

Colorado State University 2013-2014 Cool Season Trials Performance Report



Annual Flower Trial Garden
1401 Remington Street
NE Corner of College Avenue and Lake Street
Colorado State University
Department of Horticulture and Landscape Architecture
Ft. Collins, CO. 80523
www.flowertrials.colostate.edu

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Introduction

This is the sixth year that Colorado State University conducted a Winter Cool Season Trial in ground beds. It marks the fourteenth year that the Gardens are located at the Annual Flower Trial Garden, adjacent to the Center for the Fine Arts at Colorado State University. The overall goal of this project is to determine which varieties of cool season plants are best suited for marketing and growing in this region. Initial data was recorded in October 2013, then approximately every two weeks from February-May 2014 (no data was collected in December 2013 and January 2014 due to snow cover). Irrigation was also monitored throughout this time period and any additional water given to these plants was recorded. This year the cool season trials were evaluated by industry professionals and company representatives on April 21, 2014.

The cool season trials at Colorado State University have no specific operation dollars from state funds. Financial assistance, plant material, and other miscellaneous materials for the trials were acquired from sponsoring seed companies and several Colorado Greenhouse companies. Special thanks to Welby Gardens Inc. for their generous support in growing a flat of each of the cool season varieties. Some operational and staff dollars have come from the Colorado State University Agriculture Experiment Station, Extension, and the Department of Horticulture and Landscape Architecture. Seed companies that participated in this trial were: Benary Seed, Burpee Home Garden, Syngenta Flowers, Pan America Seed.

Cultural Data for the 2013-2014 Winter Pansy Trial Gardens

Planting Dates

All cool season plants were planted on October 8th, 2014. All plants arrived from Welby Gardens as rooted seedlings in cell packs that were 2.25" deep. They were then transplanted into planting beds located in the Annual Flower Trial Garden at 1401 Remington Street. There were 4 plants per cell pack, and 15 cell packs were planted in each row of the beds.

Watering

All watering was monitored. Watering was done when natural precipitation was low and when the ground media was not saturated. The winter of 2013-14 had moderate winter precipitation when compared to other winters. There was snow cover on the bed during most of the month of January and the majority of February. The beds were watered using a frost free line on October 8th, 30th, and January 22. On March 19th, the plants were hand watered using a watering wand. Watering from late-March through May was done with the permanent irrigation system. The irrigation system was typically run for 2 hours on a weekly basis. The irrigation system applies .39in of water per hour.

Dates of Severe Weather

Winter temperatures in 2013-2014 were fairly typical of a normal Colorado winter. This year's extensive snow cover occurred from January-mid February. The first hard freezes, (low temps. below 25°F) after the trials were planted, were recorded on November 6th and 18th, when temperatures were recorded to be 19°F and 22°F respectively. Extreme cold temperatures are listed in the table below. Wind-chill factors are not included but can be quite significant in Colorado's winter climate. One later freeze of 15°F was recorded on 3/15 which occurred while a majority of the entries were in half bloom. This later freeze seemed to damage some of the flowers on a handful of entries, but no other significant frost damage was noticed.

Dates of temperatures at 5°F or lower:

Date	Low	Date	Low	Date	Low	Date	Low	Date	Low
12/4/13	-6	12/9/13	-4	1/24/14	3	2/4/14	-6	3/1/14	3
12/5/13	-8	12/10/13	0	1/28/14	-4	2/5/14	-11	3/2/14	3
12/6/13	-5	12/11/13	5	1/29/14	3	2/6/14	-11		
12/7/13	-9	1/5/14	-9	2/2/14	4	2/7/14	-11		
12/8/13	1	1/6/14*	-15*	2/3/14	1	2/26/14	3		

*Lowest recorded temp of the winter.

Weather Data November – May

October 2013

Ave Max T = 59.7°F
 Ave Min T = 35.0 °F
 Ave MeanT = 47.3 °F
 Max Max T = 77.0 °F
 Min Min T = 26.0 °F
 Total Prec= 1.68 in.
 Max Prec= 0.49 in.

November 2013

Ave Max T = 54.0 °F
 Ave Min T = 26.3 °F
 Ave Mean T = 40.1 °F
 Max Max T = 67.0 °F
 Min Min T = 14.0 °F
 Total Prec= 0.22 in.
 Max Prec= 0.21 in.

December 2013

Ave Max T = 41.2 °F
 Ave Min T = 14.7 °F
 Ave Mean T = 27.9 °F
 Max Max T = 63 °F
 Min Min T = -8°F
 Total Prec= 0.45 in.
 Max Prec= 0.34 in.

