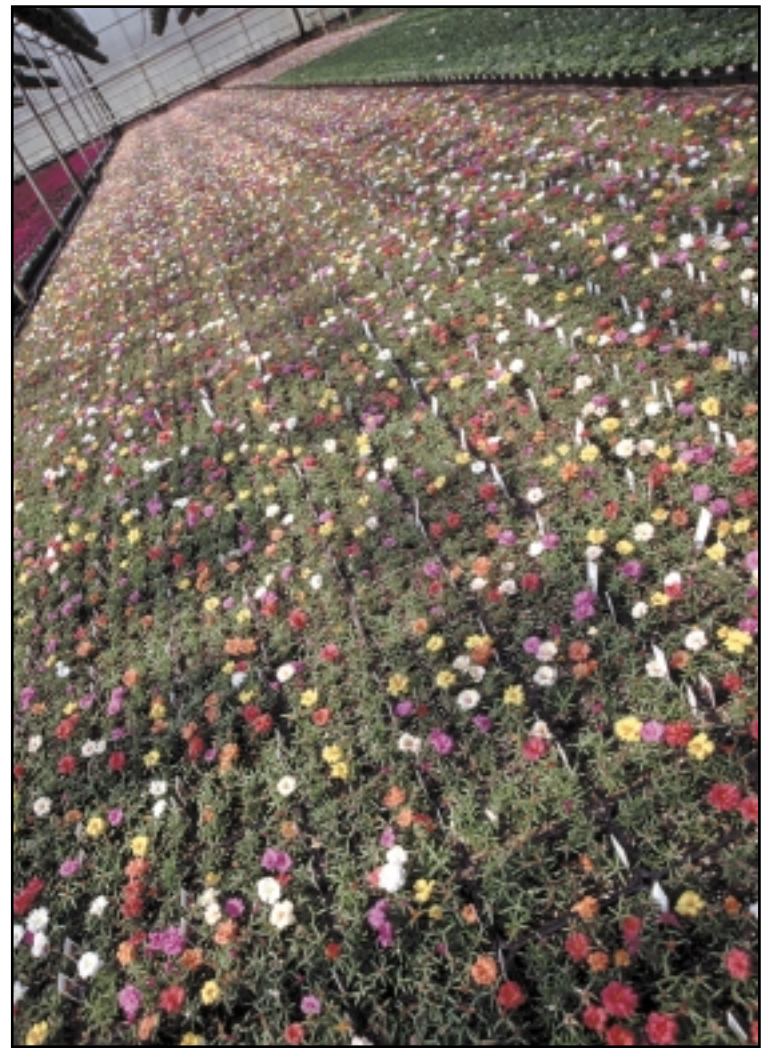




Vegetative Victory

Growing vegetative annuals can help you gain a competitive edge. Research from Texas A&M shows you how to master bloom time and control growth.

By Terri W. Starman and Kristen L. Eixmann



Like many vegetative annuals, *Portulaca* production can be challenging because plants have a tendency to become tangled.

Are you looking for a new potted plant that doesn't need pinching or disbudding; a fast crop for hanging baskets; an unusual plant to make your container gardens stand apart from the competition; top-quality plants that are easy to grow with no major pest or disease problems? Are your customers asking for something new? Try some of the new vegetative annuals?

Among the vegetative annuals, the cultivars are new, newer or newest. Since I started growing vegetative annuals in 1994, each coming year has brought new species and cultivars to the market. In the past eight years, I have seen cultivars come and go, and every year there is an exponential increase in the number of new species and cultivars. This year at the Pack Trials in California, growers got a sneak preview of the many exciting new species of vegetative annuals that will be on

the market next year (see pages 24 and 100 for details). So if you haven't started growing vegetative annuals, it's time to start because they are not going away.

VEGETATIVE BASICS

Vegetative annuals are a diverse group of plant genera that aren't necessarily annuals at all. They just bloom their heads off like annuals. They are also alike in that they are vegetatively propagated. Many of these new plants are ones that have been propagated by seed in the past and are now being cloned, allowing breeders to reproduce sterile cultivars. Plants are then treated to remove viruses, which gives growers a plant with unique characteristics that produces consistent, high-quality crops. Another common characteristic of vegetative annuals as a group is that they grow and flower best under high light intensity. The higher the light intensity, the sooner they bloom and the more branching and tightly stacked nodes they have. ♦



Top: *Calibrachoa* 'Colorburst Red' grown Week 3 to Week 13; Bottom: *Calibrachoa* 'Colorburst Red' grown Week 9 to Week 15. (Photos courtesy of Terri Starman)

Although there is not much we can generalize about this diverse group of plants, it can be helpful to classify the vegetative annuals into groups. Figure 1 on pages 58-62 shows some categories of vegetative annuals that may help you grow them more efficiently and profitably.

