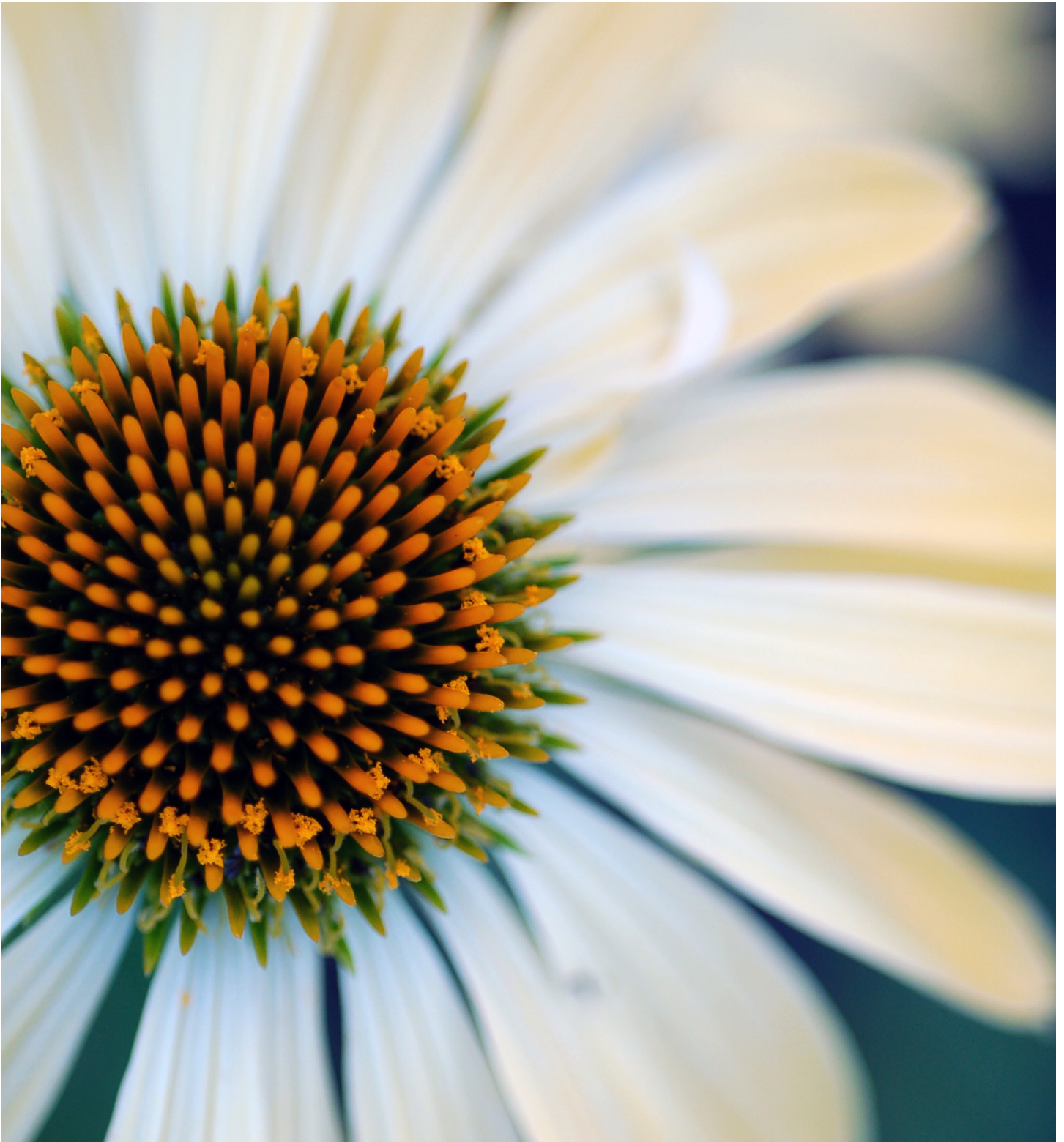




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Plant Evaluation Notes



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A Comparative Evaluation of *Echinacea* Cultivars
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Coneflower floral diagram

Coneflowers (*Echinacea* spp.) are considered archetypal native perennials and pollinator-friendly plants, and are immediately recognizable by the large, colorful rays surrounding prominent cones. The humble coneflower underwent a sea change in the early years of the Millennium with the introductions of ORANGE MEADOWBRITE™ ['Art's Pride'], the first orange-flowered hybrid created by Dr. James Ault at the Chicago Botanic Garden, and the rainbow-hued BIG SKY™ series from ItSaul Plants in Georgia. The excitement for the novel colors and whimsical double-flowered forms that followed was profound and has been sustained by the many coneflowers regularly introduced over the past 20 years.

There are nine species of *Echinacea*—part of the large aster family (Asteraceae)—indigenous to North America. The species may be broadly to narrowly distributed in their native ranges, for example, purple coneflower (*E. purpurea*) is found throughout the eastern United States, whereas Tennessee coneflower (*E. tennesseensis*) is restricted to a few sites in Tennessee. In fact, Tennessee coneflower was federally endangered for many years due to habitat loss and its natural rarity in the wild. The simplicity of the flowers belies their botanical complexity. While presenting as a single flower, each “flower” is a composite inflorescence consisting of a central cone or disk packed with numerous tubular disk florets surrounded by showy petal-like ray florets. Interspersed with the disk florets are stiff scales or pales (collectively paleae) that give the cone its color and spiny appearance. This is the root of the botanical name, which is derived from *echinos*, Greek for hedgehog. Where the ray florets of the various species range from pink to purple and yellow

(*E. paradoxa*), hybrids come in an array of colors and forms—shades of pink, purple, red, orange, gold, yellow, and white, and shapes from classic singles to shaggy doubles. The strap-like ray florets may be held outward, upward, or downward from the cone. Many coneflowers are fragrant, subtly or strongly so. Coneflowers have clumping habits with leafy basal rosettes; the sparsely foliated floral stems can hold a single flower or be branched with multiple flowers on a stem.

Purple coneflower is short-lived—two or three years is common—but reseeds readily and often vigorously so. And since purple coneflower is typically at least one parent of most hybrids, longevity can be an issue for hybrid cultivars too. Coneflowers are also promiscuous—two or more different hybrids or species growing near each other can produce seedlings in a variety of flower colors and plant habits. In fact, the original controlled cross of *Echinacea purpurea* 'Alba' and *E. paradoxa*, which begot ORANGE MEADOWBRITE™, produced a mixed assortment of purples, pinks, yellows, oranges, near reds, and white flowers. It is not unusual to discover unique or unexpected flower colors within or near an individual hybrid coneflower or group of them. A common misconception is that new flower colors appearing in an established planting are due to spontaneous reversion, when in fact the new colors are on seedlings growing within a plant or that have replaced dead plants.

Coneflower species have different cultural preferences, so interspecific hybrids might be more particular about where they will grow, which influences longevity too. For example, purple coneflower likes consistently



Echinacea ORANGE MEADOWBRITE®

moist soils but is tolerant of clay and drier conditions, Pale purple coneflower (*Echinacea pallida*), narrowleaf purple coneflower (*E. angustifolia*), and yellow coneflower (*E. paradoxa*) prefer drier conditions but are adaptable as well. In cultivation, most coneflowers grow well in full sun to partial shade and in average humus-rich soils with good drainage, especially in winter.

