



THE OHIO STATE UNIVERSITY

OSU Cultivar Trials: 2016 Season Summary

By William Barnhill, Dr. Claudio Pasian, and Dr. Tim Rhodus

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The 2016 summer trial was very successful, and showcased 607 plant entries representing 24 different commercial brands. Five different trial categories were offered, including field annuals (or in-ground), field perennial, 12 inch hanging baskets 14 inch containers in the sun, 14 Inch containers in the shade and showcase containers. The field category remained the most popular, representing 33% of all trial entries. The baskets, container, shade and perennial categories represented 15%, 26%, 8%, 17% and 1% of all trial entries, respectively.

A highlight to the trial season each year is the *Cultivate* Garden Reception. (*Cultivate Trade Show and Short Course*, sponsored by AmericanHort. This event takes place in July, during the *Cultivate* when the trial plants are observed hundreds of industry professionals visiting from around the world.

Trial Plants

Seed entries received in February (Vinca spp., Celosia spp., and New Guinea Impatiens) were sown by Darby Creek Growers, Orent, Ohio. When plugs were ready to transplants they were shipped to us. All other seed varieties were sown and grown by us in the Howlett Greenhouse at The Ohio State University. Depending on seed arrival, most varieties of seed were schedule to be finished by week 14 in 288 or 105 plug trays. All young plants were transplanted into 4 inch diameter plastic containers, between weeks 14 and 16. All plants were grown in our greenhouses. Young plants received a constant feed of a 17-5-17 fertilizer at a rate of 100 ppm N. Temperature set points were: 65 °F night and 72 °F day. Plants received two applications of Root Shield Plus on weeks 16 and 19. Pest control consisted in a series of applications of biological controls from week 13 through week 19.

Field Trial Plantings. Planting of cool-tolerant crops took place on April 26 (week 18). All other field



plants were planted between May 9 and May 20 (weeks 20- 21). Nine plants per cultivar were planted with appropriate space for growth depending on cultivar. Plants were watered as needed until establishment, and then provided with minimum 1" irrigation per week, if no rain occurred. Plants were fertilized every other week with a 20-10-20 or a 17-5-17 fertilizer at a rate of

200 ppm N. Beds were hand-weeded as needed and some plants were pruned only to keep them within their boundaries.

Basket trial plantings: Planting took place between May 6 and June 3 (weeks 19-23) into 14 inch plastic baskets, with two plants per basket.

Container trial plantings: Planting took place between May 13 and May 27 (weeks 20-22) into 12 inch plastic pots, with two plants per container.

Shade trial plantings: Planting took place on May 27 (week 22) into 12 inch plastic pots, with two plants per container.



A view of container plants (left) and plants in the shade (right)

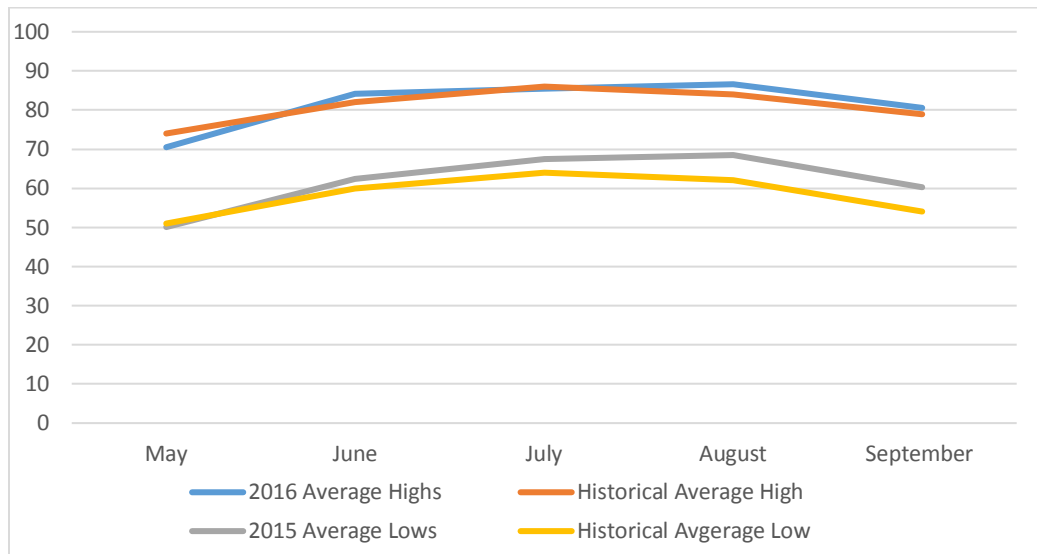
Cultural practices for container plants (containers in the sun, containers in the shade, and basket containers): Plants were grown in a MetroMix 380 mix and hand-watered until establishment and then placed on automatic drip irrigation. Osmocote Plus 15-9-12 of two longevities was incorporated at the time of planting. A combination of 1 tablespoon of 5-6 month and 2 tablespoons at 8-9 month formulations were used in each container. Plants received a supplemental feeding with either a 20-10-20, or a 17-5-17, or a 21-7-7 water soluble fertilizer (WSF) at a rate of 200 ppm N starting on week 24. Frequency of WSF application depended on crop type.

