

Landscape Evaluation of Herbaceous Perennials at LSU AgCenter Hammond Research Station (2005)

Introduction:

The diversity of herbaceous perennials being used in residential and commercial landscapes has increased dramatically and herbaceous perennials are listed as one of the plant categories with strong market demands in the new millennium. With this increasing demand, many field trials that had focused on annuals are now adding perennials for evaluation. At the same time, growers are aware that new varieties and cultivars have a profound influence on their industry and want to be the first in line when something new comes out.

Unlike annuals that complete their life cycle without the need to over-winter, the name perennial denotes the assumption that the crop will be winter-hardy and flower year after year. However, many perennials do have a life span, and zone-specific hardiness of “cultivars” is often different from published information for the original species. Similarly, heat and drought tolerance may also differ among cultivars and needed to be documented to ensure their performance. Consumers have become wary after disappointing performance that did not meet the minimum expectations, and information from regional trials would make plant selection more successful.

LSU AgCenter Hammond Research Station (USDA hardiness zone 8b, heat zone 9) initiated cultivar trials focusing on herbaceous perennials in 2005. Evaluation results of the first-year landscape performance of 77 cultivars are presented in this report.

Plant Evaluation Site:

Established as the Fruit and Truck Crops Experiment Station in 1922, the Hammond Research Station is one of the oldest stations in the LSU AgCenter. Located in Tangipahoa Parish and adjacent to St. Tammany and Livingston, the station is suited in the center of Southeast Louisiana (elevation 35', latitude 30° 30' 11", longitude 90° 22' 38"). With the changing demographics and increasing population in the surrounding parishes, the station has initiated a new research effort on ornamental horticulture to better serve the need of the expanding green industry while continuing to serve the strawberry and vegetable industries in Southeast Louisiana.

Testing new varieties to assist Louisiana horticultural professionals and consumers in plant selection has been part of an overall ornamental horticulture program at the LSU AgCenter. With the new program at Hammond, we are able to test more varieties at more sites. In 2005, trial planting sites were scattered around the station with most of the plantings along the road from the station entrance to the office building. Some varieties were planted in the Master Gardener's demonstration garden. These sites have different sun/shade condition but similar soil conditions (sandy silt loam, 55.8% sand, 30.7% silt, 13.5% clay, 1.0 organic matter, pH 5.3). All sites were irrigated with over head sprinkler controlled by a timer.

Plant Material:

Herbaceous perennial varieties were selected based on suggestions from the breeding



companies and input from horticultural professionals. Some varieties are not new releases, but we wanted to trial for their winter hardiness. Species of particular interests are aquilegia (columbine), hibiscus *moscheutos*, pentas, penstemon, phlox *subulata*, verbena, and zonal and ivy geranium.

Trial varieties were provided by PanAmerican Seed, Ball FloraPlant, GoldSmith Seeds, and Fischer USA.

Production Summary:

Cuttings of vegetatively propagated varieties from Ball FloraPlant and Fischer USA were received during Week 43, 2004 and Week 11, 2005. Unrooted cuttings were rooted in general Promix in 72-cell plug trays under the mist. Mist scheduled was changed from 1 minute per ½ hr to 1 minute per hr after rooting started. Rooted cuttings were moved to production greenhouse. Temperature in mist greenhouses was about 75/60 (day/night) degree. Varieties rooted in a week included ajuga ‘Bronze Beauty’, eupatorium rugosum ‘Chocolate’, coreopsis ‘Moonbeam’ guara ‘Siskiyou Pink’, lamium ‘White Nancy’, penstemon ‘Husker Red’, and phlox *subulata*. Achillea “Coronation Gold” was very slow in rooting.