Coneflowers pair easily with many perennials and grasses and can be massed or mixed in garden beds and borders, meadows, naturalized landscapes, and pollinator gardens. Coneflower's strong floral architecture complements soft-textured plants such as lesser calamint (*Clinopodium nepeta* ssp. *nepeta*), catmint (*Nepeta racemosa*), and tufted hairgrass (*Deschampsia cespitosa*) and heightens the spikiness of blazing star (*Liatris* spp.), betony (*Betonica officinalis*), and little bluestem (*Schizachyrium scoparium*). Coneflowers draw a variety of bees, butterflies, and other insects during their long bloom season, while the ripened seeds are eaten by songbirds—notably the American goldfinch (*Spinus tristis*)—from late summer on.



Echinacea BIG SKY™ 'Sunrise'



Echinacea 'Hot Papaya'



Coneflower trial in Lavin Plant Evaluation Garden 2022

Trial Parameters

The Chicago Botanic Garden (USDA Hardiness Zone 6a, AHS Plant Heat-Zone 5) evaluated 52 different coneflowers in a comparative trial from spring 2019 to fall 2023. The trial was originally planned for 2019-2022, but a fifth growing season was added due to the pandemic shutdown that interrupted data collection in 2020.

Since 1993, 222 unique *Echinacea* taxa (species, hybrids, and cultivars) have been evaluated in four Chicago Botanic Garden trials in 1993-1997, 2003-2008, 2009-2012, and 2019-2023; additionally, some coneflowers were evaluated between 2012 and 2019 but were not part of an official genus trial. Appendix 1 lists all *Echinacea* evaluated between 1993 and 2023. Each trial cohort included coneflowers available from commercial sources at the start of a specific trial; for example, most taxa in the first trial were seed-grown species and cultivars as few clonal selections existed at that time. The second trial included the MEADOWBRITE™ series as well as a myriad of new colorful clonal cultivars developed and/or introduced by ItSaul Plants, Terra Nova Nurseries, and Plants Nouveau, among others. The third trial—2009-2012—included select taxa from the second trial as well as cultivars commercially available after 2008. Unfortunately, aster yellows was devastating to the 2003-2008 and 2009-2012 trials, so findings were not published.

Most taxa in the 2019-2023 trial were unavailable commercially or not yet introduced in 2012. However, the final cohort included several taxa that were top-performers in a previous trial or outside of a formal comparative trial such as 'Pica Bella' (2006 and 2009), 'Balsomred' (2011), 'Glowing Dream' (2013), 'Balsomador' (2014), and 'Purple Emperor' (2016). In the case of 'Balsomador', 'Balsomred', and 'Purple Emperor', they were in the 2019

trial as members of the featured SOMBRERO® and BUTTERFLY™ series, respectively. Double-flowered cultivars were evaluated in earlier trials but were not in the 2019-2023 trial, except for 'Delicious Candy', which was obtained inadvertently. Although we did not officially monitor pollinator visitation, we chose to focus on single-flowered cultivars for their greater ecological significance over double-flowered ones as demonstrated in Mt. Cuba Center's pollinator study (see References). Whether a species is superior to natives [native + cultivars] regarding pollinator draw was also not evaluated or determined in our trial.

Five plants of each taxon were grown side-by-side for easy comparison of ornamental traits and landscape performance; larger plots of 12 plants each of 'Cheyenne Spirit' and 'Mellow Yellows' were grown to maximize a mix of possible flower colors. The evaluation garden was openly exposed to wind in all directions and potentially received up to ten hours of full sun daily during the growing season. The clay-loam soil had a pH of 7.4 during this period, and although typically well-drained, the site occasionally retained excess water for short periods in all seasons.

Maintenance practices were kept to a minimum, thereby allowing the plants to thrive or fail under natural conditions. Trial beds were irrigated via overhead sprinklers as needed, mulched with composted leaves once each summer, and weeded. Moreover, plants were not deadheaded, fertilized, winter mulched, or chemically treated for insects or diseases. Plants infected with aster yellows were destroyed upon discovery, and mite-infested flowers were removed when observed. Plants were cut back in early spring before new growth began.



Purple coneflowers at Olbrich Botanical Gardens, Madison, Wisconsin

The Evaluation Report

Throughout the 2019-2023 trial period, all coneflowers were regularly observed and appraised on 1) adaptability to the soil and environmental conditions of the trial site; 2) disease and pest issues; 3) winter hardiness and survivability; and 4) ornamental qualities associated with flowers, foliage, and habits. Plants were closely monitored for reseeding, which often resulted in seedlings outgrowing or replacing original clonal cultivars. Final performance ratings for the 52 taxa in the trial are shown in Table 1; ratings are based on flower production and floral display quality, foliage and habit quality, plant health and vigor, winter survivability, and plant persistence or longevity. In 2024, we changed our ranking system from a maximum of five stars (excellent to very poor ratings) to four stars (excellent to poor ratings).

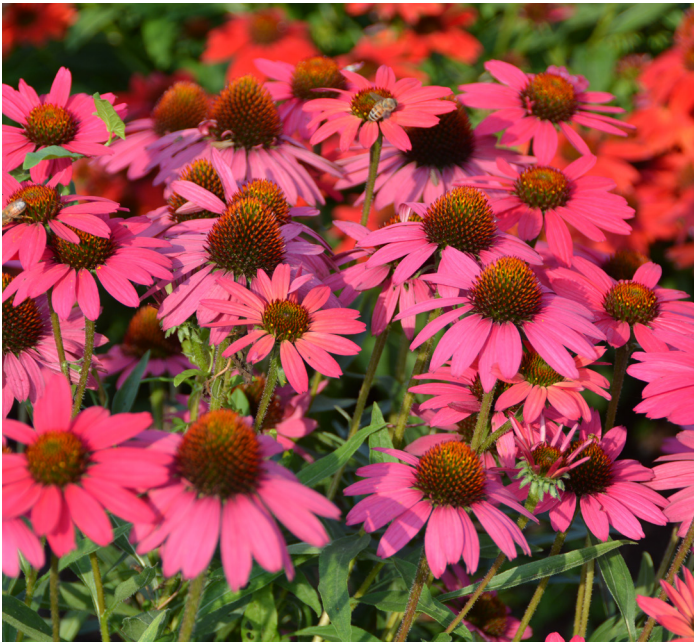
Top-Rated Coneflowers

Thirty of the 52 coneflowers received excellent or good overall ratings. Nine cultivars received four stars for their superior flower show, well-branched habits, health and vigor, and longevity based on plant attrition from aster yellows and winter losses during the five-year trial period. All five replicates of each top-rated cultivar survived through autumn 2023, were free of aster yellows, and had minimal to no mite damage (see Table 2).