A cutworm infestation (Tobacco budworm, *Heliothis virescens*) became a struggle in early August. It was responsible for minor damage on Petunia, Calibrochoa and Pelargonium entries. All these plants were sprayed weekly with a BT (*Bacillus Thuringiensis*) pesticide to control the budworm.

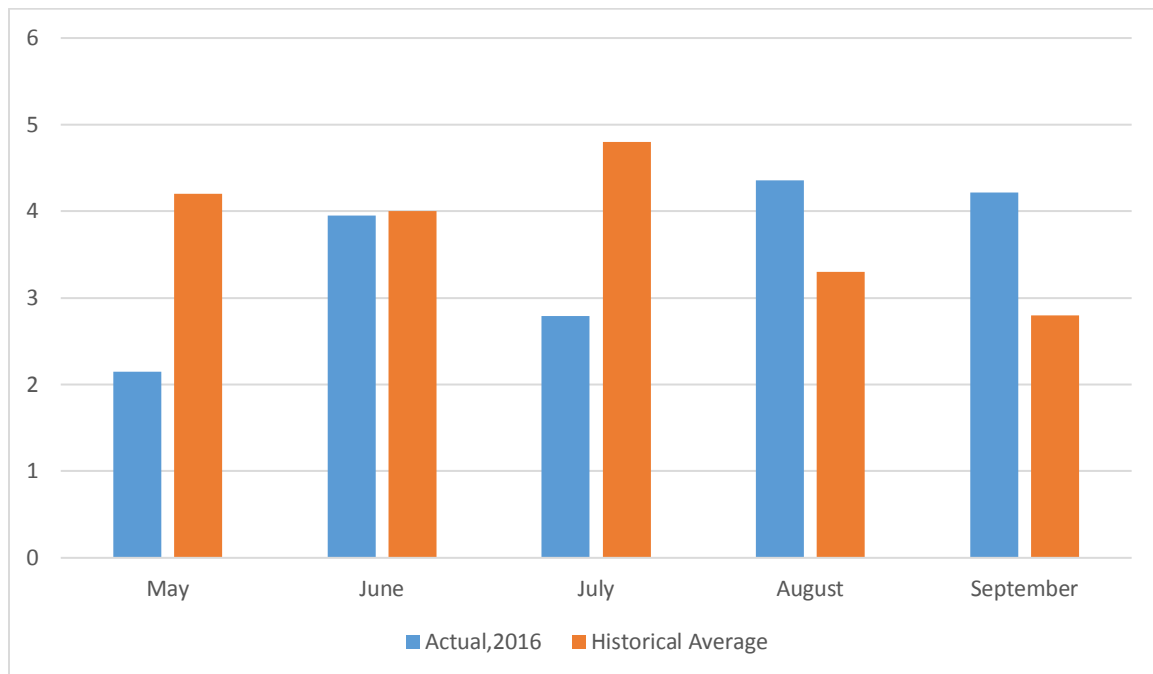
Weather

This year, weather started off slightly cooler in May, but for the rest summer temperature were above average. Rainfall amounts remained within the historical average except for the month of August and September.

Monthly Averages: High & Low Temperatures (in Fahrenheit)



Monthly Averages: Precipitation (in inches)



Evaluations

All plants in the trial were evaluated four times throughout the summer. Evaluations took place at weeks 26, 32, 35, and 38. Two different types of evaluations were conducted: the *Grower Performance Evaluation* and the *Consumer Preference Evaluation*. In each type of evaluation, the same rating system

was utilized, consisting of a scale from 1 through 5, in which 1 is the lowest (or least desirable) score, and 5 is the highest (or most desirable) score.

Grower Performance Evaluation: Conducted by the Trial Director and the Trial Manager, the objective of this evaluation was to assess the performance of each cultivar regardless of personal preferences by the evaluators. Each entry received a rating in four different categories: 'flower quantity', 'flower quality', 'vegetative growth/vigor', and an 'overall' score. In lieu of a 1 – 5 rating, sometimes "n/a" (not applicable) was indicated. For example, a foliage crop such as a caladium would have been assigned an "n/a" in the flower quantity and flower quality categories.

Consumer Preference Evaluation: The objective of this evaluation was to assess the personal preference of each cultivar by consumers in the central Ohio area. Our pool of evaluators consisted of Chadwick Arboretum volunteers and staff, Franklin County Master Gardeners, and students. During each of the four evaluation periods, between 27 and 38 evaluators participated. Evaluators were instructed to give each entry a score of 1 through 5 to indicate their preference for the cultivar (a rating of 1 indicated they did not like the plant at all, while 5 indicated they liked the plant a lot). Responses were averaged for each evaluation period. To view some photos and past performances, visit the Digital Evaluator website: <http://hvp.osu.edu/trials/index.html>.