Seeds from PanAmerican Seed and GoldSmith Seeds were sown from fall 2004 to January 15, 2005. Species requiring a long production time (e.g. armeria and aquilegia) were sown early to be ready for spring planting. Trays under mist were moved to production greenhouse once germination completed. Time to finish germination varied among species, i.e. 4 days for Luna hibiscus, 10 days for armeria ‘SeaPink’ and ‘Alba’, and coreopsis ‘Sunrise’ and ‘Rising Sun’, and 14 days for aquilegia ‘Songbird’ and ‘Swan’ series. Growers need to follow guidelines provided by seed companies to schedule production.

All rooted cuttings and seedlings were fertigated with 75ppm N [$\text{Ca}(\text{NO}_3)_2$] for two weeks and 100-150 ppm N of 20-20-20 general all purpose fertilizer thereafter. Plants were transplanted into 4” or 6” pots when nicely formed root system made it easy to pop up the whole plant from the cell when push from the bottom. Hibiscus Luna series were put into a greenhouse with night temperature around 50 degree to avoid stretching. However, plants experienced slight cold damage with crinkled young leaves. Plants were moved to warmer greenhouse and treated with Sumagic (uniconazole) at 20 ppm once per week for two weeks to keep a compact shape.



All plants were sprayed with a broad spectrum fungicide on Jan. 13. Buddleia, helichrysum, lamium, phlox, and salvia plants were pinched 1 to 2 times during the 8-week production period. Though not required in the production guidelines, pinching promoted branching of erysimum “Apricot Twist” and lavandula “Hidcote Blue”.

Most of these perennials were relatively easy to grow under regular production practices. Most varieties exhibited high uniformity when finished in 4 or 6 inch pots. Hibiscus, buddleia, hybrid penstemon, and perovskia needed height control PGR to keep a proportional shape in containers. Most species are relatively pest free during the production. Notable problems include buddleia leaf spot disease during rooting under mist, aphids on veronica and perovskia, cut worms in pots of lavandula and salvia, and twospotted spider mite on hibiscus plants.

Climate Condition:

During the year 2005, Hammond experienced a high of 99F and a low of 24F, while the maximum precipitation was 6.5 inch/month in August, 4.3 of that amount was from Hurricane Katrina on August 29. Except this storm and Rita in September (0.74 inch) the year 2005 was relatively dry. Precipitation was about 2 to 3 inches/month from January to June and 1 to 2 inches in October and November.

We lost some varieties as a consequence of the drought after the storms, but were fortunate that we completed most of the first-year evaluation.

Landscape Performance Summary:

First-year landscape performance evaluation was conducted from May to August. Flowering date was when 50% flower buds were in bloom. Plants were rated for flowering display at at 50% bloom using a rating with a scale of 1 to 5, where 5 = superior display, 4 = above average display, and 3 = average display, 2 = poor display, 1 = very poor. Overall performance rating was assigned to some varieties by the end of bloom based on flowering period and overall growth vigor, in a scale of 1 to 5 where 5 = excellent, 4 = good and meet general expectations, and 3 = less satisfactory, and 2 = weak growth/severe disease/pest problems, and 1 = plant dead (Table 1).

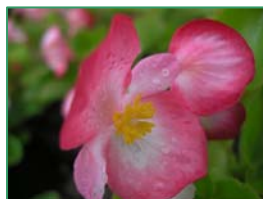
Trial Highlights:

Many plants received an overall performance rating of 4 for being adaptive to our climate and making a good display in the trial: ajuga, guara, lamium, phlox *subulata* and salvia Navajo. Below are comments on some top performers:

***Aquilegia hybrida* Songbird Dove, Swan Blue/white and Swan Rose/white.** First-year flowering perennials that can be planted as annuals. Hybrid columbines bring the spring to our garden with abundant showy flowers and interesting foliage shape. Flowering display of these three cultivars was impressive and lasted more than a month. ***Aquilegia caerulea* Origami series** (right) is more compact. Flowers stalks are right above the foliage. Good for both container production and landscape use. ‘Origami Rose/white’ and ‘Origami Yellow’ had the best flower display in the series.