'**Cheyenne Spirit**' is a mixed-color, seed-grown cultivar. The flowers averaged 4 inches wide in shades of orange, yellow, red, and purple and bloomed from mid-June to mid-August, with sporadic rebloom to mid-October. The ray florets were predominantly drooping, although the angle was slightly variable among the different colors. Despite some variation in plant forms and sizes, the individual plants of 'Cheyenne Spirit' were robust, bushy, and averaged 24 inches tall and 28 inches wide. A larger plot of 12 plants was grown to increase the chances of a greater blend of possible flower colors. Introduced by Kieft Seeds (PanAmerican Seed) in 2012.

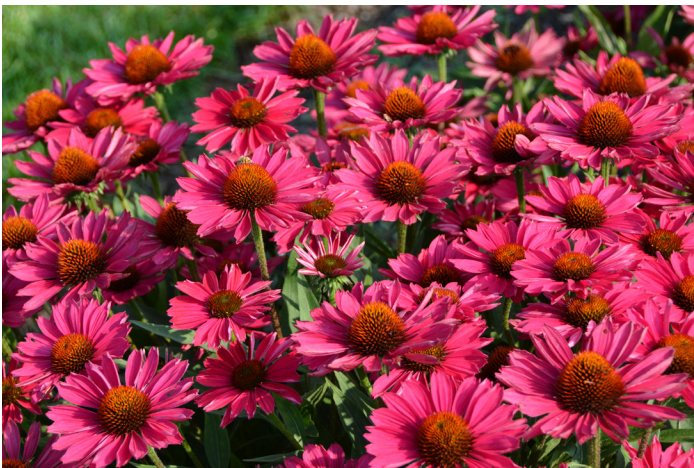


Echinacea 'Cheyenne Spirit'



Echinacea 'Glowing Dream'

'Glowing Dream' was notable when it was trialed in 2013-2016, so was included in the 2019-2023 trial as a comparison. The deep watermelon-pink rays paired with large orange cones were a vibrant display; rays were horizontal to slightly drooping. The 3½-inch flowers opened salmon, turned watermelon-pink, and faded to light pink. A coneflower's fading color often detracts from the fresh flowers but in this case, the light pink remained ornamental for an extended period and complimented the new blooms. 'Glowing Dream' had a compact and bushy habit with purple stems to 25 inches tall and 30 inches wide. A Terra Nova Nurseries, Inc., introduction.



Echinacea KISMET™ Raspberry ['TNECHKR']

The vivid magenta-pink flowers of **KISMET® Raspberry** ['TNECHKR'] were most comparable to 'Glowing Dream' and 'Sensation Pink'. Its impressive floral display was due to the striking color, large size (4 inches wide with horizontal rays), and heavy flower production. Peak bloom was in late July rather than the middle of the month like most other cultivars. The bushy plants were 24 inches tall and 28 inches wide. Deer browsing reduced flower production in 2019, and minor mite damage was noted in 2023. The KISMET® series is from Terra Nova Nurseries, Inc. too.



Echinacea KISMET™ White ['TNECHKW']

KISMET® White ['TNECHKW'] was consistently ranked one of the very best coneflowers at different stages during the growing season and in each year of the trial period. Large flowers with pure white rays and green cones were abundant during the primary bloom period in July. The flowers remained pristine longer than other white coneflowers and faded late with a yellowish cast. The well-branched, compact plants were 25 inches tall and wide. KISMET® White was comparable in appearance and performance to SOMBRERO® Blanco but featured horizontal rays.



Echinacea 'Mellow Yellows'

Like 'Cheyenne Spirit', '**Mellow Yellows**' is a seed-grown cultivar with flowers in shades of yellow. A cohort of 12 plants were grown to increase the chances of a good mix of possible colors. Observed flower colors included pale yellow, lemon yellow, golden yellow, and creamy white. Flowers averaged 3½ inches wide with horizontal to drooping rays. Plant habits were generally bushy with uneven stem heights averaging 24 inches tall and wide. Natural variability between the plants was expected due to its non-clonal nature, but the color blend was pleasing in mass, regardless of stem heights. Introduced by Jelitto Perennial Seeds.



Echinacea 'Sensation Pink'

'**Sensation Pink**' was an exceptional coneflower overall and notable for its 3-inch glowing magenta-pink flowers on dark burgundy stems. The ray florets were stubby compared to many other coneflowers and drooped slightly downward around the dark cones. The vibrant flower color held for a long time before fading to lavender-pink. Plants were bushy and uniform to 24 inches tall and 28 inches wide. 'Sensation Pink' is a selection from Dutch breeder Marco van Noort.



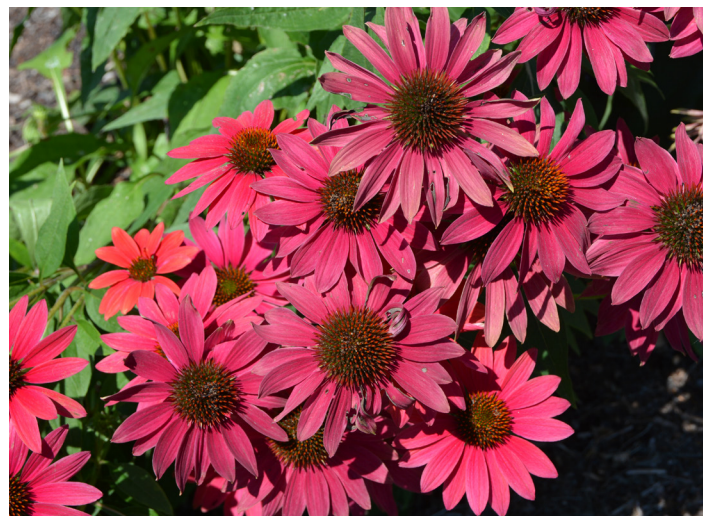
Echinacea SOMBRERO® Flamenco Orange ['Balsomenco']

The deep orange-red flowers of **SOMBRERO® Flamenco Orange ['Balsomenco']** were like SOMBRERO® Adobe Orange but with darker and broader ray florets. The 3½-inch flowers were well-shaped with slightly reflexed rays and orange cones. Flowers faded to salmon and remained attractive late into the season before turning brown as all coneflowers eventually did. Plant habits were consistently full and uniform, reaching 24 inches tall and 27 inches wide.



Echinacea SOMBRERO® Blanco ['Balsomblanc']

The SOMBRERO® series from Darwin Perennials were generally strong performers with three cultivars receiving excellent ratings. **SOMBRERO® Blanco ['Balsomblanc']** had droopy white ray florets and green cones. The 3½-inch flowers typically opened a week or two later than many coneflowers in the trial, although they peaked in mid-July along with other coneflowers. The well-branched bushy plants were uniform to 26 inches tall and 30 inches wide.



Echinacea SOMBRERO® Tres Amigos ['Balsomtreggo']

Where 'Cheyenne Spirit' is a mix of plants with different flower colors, **SOMBRERO® Tres Amigos ['Balsomtreggo']** features three distinctive colors as flowers age. The large 4-inch flowers opened coral, matured deep watermelon-pink, and senesced to long-lasting burgundy. As the bloom period progressed, all colors were present on a plant at the same time, which created a unique and pleasing display. Rays were mainly horizontal around orange cones. SOMBRERO® Tres Amigos exhibited great uniformity in its bushy habit and was one of the tallest coneflowers at 27 inches tall and 30 inches wide.