PRODUCTION GUIDELINES

Temperature preference. Some like it cool, and some like it warm. Breeders have come a long way with breeding heat tolerance into some genera. Still, even though we can grow the cool plants in the South in the early spring and fall, it's best not to expect much from them during the summer. Fall is definitely a time to expand the use of this group of plants.

Photoperiod preference. Some vegetative annuals are facultative long-day plants, while most others are day neutral. It is wise not to try to efficiently grow the facultative long-day plants in January and February unless you plan to use night interruption lighting. The two most common genera of vegetative annuals that bloom

Figure 1. Timing and use of selected vegetative annuals that have been trialed at Texas A&M.

SPECIES/CULTIVAR	SOURCE	TIMING	MARKETING
Angelonia			
Angel Mist Deep Plum	Ball FloraPlant	Late season	Container garden
Angel Mist Purple Stripe	Ball FloraPlant	Late season	Container garden
Antirrhinum			
Chandelier Yellow	Flower Fields	Either	3 plugs/10-inch monoculture basket
Luminaire Yellow	Ball FloraPlant	Either	3 plugs/10-inch monoculture basket
Argyranthemum			
Comet Pink	Flower Fields	Early season	One plug/4-inch pot
Sugar Baby	Proven Winners	Early season	One plug/4-inch pot
Bidens			
Golden Flame	Ball FloraPlant	Either	Mixed basket
Peter's Gold Carpet	Proven Winners	Either	Mixed basket
Brachyscome			
Toucan Tango	Proven Selections	Early season	One plug/4-inch pot
Mauve Delight	Flower Fields	Early season	One plug/4-inch pot
Bracteantha			
Outback Joey Bronze	Flower Fields	Either	One plug/4-inch pot
Sundaze Bronze Gold	Proven Winners	Either	One plug/4-inch pot
Calibrachoa			
Colorburst Red	Flower Fields	Late season	Mixed basket
Million Bells Cherry Pink	Proven Winners	Either	One plug/4-inch pot
Liricashower Rose	Flower Fields	Late season	Mixed basket
Trailing Pink	Proven Winners	Late season	Mixed basket
Cuphea			
Allyson Heather	Ball FloraPlant	Late season	Two plugs/4-inch pot
New Light Lavender	Proven Selections	Late season	One plug/4-inch pot
Diascia			
Red Ace	Proven Winners	Early season	Mixed basket
Sun Chimes Rose	Flower Fields	Early season	Mixed basket

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faster under long days than under short days are calibrachoa and petunia. This is complicated by the fact that some cultivars of each genus are more photoperiod-sensitive than others. For example, we grew calibrachoa 'Colorburst Red' and 'Million Bells Cherry Pink' at two different times starting Week 3 and Week 9 and got very different results. Week 3 Colorburst Red plants took four weeks longer to be marketable, were three inches wider and had five less flowers per plant when compared to Week 9 plants. Later-grown plants had a more compact, rounded form and a better distribution of flowers. This is because the plants grow without flowering when the days are short. Week 3 Million Bells Cherry Pink, on the other hand, took three weeks longer to finish than Week 9 plants. One difference was the Week 9 plants needed three Bonzi sprays at 50 ppm to achieve the same upright form while those started Week 3 had no plant growth regulator treatment.

Plant form. Some vegetative annuals are full-figured and stand alone, while others are more slight in build and make better companion plants. The companion plant types are best

SPECIES/CULTIVAR	SOURCE	TIMING	MARKETING
Double Impatiens			
Tioga White	Flower Fields	Either	One plug/4-inch pot
Fiesta White	Ball FloraPlant	Either	One plug/4-inch pot
Fuchsia			
Shadow Dancer Betty	Proven Winners	Early season	One plug/4-inch pot
Shadow Dancer Marcia	Proven Winners	Early season	One plug/4-inch pot
Lantana			
Samantha	Ball FloraPlant	Late season	3 plugs/10-inch monoculture basket
Patriot Cherry	Proven Winners	Late season	3 plugs/10-inch monoculture basket
Mimulus			
Jelly Bean Yellow	Flower Fields	Late season	Container garden
Mesa Orange	Ball FloraPlant	Late season	Container garden
Nemesia			
Aromatica Dk. Lavender	Ball FloraPlant	Early season	Two plugs/4-inch pot
Blueberry Sachet	Flower Fields	Early season	Two plugs/4-inch pot
Osteospermum			
Riverside	Flower Fields	Late season	Container garden
Symphony Cream	Proven Winners	Early season	One plug/4-inch pot
Petunia			
Cascadia Pink	Flower Fields	Late season	3 plugs/10-inch monoculture basket
Supertunia Mini Purple	Proven Winners	Late season	3 plugs/10-inch monoculture basket
Supertunia Royal Velvet	Proven Winners	Late season	3 plugs/10-inch monoculture basket
Supertunia Mini Brt. Pink	Proven Winners	Late season	3 plugs/10-inch monoculture basket
Surfinia Sky Blue	Proven Winners	Late season	3 plugs/10-inch monoculture basket
Portulaca			
Yubi Rose w/red eye	Flower Fields	Late season	3 plugs/10-inch monoculture basket
Yubi Wine Red	Flower Fields	Late season	3 plugs/10-inch monoculture basket
Sanvitalia			
Little Sun	Ball FloraPlant	Late season	One plug/4-inch pot
Sunbini	Proven Winners	Late season	One plug/4-inch pot
Scaevola			
New Wonder	Proven Winners	Either	Mixed basket
Outback Purple Fan	Flower Fields	Either	Mixed basket