Thank you

We would like to thank all who participated in the 2016 trials. We are very happy to have completed another successful season, full of strong performers, unusual crops, and all-around beautiful plants. Many thanks to our donors who helped to make the trials possible. We are very grateful to our dedicated and hard-working volunteers, without whom we could not do the trials. Special thanks to Jim Vent (Greenhouse Manager) and Aron Coolman (Student Assistant) for their outstanding efforts.

Trial Garden Highlights

We refined our perennial program, opening it to any company willing to participate. This year, we had a total of 106 entries from 5 participating companies. They were a big hit during our open house receiving a lot attention and heavy traffic flow.

Our evaluation app was taken in a new direction, a switch was made and the evaluators started using a Qualtrics application. Dr. Tim Rhodus, Professor at The OSU Horticulture and Crop Science Department, was able to modify the application to match the needs of our trial program. The app was able to decrease the amount of time it took to do the evaluations and increased accuracy as there was no need to manually enter the data. The Qualtrics survey system was also used in our open house during Cultivate. Visitors were given the opportunity to evaluate field plantings by using their own cell phones. Results of such evaluations were posted as graphs in a large TV screen and updated every 15 minutes.

This year for the first time, we decided to evaluate the ability of annuals to attract pollinators (any non-pest insect visiting a flower at a given time). The initial evaluation consisted of 4 walk through of all annual entries to make visual observations and to take notes of heavily visited plants by pollinators. From these initial visual observations, we were able to determine the top ten plant entries most visited. Subsequently, these ten plant entries were subject to pollinator counting with a hand held mechanical

counter. Once a week during three weeks, one minute counts of the number of pollinators visiting the flowers of all plants of the selected trial entry were made.



Partial view of the reception in the gardens next to the trials for Cultivate participants.

The Future

- We hope to increase the size of our trial next year and continue to include common crops that are proven performers, as well as lesser-known, unusual crops, so that our trial can benefit a wide variety of users.
- Next year we will continue utilizing biological controls and make it our main source of pest control. This is a step in becoming more sustainable and environmentally friendly.
- We hope to increase the number of entries of perennial plants in our trials. We are currently inviting all companies to send us perennials to be evaluated during the 2017-2018 season.
- We are in the process of relocating a portion of our containers in the sun category into the field location for a better exposure of those plants.
- We will continue the evaluation of pollinator attractiveness of future annual entries.

More Information: Questions can be sent to Dr. Claudio Pasian, trial director (pasian.1@osu.edu) or Mr. William Barnhill, trial manager (barnhill.24@osu.edu).

OSU Cultivar Trials: 2016 High Performers

Grower Performance Evaluation

Perfect Average Overall Score of 5 (four evaluations)

Annuals

- Helichrysum Silverstar (Westhoff)
- Begonia Whopper Experimental 1630-13T1 (Ball Ingenuity)
- Ornamental Pepper Sedona Sun (PanAmerican Seed)
- Alternanthera Purple Prince (PanAmerican Seed)
- Caladium Burning Heart (Classic Caladiums)
- Coleus Main St. Dutch Mill Drive (Dummen)
- Coleus Stained Glassworks Luminesce (Dummen)
- Heucherlla Plum Cascade (TerraNova)

Average Score of 4.9 (average of the four evaluations)

Annuals

- Ipomoea Cameo (Dummen)
- Begonia Whopper Experimental 1630-5T2 (Ball Ingenuity)
- Begonia Whopper Rose Bronze Foliage (Ball Ingenuity)
- Begonia Whopper Red Bronze Foliage (Ball Ingenuity)
- Begonia Whopper Experimental 1620-8T1 (Ball Ingenuity)
- Begonia Whopper Red Green Foliage (Ball Ingenuity)
- Begonia Sprint Plus Rose (Benary)
- Begonia TopSpin White (Syngenta)
- Ornamental Pepper Hot Pops (PanAmerican Seed)
- New Guinea Impatient Paradise Light Pink (Kientzler)

Top Pollinators (In order of attractiveness)

1. Gaillardia Mesa series (PanAmerican Seed)
2. Both Portulaca series Pazzazz (Danziger) and Color Blast (Westhoff)
3. Gompherna Ping Pong series (Sakata)
4. Bidens Mega Charm Yellow (Danziger)
5. Scaevola Scalora Pearl (Westhoff)
6. Salvia Magic Wand Light Blue (Danziger)
7. Salvia Cathedral Deep Blue (Greenfuse)
8. Salvia Grandstand Red (Greenfuse)
9. Lantana Lucky Red (Ball FloraPlant)
10. Scaevola Purple Haze (Danziger)

For all results, please look at the attached Excel file.