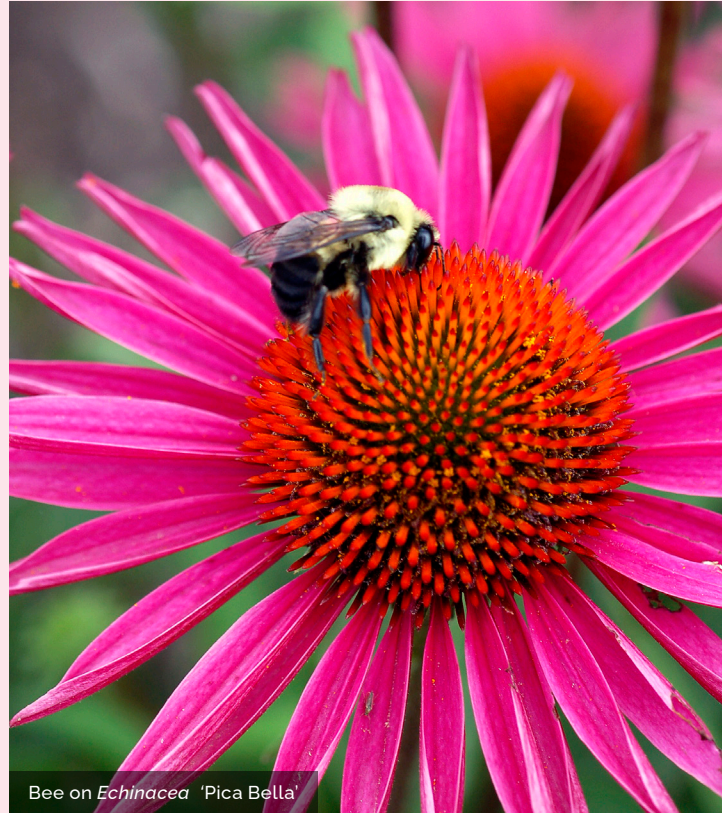
The Evaluation Details

Since the early 2000s, a wealth of colorful coneflowers has been introduced in a broad spectrum of purples, pinks, reds, oranges, and yellows as well as white, green, and bicolored flowers. Color at various bloom stages—opening, mature, and senescing—can change gradually or dramatically depending on the cultivar. Generally, most faded colors were pleasing, such as the tangerine-mango flowers of 'Big Kahuna' turning softer orange with pink accents or dark-orange-flowered SOMBRERO® Adobe Orange aging to strong salmon-orange. In contrast, many of the earliest orange and red coneflowers from the 2003-2008 trial aged with muddy pink undertones, showing their purple coneflower roots.



Echinacea 'Big Kahuna'

The first flower dates ranged from early to late June, with most cultivars opening in mid-June. Peak bloom typically occurred a month after the first flowers opened and remained at peak—colorful and plentiful—for an additional week or two before colors started fading appreciably. The flowers often held in their faded state for several weeks before transitioning to brown. Remontant or secondary repeat bloom was noted on all taxa with the last flowers usually finishing in mid-September but occasionally persisting into late September or early October. Secondary blooms from mid-August onward were always mixed with browning flowers, which affected the ornamental quality of the display in the late season. In judging overall ornamental display, how long all color stages persisted over the long bloom period was considered in the final rating. With a few exceptions, flower production was typically excellent (80-100%) at the peak of the primary bloom period with flowers evenly distributed over the plants. Only 'Canary Feathers' (40-60%) and 'Satin Nights' (60-80%) regularly exhibited lower flower production on otherwise healthy plants.



Bee on *Echinacea* 'Pica Bella'

Pollinator Research

The interest from gardeners, naturalists, and ecologists in the best plants to draw a diversity of pollinating insects to gardens and landscapes has grown significantly in recent years. The pollinator discussions center around native plants versus nonnatives and cultivars of native plants or nativars. Our trials have always noted insect visitors, especially when abundant or highly diverse but the observations have been casual rather than systematic. Commonly observed macro insects (large enough to easily assign to type) on coneflowers in our trials included bees, wasps, flies, butterflies, and skippers. While anecdotal observations are helpful, they just touch the surface of what people want to know about attracting pollinators. Focused research on pollinators has increased in the past decade or so, but more must be done on important horticultural plants, both native and nonnative, which are sometimes deemed less valuable or even detrimental to native pollinators. Significant research on pollinator visitation has been conducted at Mt. Cuba Center in Delaware and the Cincinnati Zoo and Botanical Garden in Ohio (see weblinks in References). In both studies, cultivars were observed along with wild-types. The Chicago Botanic Garden is currently developing protocols for determining the value of different native garden plants for supporting diverse pollinators, taking a holistic consideration of floral traits, including a novel approach to consider the nutritional content of native plants and cultivars. The formalized protocols will be incorporated into our evaluation process in coming years.



Seed-grown *Echinacea purpurea* 'Starlight'

The coneflowers generally had well-branched, compact habits under 30 inches tall. Inferior habits manifested as spindly forms, open crowns, lack of uniformity within a taxon, or unevenness caused by competition from vigorous seedlings crowding trial plants. The habits and plant sizes of the non-clonal selections—'Cheyenne Spirit', 'Mellow Yellows', and 'Starlight'—were less variable than expected. Within each of these cultivar groups, plant sizes typically varied by several inches and habits were generally comparable with an occasional plant having a loose habit or reduced basal growth. However, *Echinacea purpurea* 'Starlight' averaged 48 inches tall and 42 inches wide, which was much larger than the expected 24–36-inch height.

Most coneflowers exhibited a decline in ornamental value late in the season when a significant number of spent flowers were present. Inferior habits or reduced health from pathogens and pests or from environmental factors such as drought or excessive heat sometimes contributed to the reduced value; however, shriveled black ray florets holding onto the cones on otherwise healthy plants were more often the primary reason for decreased ornamental ratings. Special attention was paid to plant health and habit quality throughout the growing season but particularly in autumn as plants were shutting down for winter. Over the trial period, we observed that healthy plants with well-foliated or bushy basal mounds late in autumn were more likely to survive the winter than were healthy plants with few to no basal leaves. This phenomenon was observed in our earlier trials too. From our observations, this trait was not unique nor pronounced on any specific taxon. The coneflowers with greatly reduced foliage that lost

one or more plants over winter included 'Balsomemyim', 'Balsompocel', 'Balsomrosa', 'Blushing Meadow Mama', 'Canary Feathers', 'Chiquita', 'Dixie Scarlet', 'Firefinch™', 'Golden Skipper', 'Julia', 'Peacock', 'Rainbow Marcella', 'The Price is White', 'TNECHKIO', 'TNECHKY', 'TNECHPG', 'TNECHPR', 'Tweety', 'Yellow My Darling', and 'Yellow Passion'.

