

PROGRESS REPORT
Saratoga Horticultural Research Endowment
2012-2013

**Continued evaluations of the water use and climate zone tolerance of landscape
ornamentals for sustainable California gardens**

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Executive Summary

The goal of this project is to expand current and previous work done evaluating water usage and climate zone tolerances of plants from the *UC Davis Arboretum All-Stars* list as well as grower selections of heat-tolerant, water-conserving, disease-resistant plants that are potentially suitable for California's landscapes.

Current Status

In fall 2011, eight *UC Davis Arboretum All-Stars* species were planted in full sun (SUN – EAST) and five were planted in 50% shade in our irrigation trials field on the UC Davis campus. Ball Ornamentals was not able to source field-size material for the remainder of the available spaces, so in spring 2012, we filled out those two fields with an additional four *All-Stars* in sun, and three in shade. These plants were irrigated on a regular establishment schedule roughly equal to 80% ET₀ during the spring, summer, and fall of 2012.

Monthly measurements and quality ratings have been taken and will continue through October 2013. Deficit irrigation treatments at 80%, 60%, 40%, and 20% ET₀ will begin this spring. Because of our rather dry spring, we are already tracking rain levels to monitor for the beginning of irrigation treatments. The species planted are all commercially available, which means the information gathered will be immediately useful to the landscape trade for irrigation scheduling and hydrozoning. The species planted are in Table 1 below; the spring planted species are indicated, and California natives are marked with an asterisk.

In fall 2012, our additional sun field (SUN-WEST) was planted with 12 grower selections (Ball Ornamentals, Blooms of Bressingham, Hines Horticultural, Kurapia Green Produce) and three *All-Stars*. These have been watered throughout fall and during the drier winter months, and will receive regular water on an establishment schedule roughly equal to 80% ET₀ during spring, summer and fall of 2013. One species was reserved for spring planting, because of concerns for

its growth habit the first year in our heavy soils during cold months. That species will be planted this March. These species can be seen in Table 2 below.

Selections from the *All-Stars* in 2011 and 2012 were delivered to demonstration gardens in 11 counties with UC Master Gardener programs. Some *All-Stars* selections from 2012's original list are being held from planting in the field trials until fall 2013, to make room for additional grower selections this last fall. Some of these were delivered in fall 2012 to the MG demo gardens to install in anticipation of the fall 2013 field planting. The cooperating MGs have been collecting monthly quality ratings and quarterly measurements on these species to evaluate their performance in their climate zones. The species are listed by county below in Table 3.

We are excited about the current direction of the trials with increased participation from growers who want to evaluate their newer selections for sustainable characteristics like pest-tolerance, disease-resistance, and low water use. In addition to our current grower participants, we already have interest from other wholesale growers for fall 2013's planting, and plan to pursue expansion of the trials in this direction. We feel that the California gardening public and landscape professional industry will be best served by helping the ornamental nursery industry direct and promote their offerings toward water-conservation as a lynch-pin of sustainability.

Table 1. Plants installed fall 2011 and spring 2012; * indicated CA native/ native cultivar

SUN-EAST	Botanical name	Common name
	<i>Arctostaphylos densiflora</i> 'Howard McMinn'	Vine Hill manzanita
	<i>Calamagrostis</i> × <i>acutiflora</i> 'Karl Foerster'	Karl Foerster feather reed grass
	<i>Cerastium tomentosum</i>	snow-in-summer
	<i>Ceratostigma plumbaginoides</i>	dwarf blue plumbago
	<i>Delosperma cooperi</i>	Cooper's ice plant
Spring	<i>Isomeris arborea</i> *	bladderpod
	<i>Kniphofia</i> 'Christmas Cheer'	Christmas Cheer poker plant
Spring	<i>Phlomis purpurea</i>	purple phlomis
Spring	<i>Rosa</i> 'Pink Grüss an Aachen'	pink grüss an Aachen rose
Spring	<i>Salvia microphylla</i> 'Hot Lips'	Hot Lips mint bush sage
	<i>Teucrium chamaedrys</i> 'Prostratum'	dwarf germander
	<i>Teucrium fruticans</i> 'Azureum'	Azureum bush germander
SHADE		
	<i>Berberis aquifolium</i> 'Compacta'*	compact Oregon grape
Spring	<i>Ceratostigma plumbaginoides</i>	dwarf blue plumbago
	<i>Cyrtomium falcatum</i>	Japanese holly fern
	<i>Daphne odora</i> 'Aureomarginata'	variegated winter Daphne
Spring	<i>Festuca californica</i> *	California fescue
	<i>Neomarica caerulea</i>	walking iris
	<i>Ribes malvaceum</i> *	chaparral currant
Spring	<i>Sollya heterophylla</i>	bluebell creeper

