries	Seed	White	12-18"
Little Giant	Canning Perennials	Veg	Rose-Red	12"
Magnus	Many	Seed	Rose Pink	30-36"
Mango Meadowbrite ^{PPAF}	Wayside Gardens	Veg	Yellow	36"
Orange Meadowbrite ^{PPAF}	Wayside Gardens	Veg	Orange	36"
Overton	Many	Seed	Rose-Pink	24-30"
Paranoia	Plant Delights	Veg	Yellow	12"
Primadonna	Benary Seed	Seed	Deep Rose	32-36"
Robert Bloom	Many	Seed	Purple -Rose	36"
Ruby Star	Many	Seed	Crimson-rose	30-36"
The King	Many	Seed	Rose-Red	48-52"
Vintage Wine	Many	Seed	Rose-red	36"
White Lustre	Many	Seed	White	36"
White Swan	Many	Seed	White	36"
Novelty Forms	Trait	Liner	Color	Height
Ruby Giant	7" flowers	Veg	Rose-Red	24-30"
Doppelganger	Tufted petals arise from top to disc	Veg	Purple-Rose	30-36"
Double Decker	Flower over flower, like a double-decker bus	Veg	Purple-Rose	30-36"
Prairie Frost	Variegated Foliage	Veg	Purple-Rose	24-32"
Razzmatazz	Anemone type disc covered in small petals	Veg	Purple-Rose	30-34"
Sparkler	Spotted variegation, to bright white foliage	Veg	Pink-Rose	24-28"
Species: <i>E. angustifolia</i> , <i>E. atropurpurea</i> , <i>E. laevigata</i> , <i>E. pallida</i> , <i>E. paradoxa</i> , <i>E. purpurea</i> , <i>E. sanguinea</i> , <i>E. simulata</i> , <i>E. tennesseensis</i>				
--Note that there are at least another 30 cvs on the market, but their market share is much smaller and some may be synonyms for the listed cvs.				

Alexis A. Richardson is a contributing author with the Environmental Horticulture Department at the University of Florida.