Seedlings were a continual and escalating issue beginning in 2020. Seed dispersal was mainly in the immediate area of the parent plant(s), so most seedlings grew vigorously within an existing row of trial plants, thereby outcompeting weaker plants or filling voids where original plants had died. Seedlings that replaced original plants often went unnoticed until flowers opened. Occasionally seedlings had a similar flower color and floral form to the original cultivar, which also created confusion. Seedlings were routinely removed when discovered, and in certain cases, their removal resulted in inferior or weakened habits for the remaining plant(s).

Disease and pest issues affecting coneflower health and habit included aster yellows, eriophyid mites, fungal leaf spot, powdery mildew, and deer browsing. Aster yellows was the most significant health issue in the trial with 13 percent of plants affected. There is no cure or treatment for aster yellows, so infected plants were completely removed when diagnosed. All coneflowers in the 2003–2008 and 2009–2012 trials were infected with aster yellows, and although it was present in most years of the 2019–2023 trial, fewer plants were affected than in the earlier trials. Damage from eriophyid mites, sometimes referred to as coneflower rosette, was observed in all years of the trial. Common symptoms are galls or witches'-brooms forming on the cones and may also include curled and/or bronzed leaves. While similar in appearance to aster yellows, mite damage is cosmetic and not a long-term health issue. Removing affected flowers eliminated the mites and improved the ornamental display as new flowers later in the season were undamaged. The percentage of plant losses from aster yellows are noted in Table 2; taxa with mite damage in one or more years are denoted with a superscript EMD following the botanical name. See sidebar for additional information on aster yellows and eriophyid mites.



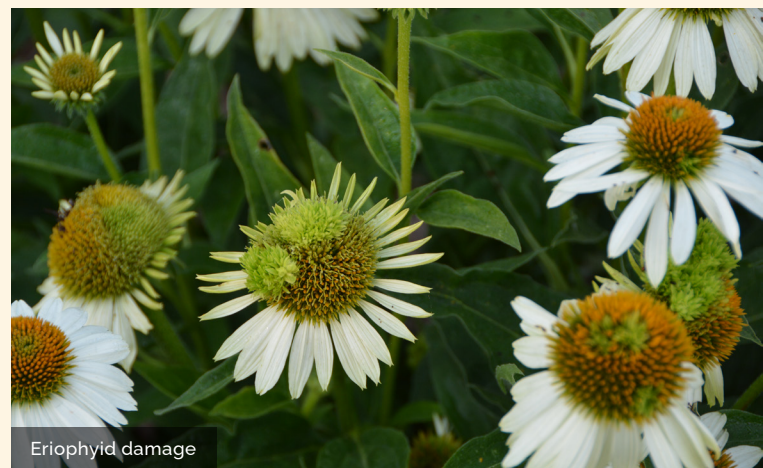
Multiple seedlings within original plants



Leaf spotting on coneflower

An undefined fungal leaf spot was observed on many plants. The spotting looked like *Septoria* leaf spot but was not confirmed. Leaf spotting was generally low, but higher infection levels were noted occasionally. Coneflowers with severe leaf spotting in one or more years were 'Big Kahuna' (2022), 'Delicious Candy' (2022, 2023), 'Dixie Scarlet' (2022), 'Fiery Meadow Mama' (2022), and 'Sunbird' (2021, 2022). Powdery mildew was a minor issue on 'Pica Bella' and 'The Price is White' in 2023 only. Several plants of 'Golden Skipper' and 'TNECHPG' were infested with foliar nematodes. Deer browse damage on flowers was minimal and infrequent.

Hybrid coneflower cultivars are commonly rated for USDA Hardiness Zones 4-9. Winter losses were presumed to be due to weakened vigor or poor health going into winter or from wet soil conditions during winter rather than from lack of cold hardiness. Of the 274 individual plants in the trial, 75 plants died in winter. Twenty taxa had one or more plants without robust basal growth that ultimately died in winter. While not all plants that died exhibited these conditions, the preponderance of winter-dead plants did. See Table 2 for information on winter losses for each taxon.



Aster Yellows and Eriophyid Mites

Perhaps the most grievous disease of cone-flowers is aster yellows because there is no prevention or cure—all parts of the plant are infectious and potentially harmful to other plants. Phytoplasmas—specialized organisms related to bacteria—are obligate intracellular parasites of plant phloem tissue and of the insect vectors that facilitate their plant-to-plant transmission. Aster leafhopper is a sucking insect that feeds on a variety of plants passing phytoplasmas between plants. Misshapen and chlorotic leaves, stunted stems, and disfigured flowers are common symptoms of aster yellows. Affected plants exhibit virescent floral parts such as green spoon-shaped rays and/or rosettes of leafy growth on the cones. Once infected, phytoplasmas overwinter and multiply in the roots, resulting in a chronic situation with symptoms worsening in subsequent years. Sanitation is best as soon as symptoms appear—remove and destroy all affected plants including their roots. Aster yellows is not a soil-borne organism and needs living plants to survive.

Coneflower rosette is caused by the eriophyid mite and the floral damage mimics some of the symptoms of aster yellows. However, the damage is only cosmetic and won't affect the health of the plant long-term. It does reduce seed production. Mites feeding on flowers cause tufted growth or rosettes to form on the cones. The deformed flowers are unsightly and similar in appearance to aster yellows. Removal of affected flowers is sufficient to reduce the mite population and improve the ornamental display.



Coneflower trial at Chicago Botanic Garden 2023

Summary

Coneflowers are native perennials prized for their ornamental and environmental qualities. For more than 20 years, a plethora of new cultivars have been introduced by plant breeders around the world. As of summer 2024, a cursory survey of commercial sources in the United States identified 78 coneflower cultivars that are new since our last trial began in 2019. The cumulative list of coneflower introductions is daunting, whether still commercially available or not. Regional comparative trials help gardeners to distinguish how newer selections compare to older cultivars as well as to their contemporaries.

Of the 52 coneflowers in the trial, more than half the cultivars had high overall scores, with nine cultivars receiving four-star excellent ratings including 'Cheyenne Spirit', 'Glowing Dream', KISMET® Raspberry, KISMET® White, 'Mellow Yellows', 'Sensation Pink', SOMBRERO® Blanco, SOMBRERO® Flamenco Orange, and SOMBRERO® Tres Amigos. Ratings are based on superior ornamental qualities, well-branched habits, health and vigor, and longevity over the five-year trial.

The coneflowers generally were strong bloomers over a protracted period, and commonly had well-branched, compact habits. The color transformation from new to senescing flowers seems more pleasing on contemporary cultivars than what was observed on many of the earliest clonal hybrids. Deadheading improves the floral display and reduces seedlings but also removes a seed source for birds. American goldfinches were common feeders in the trial garden; female redwing blackbirds and house finches were infrequent feeders on the coneflowers.

Aster yellows is a significant health issue for coneflowers, as well as for other plants in the aster family such as coreopsis, marigolds, chrysanthemums, and asters. Since there is no preventive or curative treatment, severe or widespread infection can be devastating. For example, some coneflowers such as KISMET® Deep Orange, SOMBRERO® Salsa Red, and 'The Price is White' were ranked highly before becoming infected with aster yellows. We saw no evidence that plants unaffected by aster yellows contained any natural resistance; rather, it was likely happenstance that leafhoppers had not fed on the plants. Affected plants must be destroyed when symptoms are observed to eliminate the chance of infection being spread.