***Begonia semperflorens* Bayou series.** A perennial in our region. ‘White’ and ‘Scarlet’ performed the best in the landscape. The growth vigor of Bi-color was not as strong as other colors at the beginning but did catch up. Flowers were eye catching and lasting; leaves were shiny and compact. Plants may need height control during the finishing stage, and require some afternoon shade in the landscape.



Pictures from left: begonia ‘Bayou’ series ‘White’, ‘Bicolor’, ‘Scarlet’, and ‘Rose’.

Coreopsis Rising Sun is more robust than Early Sunrise. It grows fast into a 12” clump with flowers throughout the summer.

Dichondra argentea Silver Falls (right) is a trailing dichondra with free branching and formed an elegant border around flowerbeds. A good hanging basket or edge plant, it has better heat and drought tolerance than *Dichondra repens* Emerald Falls in the landscape.



Erysimum linifolium Apricot Twist: Nice spring and early summer flowering display, was planted in a full sun site, may flower longer under some shade. No pest or disease problems.



Gazania ‘Kiss’ series: We trialed ‘Bronze Star’ (left), ‘Yellow Improved’, and ‘Frosty Mix’ that all exhibited excellent growth and bloom from April to June. ‘Yellow Improved’ re-flowered in October.

Hibiscus moscheutos Luna Red and Luna Blush: Very impressive display. Plants gave abundant flowers from May to June and re-flowered in November. Needs plenty of water and some afternoon shade. Leaves turn yellow under drought conditions. Susceptible to twospotted spider mite. Leafroller and glassy-winged sharpshooters were occasionally found on plants. Overall a great show plant.

Pentas Butterfly series provides nice color in combination with neat foliage and compact plant shape and is a perennial in our area. ‘Butterfly Cherry Red’ is the best in the four colors. ‘Butterfly White’ and ‘Butterfly Light Lavender’ were more susceptible to leaf rot. Overall a good plant worth trying more varieties.

Penstemon: Husker Red had vigorous growth and displayed the dark burgundy foliage throughout the summer heat. It is very adaptive to our soil. Flower stalks need to be cut after flowering to avoid lodging. **P. smalli Violet Dusk** (right) is a small penstemon with flower stalks at about 12 inches tall, flowers have nice violet pink color and last about a month. This plant has strong self-seeding ability that cutting off flower stalks may encourage more flowers. **Hot Rose** (Picture on page 1) is a hybrid pestemon with plant height at about 2 feet and flower stalk at 10 to 12 inches above. A nice background or screen plant



in the garden. Flowers were eye catching and flowering period was about a month. Good branching ability, no need to pinch. Sumagic at 20 ppm is effective to control height for container production.

***Verbena canadensis* Rapunzel Strawberry and Rapunzel Light Lavender.** Plants in this series were less aggressive than 'Homestead Purple' in flower beds. Spread slowly and easy to cut back. Good flower display throughout the summer with more flowers in early summer and late fall.



Pictures from left: verbena Rapunzel series 'Hot Rose', 'Purple', 'Strawberry', and 'Light Lavender'.

Acknowledgement:

We thank Dr. Allen Owings and Dr. Regina Bracy for their input and support during the trial. Appreciation also goes to the following individuals for their dedicated work during the trial: Roger Rosendale, Mike Bignar, Elton Granger, and Rebecca Deich. We also thank GoldSmith Seeds, PanAmerican Seed, Ball FloraPlant, and Fischer USA for providing trial materials and technical support.

Table 1. 2005 Hammond Research Station perennial trial results. Flowering display rating was based on a scale of 1 to 5, where 5 = superior display, 4 = above average display, 3 = average display, 2 = poor display, 1 = very poor. Overall performance rating was based on flowering period and overall growth with a scale of 1 to 5 where 5 = excellent, 4 = good and meet general expectations, and 3 = less satisfactory, and 2 = weak growth or severe disease/pest problems, and 1 = plant dead.