Table 2. Plants installed fall 2012 and spring 2013; * indicates CA native/native cultivar

2012-2014	SUN-WEST	
Source	Botanical name	Common name
All-Stars	<i>Ceanothus</i> 'Concha'*	Concha ceanothus
	<i>Epilobium</i> 'Sierra Salmon'*	California fuchsia
	<i>Miscanthus sinensis</i> 'Little Zebra'	dwarf silver grass
Ball	<i>Buddleia</i> Flutterby Petite 'Tutti Fruitti Pink'	dwarf butterfly bush
	<i>Epilobium</i> 'Diamondback'*	California fuchsia
	<i>Lomandra longifolia</i> 'Bushland Green'	dwarf mat rush
	<i>Lonicera</i> 'Peaches and Cream'	honeysuckle
	<i>Trachelospermum</i> 'Sassy'	dwarf butterfly bush
B of B	<i>Geranium</i> 'Rozanne'	cranesbill
	<i>Helichrysum amorginum</i> 'Ruby Cluster'	starflower
	<i>Kniphofia</i> 'Elvira'	poker plant
Hines	<i>Dianthus</i> Everlast 'Orchid'	dianthus; pinks
	<i>Buddleia</i> 'Purple Splendor'	butterfly bush
	<i>Mimulus</i> 'Peekaboo White'*	monkey flower
KPG	<i>Lippia nodiflora</i> 'Kurapia'*	Kurapia

The plants in Table 1 finish their trial period at the end of October 2013, and the data will be available January 2014; the plants in Table 2 finish their trial period in October 2014, and the data will be available late in January 2015.

Table 3. Plants delivered to MG demonstration gardens fall 2011 and fall 2012.

COUNTY	Alameda	Los Angeles	Mariposa	Madera	Nevada/Placer	Orange	SD- inland	SD- coastal	San Joaquin	Santa Clara	Shasta	Ventura
SUN 2011												
<i>Arctostaphylos densiflora</i> 'Howard McMinn'	X		X		have	x	x	x	have		x	x
<i>Calamagrostis acutiflora</i> 'Karl Foerster'	x				x	x		x	x		x	x
<i>Cerastium tomentosum</i>	x				have	x		x	x		x	x
<i>Delosperma cooperi</i>	x				x		x		x		x	x
<i>Ceratostigma plumbaginoides</i>	x				x	x	x	x	have		x	x
<i>Teucrium chamaedrys</i> 'Nanum'	x				x	x	x	x	x	x	x	x
<i>Kniphofia</i> 'Christmas Cheer'	x				x	x	x	x	have		x	x
<i>Teucrium fruticans</i>	x				have		x	x	x		x	x
SHADE 2011												
<i>Berberis aquifolium</i> 'compactum'		x	x			x	x	x		x	x	x
<i>Neomarica caerulea</i>						x				x	x	x
<i>Cyrtomium falcatum</i>	x								x	x	x	x
<i>Daphne odora</i> 'Aureomarginata'						x	x	x			x	x
<i>Ribes malvaceum</i>	x	x	x				x	x	x	x	x	x
SUN 2012												
<i>Ceanothus</i> 'Concha'			x	x	x	x		x	x		x	x
<i>Epilobium canum</i> 'Sierra Salmon'			x	x	x	x			x	x	x	x
<i>Hesperaloe parviflora</i>	x			x	x	x		x	x	x	x	x
<i>Lavandula x gingsii</i> 'Goodwin Creek Grey'	x			x	x	x			x	x	x	x
<i>Miscanthus sinensis</i> 'Little Zebra'	x			x	x	x			x	x	x	x

Where the garden already was already growing the plant, it is marked “have”. They agreed to evaluate its performance at their site, though growth data will not be collected.