Breeding beds at Chicago Botanic Garden 2002

Whether the short-lived nature of purple coneflowers has been inherited by the clonal hybrids is unknown, although our results showed that nearly 50 percent of coneflowers had good survival for at least the five-year span of the trial. Fourteen taxa had complete survival of the five plants to fall 2023, while 11 taxa had four of the five plants survive.

The trial did not resolve the pollinator question related to natives. Casual observations confirmed that a variety of pollinators regularly visited the coneflowers, but length of visitation and specific insect visitors were not officially tracked. Mt. Cuba Center's coneflower study reported on the value of natives to pollinators and several of our top performers such as 'Glowing Dream', KISMET® Raspberry, 'Sensation Pink', and SOMBRERO® Blanco made their list of the 15 best coneflowers for pollinators.

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Front Cover: *Echinacea* BIG SKY™ 'Sunrise'

Appendix 1: Echinacea Taxa Trialed at Chicago Botanic Garden 1993-2023

<i>Echinacea</i> 'Adam Saul' CRAZY PINK™	<i>Echinacea</i> 'Burgundy Fireworks'	<i>Echinacea</i> 'Lovely Lolly'
<i>Echinacea</i> 'All That Jazz'	<i>Echinacea</i> 'Butter Pecan'	<i>Echinacea</i> 'Mac 'n Cheese'
<i>Echinacea</i> 'Aloha'	<i>Echinacea</i> 'Canary Feathers'	<i>Echinacea</i> 'Mama Mia'
<i>Echinacea</i> 'Amazing Dream'	<i>Echinacea</i> 'CBGCone2' PIXIE MEADOWBRITE™	<i>Echinacea</i> 'Marmalade'
<i>Echinacea</i> 'Amber Mist'	<i>Echinacea</i> 'CBGCone3' MANGO MEADOWBRITE™	<i>Echinacea</i> 'Matthew Saul' BIG SKY™ Harvest Moon
<i>Echinacea</i> 'Art's Pride' ORANGE MEADOWBRITE™	<i>Echinacea</i> 'Champagne Bubbles'	<i>Echinacea</i> 'Maui Sunshine'
<i>Echinacea</i> 'Balscandin' DOUBLE SCOOP™ Mandarin	<i>Echinacea</i> 'Cheyenne Spirit'	<i>Echinacea</i> 'Mellow Yellows'
<i>Echinacea</i> 'Balscanery' DOUBLE SCOOP™ Cranberry	<i>Echinacea</i> 'Chiquita'	<i>Echinacea</i> 'Meringue'
<i>Echinacea</i> 'Balscawbux' DOUBLE SCOOP™ Strawberry Deluxe	<i>Echinacea</i> 'Chocolate Cherries'	<i>Echinacea</i> 'Meteor Red'
<i>Echinacea</i> 'Balscblum' DOUBLE SCOOP™ Bubble Gum	<i>Echinacea</i> 'Chocolate Strawberries'	<i>Echinacea</i> 'Milkshake'
<i>Echinacea</i> 'Balsceras' DOUBLE SCOOP™ Raspberry	<i>Echinacea</i> 'Colorburst Orange'	<i>Echinacea</i> 'Now Cheesier'
<i>Echinacea</i> 'Balsclemc' DOUBLE SCOOP™ Lemon Cream	<i>Echinacea</i> 'Coral Reef'	<i>Echinacea</i> 'Orange Passion'
<i>Echinacea</i> 'Balscmlux' DOUBLE SCOOP™ Watermelon Deluxe	<i>Echinacea</i> 'Cotton Candy'	<i>Echinacea</i> 'Orange Skipper'
<i>Echinacea</i> 'Balscoberr' DOUBLE SCOOP™ Orangeberry	<i>Echinacea</i> 'Cranberry Cupcake'	<i>Echinacea</i> 'Orange You Awesome'
<i>Echinacea</i> 'Balscoberrux' DOUBLE SCOOP™ Orangeberry Deluxe	<i>Echinacea</i> 'Delicious Candy'	<i>Echinacea</i> 'Peachy Keen'
<i>Echinacea</i> 'Balscrasux' DOUBLE SCOOP™ Raspberry Deluxe	<i>Echinacea</i> 'Dixie Belle'	<i>Echinacea</i> 'Peacock'
<i>Echinacea</i> 'Balsomador' SOMBRERO® Adobe Orange	<i>Echinacea</i> 'Dixie Blaze'	<i>Echinacea</i> 'Pica Bella'
<i>Echinacea</i> 'Balsomanita' SOMBRERO® Sangrita	<i>Echinacea</i> 'Dixie Scarlet'	<i>Echinacea</i> 'Pink Double Delight'
<i>Echinacea</i> 'Balsombabur' SOMBRERO® Baja Burgundy	<i>Echinacea</i> 'Emily Saul' BIG SKY™ After Midnight	<i>Echinacea</i> 'Pink Mist'
<i>Echinacea</i> 'Balsomblanc' SOMBRERO® Blanco	<i>Echinacea</i> 'Evan Saul' BIG SKY™ Sundown	<i>Echinacea</i> 'Pink Poodle'
<i>Echinacea</i> 'Balsomcor' SOMBRERO POCO™ Hot Coral	<i>Echinacea</i> 'Fiery Meadow Mama'	<i>Echinacea</i> 'Playful Meadow Mama'
<i>Echinacea</i> 'Balsomemyim' SOMBRERO® Lemon Yellow Improved	<i>Echinacea</i> 'Firebird'	<i>Echinacea</i> 'Postman'
<i>Echinacea</i> 'Balsomenco' SOMBRERO® Flamenco Orange	<i>Echinacea</i> 'Flame Thrower'	<i>Echinacea</i> 'Pure Honey'
<i>Echinacea</i> 'Balsomold' SOMBRERO® Granada Gold	<i>Echinacea</i> 'Gemini Pink' BIG SKY™ Double Pink	<i>Echinacea</i> 'Purple Emperor'
<i>Echinacea</i> 'Balsompocel' SOMBRERO POCO™ Yellow	<i>Echinacea</i> 'Glowing Dream'	<i>Echinacea</i> 'Quills and Thrills'
<i>Echinacea</i> 'Balsompocwi' SOMBRERO POCO™ White	<i>Echinacea</i> 'Golden Skipper'	<i>Echinacea</i> 'Rainbow Marcella'
<i>Echinacea</i> 'Balsompotin' SOMBRERO POCO™ Hot Pink	<i>Echinacea</i> 'Greenline'	<i>Echinacea</i> 'Raspberry Tart'
<i>Echinacea</i> 'Balsompred' SOMBRERO POCO™ Red	<i>Echinacea</i> 'Hang Loose'	<i>Echinacea</i> 'Raspberry Truffle'
<i>Echinacea</i> 'Balsomrosa' SOMBRERO® Rosada	<i>Echinacea</i> 'Heavenly Dream'	<i>Echinacea</i> 'Rocket Man'
<i>Echinacea</i> 'Balsomsed' SOMBRERO® Salsa Red	<i>Echinacea</i> 'Hot Lava'	<i>Echinacea</i> 'Santa Fe'
<i>Echinacea</i> 'Balsomsolst' SOMBRERO® Summer Solstice	<i>Echinacea</i> 'Hot Mess'	<i>Echinacea</i> 'Satin Nights'
<i>Echinacea</i> 'Balsomstor' SOMBRERO® Fiesta Orange	<i>Echinacea</i> 'Hot Papaya'	<i>Echinacea</i> 'Secret Desire'
<i>Echinacea</i> 'Balsomtreggo' SOMBRERO® Tres Amigos	<i>Echinacea</i> 'Hot Summer'	<i>Echinacea</i> 'Secret Glow'
<i>Echinacea</i> 'Big Kahuna'	<i>Echinacea</i> 'Indian Summer'	<i>Echinacea</i> 'Secret Joy'
<i>Echinacea</i> 'Blushing Meadow Mama'	<i>Echinacea</i> 'Irresistible'	<i>Echinacea</i> 'Secret Lust'
	<i>Echinacea</i> 'Jacob Lewis' BIG SKY™ Jupiter	<i>Echinacea</i> 'Secret Passion'
	<i>Echinacea</i> 'Julia'	<i>Echinacea</i> 'Secret Romance'
	<i>Echinacea</i> 'Katie Saul' BIG SKY™ Summer Sky	<i>Echinacea</i> 'Sensation Pink'
	<i>Echinacea</i> 'Leilani'	<i>Echinacea</i> 'Snow Cone'
	<i>Echinacea</i> 'Little Annie'	

