

Comparison of Dahlia Cultivars for Postharvest Life and Field Production in the Northeastern United States

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Research Overview

Dahlias are a popular specialty cut flower for growers throughout the United States. However, they pose some challenges, particularly for growers in the Northeastern United States. Frost arrives early in our cold climate, typically in the first couple of weeks of October. For dahlias, frost ends flower production during the height of the harvest season. Our trial farm in Orono, Maine, is the northernmost ornamental trial garden at a university on the east coast and is in USDA Hardiness zone 5a. It is a great location to compare dahlias to determine which cultivars will yield the most flowers for the longest period of time before frost.

The primary goal of our project was to grow a variety of cultivars of dahlias and compare them for overall yield, stem length, flower diameter, and earliness to bloom. An undergraduate student at the University of Maine, Taylor Bowers, interviewed dahlia growers at four locations throughout Maine to get suggestions for cultivars to grow. The farms who contributed to our list of dahlias are Coastal Maine Botanical Garden in Boothbay Harbor; Endless Summer Flower Farm in Camden; Salt Flower Farm in Trenton; and Omniflora Farm in Cape Neddick. They recommended sixty-four cultivars. Out of these, we selected fourteen cultivars to grow in our trial garden: Blizzard, Burlesca, Café au Lait, Café au Lait Rose, Clearview Daniel, Cornel, Cornel Bronze, Ivanetti, Lollipop, Neon Splendor, Rock Run Ashley, Sunspot, Tanjoh, and Tempest (Figure 1). Most of these cultivars were recommended by more than one grower. We hope that this work will help cut flower growers in cold climates select dahlias that will work best for them.

Another challenge with dahlias is that they tend to have a short vase life. So, we also compared flowers harvested from three cultivars grown in the field (Cornel, Ivanetti, and Burlesca) to determine if two commercial hydrating solutions (FloraLife 200 and Chrysal Professional 2) extend vase life after harvest.

Results Summary

There was no difference among cultivars for flower yield or tuber number. We were surprised that there were no differences in flower number, particularly because some

cultivars produced flowers quite a bit earlier than others. For example, shoots of 'Rock Run Ashley' emerged from the ground earliest and the cultivar started forming flowers earlier than any others. In contrast, 'Tempest' and 'Café au Lait' formed their first flowers later than any other cultivars. Our first frost was on October 7th, which was about a month after most dahlias started to flower. All the dahlias, but especially the cultivars that flower later, may benefit from being grown in high tunnels or with other forms of frost protection. One grower we interviewed as part of this project uses high tunnels to extend flower production of about half of the dahlias they grow.

The cultivars varied in other meaningful ways. Blizzard and Tempest produced consistently longer stems than all other cultivars we worked with, while Lollipop had shorter stems. Several of the cultivars we worked with have not been classified for flower diameter by the American Dahlia Society (Burlesca, Café au Lait Rose, Clearview Daniel, Cornel, Cornel Bronze, and Ivanetti). We measured the flower diameter of all of the cultivars we grew, and suggest that all except Café au Lait Rose should be classified as miniature or M (2"-4"). Café au Lait Rose is larger and would be classified as Medium or B (6"-8").

The growers we interviewed preferred BB and M cultivars over other sizes and did not tend to grow cultivars with very large (AA or >10", A or 8"-10") or very small (MC or up to 2") flowers. The most popular flower forms they recommended were Informal Decorative and Formal Decorative. Growers recommended very few flowers with lacinated, collarete, novelty open, anemone-flowering, and water lily forms. Growers recommended cultivars in fourteen different flower colors; color preference likely varies depending on the final market for the flowers. Light blend, dark blend, and dark red were the most common colors recommended, while cultivars that are purple, lavender, red, or flame blend were recommended the least.

Burlesca and Ivanetti did not benefit from a hydrating solution, so we wouldn't recommend using a hydrating solution to extend the vase life of these two cultivars. However, Cornel flowers lasted 7 days in Floralife 200 or 8 days in Chrysal Professional 2. By comparison, Cornel flowers lasted only 3 days in water. The cultivars we evaluated in hydrating solutions varied in their response to the solutions, but they also seemed to vary in terms of their overall vase life. Both Burlesca and Ivanetti had a vase life of about 6 days in water alone.

We will be continuing this work in the 2023 growing season and will grow twenty more cultivars of dahlias in the field. Madison Jones, an undergraduate student and recipient of the Dave Dowling Scholarship, is interviewing more growers this spring to help us add more cultivars to our list of grower-recommended cultivars. We plan to compare the

vase life of as many of these cultivars as possible in water only to provide more information about which dahlias may naturally have the longest vase life.

Applications for Cut Flower Growers

Our primary conclusion is that Rock Run Ashley would be a good choice for early flowers, while Tempest and Cafe au Lait flower later and would benefit from cold protection. Blizzard and Tempest had the longest stems of any cultivars we worked with. Cultivars that were held in hydrating solutions varied in their response to these treatments, which indicates that cultivars vary both in their response to hydrating solutions and in their vase life when held without a hydrating solution.

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Figure 1. Photos of the dahlias we grew as part of our field trial.