Genera	Species	Cultivar	Company	Material Received	Sowing Date	Transplant to 4" or 6"	Date of Flowering	Flowering Display Rating	Overall Performance Rating
Achillea	<i>x hybrida</i>	Coronation Gold	BFP	Unrooted Cut.	11/4/2004	12/18/2004	-	-	-
Ajuga	<i>reptans</i>	Bronze Beauty	BFP	Unrooted Cut.	10/22/2004	11/18/2004	-	3	4
Alyssum	<i>montanum</i>	Mountain Gold	PAS	Seed	10/20/2004	11/5/2004	2/6/2005	2	3
Aquilegia	<i>x hybrida</i>	Songbird Cardinal	PAS	Seed	10/20/2004	1/4/2005	5/4/2005	3	4
Aquilegia	<i>x hybrida</i>	Songbird Dove	PAS	Seed	10/20/2004	1/4/2005	4/18/2005	5	5
Aquilegia	<i>x hybrida</i>	Songbird Goldfinch	PAS	Seed	10/20/2004	1/4/2005	4/23/2005	4	4
Aquilegia	<i>x hybrida</i>	Songbird Robin	PAS	Seed	10/20/2004	1/4/2005	4/26/2005	3	3
Aquilegia	<i>x hybrida</i>	Swan Blue and White	PAS	Seed	10/20/2004	1/4/2005	4/14/2005	5	5
Aquilegia	<i>x hybrida</i>	Swan Rose and White	PAS	Seed	10/20/2004	1/4/2005	4/15/2005	5	5
Aquilegia	<i>x hybrida</i>	Swan Violet and White	PAS	Seed	10/20/2004	1/4/2005	4/14/2005	4	4
Aquilegia	<i>caerulea</i>	Origami (Blue/White)	GSS	Seed	11/19/2004	1/15/2005	4/15/2005	5	4
Aquilegia	<i>caerulea</i>	Origami (Pink/White)	GSS	Seed	11/19/2004	1/15/2005	4/20/2005	4	4
Aquilegia	<i>caerulea</i>	Origami (Rose/White)	GSS	Seed	11/19/2004	1/15/2005	4/12/2005	5	5
Aquilegia	<i>caerulea</i>	Origami (White)	GSS	Seed	11/19/2004	1/15/2005	4/28/2005	4	4
Aquilegia	<i>caerulea</i>	Origami (Yellow)	GSS	Seed	11/19/2004	1/15/2005	4/15/2005	4	5
Armeria	<i>maritima</i>	Alba	PAS	Seed	10/20/2004	2/12/2005	3/5/2005	4	4
Armeria	<i>maritima</i>	Splendens (Sea Pink)	PAS	Seed	10/20/2004	2/12/2005	2/25/2005	4	4
Begonia	<i>semperflorens</i>	Bayou (Pink)	GSS	Seed	12/4/2004	2/24/2005	3/5/2005	5	4
Begonia	<i>semperflorens</i>	Bayou (Rose)	GSS	Seed	12/4/2004	2/24/2005	3/8/2005	5	5
Begonia	<i>semperflorens</i>	Bayou (Scarlet)	GSS	Seed	12/4/2004	2/24/2005	3/6/2005	5	5
Begonia	<i>semperflorens</i>	Bayou (White)	GSS	Seed	12/4/2004	2/24/2005	3/5/2005	5	4
Begonia	<i>semperflorens</i>	Bayou (Bicolor)	GSS	Seed	12/4/2004	2/24/2005	3/15/2005	5	5
Buddleia	<i> davidii</i>	Pink Delight	BFP	Unrooted Cut.	10/26/2004	12/11/2004	3/14/2005	5	4
Campanula	<i>isophylla</i>	Stella (Blue)	GSS	Seed	12/7/2004	2/20/2005	4/20/2005	4	3
Campanula	<i>isophylla</i>	Stella (White)	GSS	Seed	12/7/2004	2/20/2005	-	-	-
Campanula	<i>longistyla</i>	Isabella (Mid Blue)	GSS	Seed	12/7/2004	2/20/2005	4/15/2005	4	3
Coreopsis	<i>grandiflora</i>	Early Sunrise	PAS	Seed	10/20/2004	2/6/2005	4/12/2005	4	4