January 2014

Ave Max T = 46.3 °F
 Ave Min T = 18.5 °F
 Ave MeanT = 32.4 °F
 Max Max T = 65 °F
 Min Min T = -6 °F
 Total Prec= 1.43 in.
 Max Prec= 0.64 in.

February 2014

Ave Max T = 42.2 °F
 Ave Min T = 16.2 °F
 Ave MeanT = 29.2 °F
 Max Max T = 64°F
 Min Min T = -14 °F
 Total Prec= 0.30 in.
 Max Prec= 0.12 in.

March 2014

Ave Max T = 54 °F
 Ave Min T = 25 °F
 Ave MeanT = 40 °F
 Max Max T = 73 °F
 Min Min T = 3 °F
 Total Prec= 0.93 in.
 Max Prec= 0.55 in.

April 2014

Ave Max T = 62 °F
 Ave Min T = 34 °F
 Ave Mean T = 48 °F
 Max Max T = 78°F
 Min Min T = 15 °F
 Total Prec= 0.28 in.
 Max Prec= 0.15 in.

Data Collection Methods from Planting through Evaluation Day

Tom Zimmermann (undergraduate Environmental Horticulture student) collected data throughout the 2013-14 cool season trial. The data categories collected included: overall rating (1-5), as well as frost dieback ratings as a percentage and percent flower coverage.

The overall rating scoring was: 1=poor condition (dying), 2=weak condition (struggling with some dieback), 3=average (few to no flowers with healthy foliage), 4=good condition (progressing flowers with healthy foliage growth), and 5=great condition (many flowers with healthy uniform foliage growth).

The frost damage/ dieback was based on the number of the all plants per entry row that showed visible frost damage (dead plant material).

The frost damage/ dieback rating was recorded beginning in November of 2013 through mid-April of 2014. Plants were rated as: 1= little dieback to no dieback, 2= some dieback, 3= visible dieback, 4= significant dieback, 5= dead (all brown).

Bloom percentage was rated as first bloom=one bloom is visible on any plant in the variety in the spring, 50% bloom=variety appears to average 4 blooms/cell pack, and 100% bloom=variety has full flower coverage.

Conclusion

This was a successful year for the cool season due to the earlier planting date of all entries on October 8, 2013. With this earlier planting date entries were able to become more successfully rooted and established before the first hard freeze of the winter. In addition to the earlier planting date the consistent snow cover through Colorado's coldest months of January and February also helped provide protection to the entries during this cold period. In the spring it was evident that the plants received adequate winter protection and water from the snow because many of the entries quickly developed attractive, full blooms in the spring. It was the opinion of the advisory committee that the cool season trials should continue in 2014-2015. In addition to the continued growth of the cool season there is a push to find additional cool season plants along with Violas and Pansies to trial in future years.

2013-2014 Cool Season Best Of's

Best of Show Pansy: Pansy Inspire® Purple & White

Nothing says “Best Of” like 100% survival through the winter. This Pansy has very bright and high contrasting blue white flowers. The flowers seem to have a blue top and a white bottom that make them very noticeable from across the whole garden.

Best Blue/Violet Pansy: Pansy Inspire® True Blue

This Pansy seemed to have the largest flowers out of all the Pansys, these large blue flowers made this plant a standout. In addition to the large flowers it was also noted that it had the ‘truest blue flower’. This Pansy also displayed a very uniform and upright growth habit.

Best Yellow Pansy: Pansy Cool Wave™ Golden Yellow

The first thing that everyone will notice about this Pansy is the profusion of large, attractive flowers. Not only are there many flowers, but the flowers are a bright golden yellow that is sure to catch garden visitor’s eyes. This Pansy was also very vigorous and displayed a spreading growth habit.

Best of Show Viola: Viola Sorbet XP Morpho

This Viola was described as a sturdy, small, uniform plant. The flower color is a very rich combination of deep blue and canary yellow. This color combination gave the plant great contrast, allowing it to become a garden favorite. This Viola also had 100% survival during the winter.

Best Blue/Violet Viola: Viola Penny Deep Marina

One evaluator described this plant as, “Cute, cute, cute!” and “Perfect for homeowners!” This Viola had a unique flower color combination of deep purple, purple, and white. The plants were very uniform in growth habit and each plant was just blanketed in flowers.

Best Yellow Viola: Viola Popsicles Yellow

This Viola seemed to have to most intense yellow flower color. The yellow flowers had a golden yellow throat that made it standout. All of the flowers were displayed perfectly on top of the foliage of the plant. It was also noted that this Viola was a great, sturdy plant.

For photos of these plants visit www.flowertrials.colostate.edu. – Best Pansy/Viola