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used in mixed containers. Those with fuller form can be grown alone in small pots or in monoculture hanging baskets.

Plant growth regulators. Some vegetative annuals are aggressive, and others are easy to control. The really aggressive, trailing cultivars are best grown in hanging baskets late in the season. Our experience with trying to grow them in 4-inch pots resulted in plants getting too tall or tangled on the bench regardless of the number or timing of plant growth regulator spray applications. These plants are all candidates for the newer methods of applying growth regulators, including "liner dips" and "sprencing," and research is ongoing.

CHALLENGES

The two biggest challenges growers face with vegetative annuals are: 1) getting an early crop to bloom and 2) keeping a late crop's growth under control within a limited bench space. When you look through catalogs to pick and choose the vegetative annuals that are most suited to your needs, two major management questions need to be asked: 1) when are you going to get veg-

SPECIES/CULTIVAR	SOURCE	TIMING	MARKETING
Sutera (8)			
Bridal Showers	Flower Fields	Early season	Mixed basket
Snowstorm	Proven Winners	Early season	Mixed basket
Torenia			
Summer Wave Blue	Proven Winners	Either	3 plugs/10-inch monoculture basket
Verbena			
Temari Patio Blue	Proven Winners	Late season	Mixed basket
Twilight Blue with Eye	Flower Fields	Late season	Mixed basket

etative annual plugs delivered to your greenhouse, and 2) in what size containers will you market the finished product?

Order date. Experiments conducted in the South have proven it would be more profitable to get your vegetative annual plugs for the gardening market to your greenhouse in at least two shipments. We have used Week 3 and Week 9 as ship weeks in our experiments. Plants arriving in Week 3 should be those that flower during short days with lower light intensity and cooler temperatures. This means they need to be day-neutral in their response to photoperiod and branch, flower and thrive at cooler temperatures.

Week 9 plants grow better when the days are longer, light intensity is

higher and temperatures are warmer. Many of them are facultative long-day plants in their flowering response to photoperiod. Some vegetative annuals are very specific and can only be produced of good-enough quality at one time during the spring. Others can be produced either or both times resulting in the same high quality.

The vegetative annuals listed as "early season" plants (See Table 1, pages 58-62) finished in 7-11 weeks when started Week 3 and therefore would be good products for the Easter and early spring market. During this time period, we did not need to use plant growth retardants.

Plants started Week 3 were grown at 60° F for two weeks then 55° F night temperature set points in our greenhouse. Fertilizer was

low ammonium (15-5-15) at 200 ppm, and the pH was maintained at 5.5-6.0 with one application of FeSO₄. Plants were not treated with any insecticides. They received one application of Banrot as a preventative fungicide drench. Most plants were pinched once.

The vegetative annuals listed as "late-season" plants (See Table 1, pages 58-62) were started in Week 9 and finished in 6-9 weeks for the late spring and Mother's Day market. Some of these plants could be started even later. Most of these plants required three spray treatments of Bonzi at 50 ppm at weekly intervals starting 2.5 weeks after potting to control their growth so they could be grown in 4-inch pots spaced four plants per

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square foot. Plants were grown at 65° F night temperature set point. Fertilizer was 20-10-20 at 200, later increased to 300 ppm, and the pH was maintained at 5.5-6.0. The calibrachoa and petunias got a FeSO_4 drench to adjust the pH down and an osmocote application in addition to the liquid feed. Marathon was used to prevent insect pests, and a Banrot preventative fungicide drench was applied to prevent root rot.

Container size. Some vegetative annuals are best grown in large containers, and some can be quite attractive grown in small pots. Therefore, the grower has to decide how to market the crop when ordering plugs. Plugs could be directly planted into the final container or transplanted on arrival to 4-inch pots and then later transplanted to a larger container.

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**It should be noted that all of the vegetative annuals listed in Figure 1 are suitable for use as companion plants in various sizes of container gardens.*

The authors would like to thank the companies that donated plant materials for their experiments.

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Top: Calibrachoa Million Bells Cherry Pink grown Week 9 to Week 15; Bottom: Calibrachoa Million Bells Cherry Pink grown Week 3 to Week 12.



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