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Coreopsis	<i>grandiflora</i>	Rising Sun	PAS	Seed	10/20/2004	2/6/2005	5/6/2005	5	5
Coreopsis	<i>verticillata</i>	Moonbeam	BFP	Unrooted Cut.	10/31/2004	-	2/25/2005	3	3
Dichondra	<i>argentea</i>	Silver Falls	PAS	Seed	10/21/2004	12/11/2004	-	-	5
Dichondra	<i>repens</i>	Emerald Falls	PAS	Seed	10/21/2004	12/11/2004	-	-	4
Erysimum	<i>linifolium</i>	Apricot Twist	BFP	Unrooted Cut.	10/31/2004	11/23/2004	1/8/2005	4	4
Eupatorium	<i>rugosum</i>	Chocolate	BFP	Unrooted Cut.	10/31/2004	11/18/2004	11/13/2004	4	3
Gazania	<i>splendens</i>	Kiss (Frosty Kiss Mix)	GSS	Seed	1/5/2005	2/20/2005	3/3/2005	5	4
Gazania	<i>splendens</i>	Kiss (Yellow Imp.)	GSS	Seed	1/5/2005	2/20/2005	2/25/2005	5	5
Gazania	<i>splendens</i>	Kiss (Bronze Star)	GSS	Seed	1/5/2005	2/20/2005	2/23/2005	5	5
Guara	<i>lindheimeri</i>	Siskiyou Pink	BFP	Unrooted Cut.	10/25/2004	11/19/2004	2/6/2005	-	4
Geranium	<i>Exotic</i>	Graffiti Fire/Scarlet	FS	Rooted Cut.	Rec. on:		5/21/2005	4	4
Geranium	<i>Exotic</i>	Graffiti Fire/Light Pink	FS	Rooted Cut.	3/3/2005		5/21/2005	5	4
Geranium	<i>Exotic</i>	Graffiti Fire/SalmonRose	FS	Rooted Cut.	3/3/2005		5/21/2005	5	5
Geranium	<i>Ivy</i>	Holiday Ruby Dream	FS	Rooted Cut.	3/3/2005		4/25/2005	4	5
Geranium	<i>Ivy</i>	Holiday Purple Dream	FS	Rooted Cut.	3/3/2005		4/22/2005	5	5
Geranium	<i>Ivy</i>	Purple Dream	FS	Rooted Cut.	3/3/2005		4/25/2005	5	5
Geranium	<i>Ivy</i>	Ruby Dream	FS	Rooted Cut.	3/3/2005		4/25/2005	5	4
Geranium	<i>Ivy</i>	Holiday Purple Blizzard	FS	Rooted Cut.	3/3/2005		4/20/2005	5	5
Helichrysum	<i>microphyllum</i>	Silver Mist	PAS	Seed	10/21/2004	12/18/2004	-	-	5
Hibiscus	<i>moscheutos</i>	Luna Blush	PAS	Seed	10/21/2004	11/21/2004	3/14/2005	5	4
Hibiscus	<i>moscheutos</i>	Luna Red	PAS	Seed	10/21/2004	11/21/2004	3/13/2005	5	4
Lamium	<i>maculatum</i>	White Nancy	BFP	Unrooted Cut.	10/26/2004	11/19/2004	1/9/2005	-	4
Lavendula	<i>angustifolia</i>	Hidcote Blue	BFP	Unrooted Cut.	10/27/2004	11/23/2004	3/14/2005	3	4
Lavendula	<i>angustifolia</i>	Lavender Lady	PAS	Seed	10/21/2004	12/4/2004	3/24/2005	4	2
Nicotiana	<i>x alata</i>	Saratoga Mix	GSS	Seed	12/7/2004	2/20/2005	3/5/2005	5	4
Pentas	<i>lanceolata</i>	Butterfly White	PAS	Seed	10/21/2004	12/18/2004	2/10/2005	5	3
Pentas	<i>lanceolata</i>	Butterfly Cherry Red	PAS	Seed	10/21/2004	12/18/2004	2/20/2005	5	4
Pentas	<i>lanceolata</i>	Butterfly Deep Pink	PAS	Seed	10/21/2004	12/18/2004	2/15/2005	5	4
Pentas	<i>lanceolata</i>	Butterfly Light Lavender	PAS	Seed	10/21/2004	12/18/2004	2/11/2005	5	3
Penstemon	<i>heterophyllus</i>	Electric Blue	PAS	Seed	10/21/2004	12/26/2004	3/14/2005	4	3