Appendix 1: Echinacea Taxa Trialed at Chicago Botanic Garden 1993-2023 (continued)

<i>Echinacea</i> 'Solar Flare'	<i>Echinacea paradoxa</i>	<i>Echinacea purpurea</i> 'Primadonna Deep Rose'
<i>Echinacea</i> 'Southern Belle'	<i>Echinacea paradoxa</i> var. <i>paradoxa</i>	<i>Echinacea purpurea</i> 'Primadonna White'
<i>Echinacea</i> 'Summer Breeze'	<i>Echinacea purpurea</i>	<i>Echinacea purpurea</i> 'Purity'
<i>Echinacea</i> 'Summer Snow Storm'	<i>Echinacea purpurea</i> 'Alaska'	<i>Echinacea purpurea</i> 'Razzmatazz'
<i>Echinacea</i> SUMMERSONG™ Firefinch™ (formerly 'Lakota Fire')	<i>Echinacea purpurea</i> 'Alba'	<i>Echinacea purpurea</i> 'Red Knee High'
<i>Echinacea</i> 'Summer Sun'	<i>Echinacea purpurea</i> 'Avalanche'	<i>Echinacea purpurea</i> 'Rubinglow'
<i>Echinacea</i> 'Sunbird'	<i>Echinacea purpurea</i> 'Baby Swan White'	<i>Echinacea purpurea</i> 'Rubinstern'
<i>Echinacea</i> 'Sunrise' BIG SKY™ Sunrise	<i>Echinacea purpurea</i> 'Bravado'	<i>Echinacea purpurea</i> 'Ruby Giant'
<i>Echinacea</i> 'Sunset' BIG SKY™ Sunset	<i>Echinacea purpurea</i> 'Bright Star'	<i>Echinacea purpurea</i> 'Showoff'
<i>Echinacea</i> 'Supreme Cantaloupe'	<i>Echinacea Purpurea</i> 'Coconut Lime'	<i>Echinacea purpurea</i> 'Sir Lancelot'
<i>Echinacea</i> 'Supreme Elegance'	<i>Echinacea purpurea</i> 'Cygnet White'	<i>Echinacea purpurea</i> 'Sombbrero Hot Pink'
<i>Echinacea</i> 'Supreme Flamingo'	<i>Echinacea purpurea</i> 'Deep Pink Showoff'	<i>Echinacea purpurea</i> 'Sparkler'
<i>Echinacea</i> 'Tanager'	<i>Echinacea purpurea</i> 'Doubledecker'	<i>Echinacea purpurea</i> 'Springbrook's Crimson Star'
<i>Echinacea</i> 'Tangerine Dream'	<i>Echinacea purpurea</i> 'Elbrook' ELTON KNIGHT™	<i>Echinacea purpurea</i> 'Starlight'
<i>Echinacea</i> 'The Fuchsia is Bright'	<i>Echinacea purpurea</i> 'Fancy Frills'	<i>Echinacea purpurea</i> 'Super Magnus'
<i>Echinacea</i> 'The Price is White'	<i>Echinacea purpurea</i> 'Fatal Attraction'	<i>Echinacea purpurea</i> 'The King'
<i>Echinacea</i> 'Tiki Torch'	<i>Echinacea purpurea</i> 'Foxy Foxtrot'	<i>Echinacea purpurea</i> 'Verbesserter Leuchtstern'
<i>Echinacea</i> 'TNECHKIO' KISMET® Intense Orange	<i>Echinacea purpurea</i> 'Fragrant Angel'	<i>Echinacea purpurea</i> 'Vintage Wine'
<i>Echinacea</i> 'TNECHKR' KISMET® Raspberry	<i>Echinacea purpurea</i> 'Green Envy'	<i>Echinacea purpurea</i> 'Virgin'
<i>Echinacea</i> 'TNECHKRD' KISMET® Red	<i>Echinacea purpurea</i> 'Green Eyes'	<i>Echinacea purpurea</i> 'WFF Strain'
<i>Echinacea</i> 'TNECHKW' KISMET® White	<i>Echinacea purpurea</i> 'Green Jewel'	<i>Echinacea purpurea</i> 'White Lustre'
<i>Echinacea</i> 'TNECHKY' KISMET® Yellow	<i>Echinacea purpurea</i> 'Green Twister'	<i>Echinacea purpurea</i> 'White Showoff'
<i>Echinacea</i> 'TNECHPC' PRIMA™ Cinnamon	<i>Echinacea purpurea</i> 'Hope'	<i>Echinacea purpurea</i> 'White Swan'
<i>Echinacea</i> 'TNECHPG' PRIMA™ Ginger	<i>Echinacea purpurea</i> 'Jade'	<i>Echinacea purpurea</i> white flowered
<i>Echinacea</i> 'TNECHPR' PRIMA™ Ruby	<i>Echinacea purpurea</i> 'Kim's Knee High'	<i>Echinacea sanguinea</i>
<i>Echinacea</i> 'TNECHSDR' SUNNY DAYS™ Ruby	<i>Echinacea purpurea</i> 'Kim's Mop Head'	<i>Echinacea simulata</i>
<i>Echinacea</i> 'Tomato Soup'	<i>Echinacea purpurea</i> 'Leuchtstern'	<i>Echinacea tennesseensis</i>
<i>Echinacea</i> 'Tweety'	<i>Echinacea purpurea</i> 'Lilliput'	<i>Echinacea tennesseensis</i> 'Rocky Top'
<i>Echinacea</i> 'Twilight' BIG SKY™ Twilight	<i>Echinacea purpurea</i> 'Little Giant'	
<i>Echinacea</i> 'Watermelon Sugar'	<i>Echinacea purpurea</i> 'Lucky Star'	
<i>Echinacea</i> 'White'	<i>Echinacea purpurea</i> 'Magnus'	
<i>Echinacea</i> 'White Mist'	<i>Echinacea purpurea</i> 'Mars'	
<i>Echinacea</i> 'Wild Horses'	<i>Echinacea purpurea</i> 'Merlot'	
<i>Echinacea</i> 'Yellow Droopy'	<i>Echinacea purpurea</i> 'Mistral'	
<i>Echinacea</i> 'Yellow My Darling'	<i>Echinacea purpurea</i> 'Pica Bella'	
<i>Echinacea</i> 'Yellow Passion'	<i>Echinacea purpurea</i> 'PowWow White'	
<i>Echinacea angustifolia</i>	<i>Echinacea purpurea</i> 'PowWow Wild Berry'	
<i>Echinacea laevigata</i> Hybrid	<i>Echinacea purpurea</i> 'Prairie Frost'	
<i>Echinacea pallida</i>	<i>Echinacea purpurea</i> 'Prairie Splendor'	
<i>Echinacea pallida</i> 'Hula Dancer'	<i>Echinacea purpurea</i> 'Primadonna Deep Pink'	