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Penstemon	<i>smallii</i>	Violet Dusk	PAS	Seed	10/21/2004	12/11/2004	2/16/2005	5	4
Penstemon	<i>digitalis</i>	Husker Red	BFP	Unrooted Cut.	10/24/2004	11/18/2004	5/9/2005	4	5
Penstemon	<i>hybrida</i>	Hot Rose	BFP	Unrooted Cut.	10/24/2004	11/19/2004	3/19/2005	5	4
Perovskia	<i>atriplicifolia</i>	Mona Lavender	BFP	Unrooted Cut.	10/26/2004	11/23/2004	2/20/2005	5	4
Phlox	<i>subulata</i>	Candy Stripe	BFP	Unrooted Cut.	10/31/2004	11/23/2004	11/9/2005	5	5
Phlox	<i>subulata</i>	Emerald Blue	BFP	Unrooted Cut.	10/31/2004	11/23/2004	1/22/2005	5	5
Phlox	<i>subulata</i>	Millstream Daphne	BFP	Unrooted Cut.	10/31/2004	11/23/2004	1/15/2005	4	4
Phlox	<i>subulata</i>	White Delight	BFP	Unrooted Cut.	10/31/2004	11/23/2004	1/15/2005	5	3
Platycodon	<i>grandiflorra</i>	Miss Tilly	GSS	Seed	12/7/2004	2/20/2005	3/22/2005	5	4
Poppy		Champagne Bubbles Mix	PAS	Seed	10/21/2004	12/4/2004	2/7/2005	5	4
Salvia	<i>transylvanica</i>	Blue Cloud	PAS	Seed	10/21/2004	11/20/2004	3/5/2005	4	3
Salvia	<i>greggii</i>	Navajo Bright Red	BFP	Unrooted Cut.	10/26/2004	11/22/2004	2/15/2005	4	4
Salvia	<i>greggii</i>	Navajo Rose	BFP	Unrooted Cut.	10/26/2004	11/22/2004	12/18/2004	5	4
Salvia	<i>guaranitica</i>	Black and Blue	BFP	Unrooted Cut.	10/26/2004	11/18/2004	12/20/2004	5	5
Sedum	<i>bithynicum</i>	Sea Stars	BFP	Unrooted Cut.	10/21/2004	11/19/2004	-	-	4
Verbena	<i>canadensis</i>	Rapunzel Light Lavender	FS	Rooted Cut.	3/3/2005		4/15/2005	5	5
Verbena	<i>canadensis</i>	Rapunzel Purple	FS	Rooted Cut.	3/3/2005		4/22/2005	5	3
Verbena	<i>canadensis</i>	Rapunzel Strawberry	FS	Rooted Cut.	3/3/2005		4/20/2005	5	5
Verbena	<i>canadensis</i>	Rapunzel Hot Rose	FS	Rooted Cut.	3/3/2005		4/19/2005	5	4
Veronica	<i>x hybrida</i>	Blue Bouquet	PAS	Seed	10/21/2004	12/1/2004	2/25/2005	5	4

* Company names abbreviation: BFP-Ball FloraPlant, PAS – PanAmerican Seed, GSS – GoldSmith Seeds, FS – Fischer USA.

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