Table 1: Observed plant traits and performance ratings

Overall Rating ¹	Echinacea	Flower Color	Flower Size	Bloom Period	Plant Height	Plant Width
★★★	'Big Kahuna'	yellow-orange	4½ in.	mid-June to early September	25 in.	26 in.
★★	'Blushing Meadow Mama'	pale pink	4 in.	mid-June to mid-September	26 in.	26 in.
★	'Canary Feathers'	bright yellow	¾ in.	early July to mid-September	18 in.	20 in.
★★★★	'Cheyenne Spirit'	orange, yellow, red, purple, mix	4 in.	mid-June to mid-October	24 in.	28 in.
★	'Chiquita'	soft yellow	¾ in.	mid-June to late September	17 in.	18 in.
★★★★	'Delicious Candy'	bright magenta-pink, double	3 in.	mid-June to mid-September	22 in.	26 in.
★★★★	'Dixie Blaze'	orange	¾ in.	mid-June to mid-September	22 in.	24 in.
★★	'Dixie Scarlet'	red-orange	¾ in.	late June to early September	22 in.	26 in.
★★★★	'Fiery Meadow Mama'	golden yellow and red	4 in.	late June to mid-September	28 in.	32 in.
★★★★	'Glowing Dream'	deep magenta-pink	¾ in.	mid-June to mid-September	25 in.	30 in.
★★	'Golden Skipper'	orange-yellow	4 in.	mid-June to mid-September	20 in.	26 in.
★★	'Julia'	orange	4 in.	late June to mid-September	19 in.	24 in.
★★	KISMET® Intense Orange ['TNECHKIO]	dark orange	4½ in.	late June to mid-September	21 in.	26 in.
★★★★	KISMET® Raspberry ['TNECHKR']	deep magenta-pink	4 in.	mid-June to mid-September	24 in.	28 in.
★★★★	KISMET® White ['TNECHKW']	white	¾ in.	mid-June to mid-September	25 in.	25 in.
★★	KISMET® Yellow ['TNECHKY']	golden yellow	¾ in.	mid-June to mid-September	22 in.	24 in.
★★★★	'Mellow Yellow's'	creamy yellow to gold	¾ in.	mid-June to mid-September	24 in.	24 in.
★★	'Orange Skipper'	bright orange	3 in.	late June to mid-September	18 in.	22 in.
★★★★	'Peacock'	coral pink	4 in.	mid-June to mid-September	26 in.	26 in.
★★★★	'Pica Bella'	deep pink	¾ in.	late June to mid-September	32 in.	28 in.
★★★★	'Playful Meadow Mama'	raspberry pink	¾ in.	mid-June to late September	22 in.	28 in.
★★★★	'Postman'	deep red-orange	¾ in.	late June to mid-September	29 in.	20 in.
★	PRIMA™ Ginger ['TNECHPG']	orange	3 in.	mid-June to mid-September	20 in.	20 in.
★★	PRIMA™ Ruby ['TNECHPR']	deep scarlet	3 in.	early July to mid-September	22 in.	24 in.
★★★★	'Purple Emperor'	bright magenta-pink	4 in.	mid-June to mid-September	26 in.	25 in.
★★★★	<i>purpurea</i> 'Starlight'	light pink	4 in.	early July to mid-September	48 in.	42 in.
★★	'Rainbow Marcella'	orange, pink	4 in.	late June to mid-September	22 in.	23 in.
★★★★	'Sante Fe'	dark pink, dull red, pinkish red mix	¾ in.	mid-June to mid-September	19 in.	30 in.
★★	'Satin Nights'	soft pink	4 in.	mid-June to mid-September	24 in.	26 in.
★★★★	'Sensation Pink'	bright magenta pink	3 in.	mid-June to early September	24 in.	28 in.
★★★★	SOMBRERO® Adobe Orange ['Balsomador']	dark orange	3 in.	mid-June to late September	28 in.	32 in.
★★★★	SOMBRERO® Baja Burgundy ['Balsombabur']	deep burgundy-red	3 in.	late June to October	20 in.	30 in.
★★★★	SOMBRERO® Blanco ['Balsomblanc']	white	¾ in.	late June to mid-September	26 in.	30 in.
★★★★	SOMBRERO® Fiesta Orange ['Balsomstor']	deep orange	¾ in.	early July to mid-September	20 in.	25 in.
★★★★	SOMBRERO® Flamenco Orange ['Balsomenco']	deep orange-red	¾ in.	mid-June to late September	24 in.	27 in.
★★★★	SOMBRERO® Granada Gold ['Balsomold']	golden yellow	¾ in.	late June to mid-October	10 in.	24 in.
★★	SOMBRERO® Lemon Yellow Improved ['Balsomemyim']	bright yellow	¾ in.	late June to mid-October	18 in.	22 in.
★★	SOMBRERO® Rosada ['Balsomrosa']	bright purple-pink	4 in.	mid-June to mid-September	21 in.	23 in.
★★	SOMBRERO® Salsa Red ['Balsomred']	deep orange-red	¾ in.	mid-June to mid-September	21 in.	30 in.
★★	SOMBRERO® Sangrita ['Balsomanita']	deep orange-red	¾ in.	late June to October	20 in.	26 in.

¹ Overall Ratings: ★★★★★ excellent, ★★★ good, ★★ fair, ★ poor

Table 1: Observed plant traits and performance ratings (continued)

Overall Rating ¹	Echinacea	Flower Color	Flower Size	Bloom Period	Plant Height	Plant Width
★★★	SOMBRERO® Summer Solstice ['Balsomsolst']	bright yellow	3½ in.	mid-June to mid-September	18 in.	24 in.
★★★★	SOMBRERO® Tres Amigos ['Balsomtresgo']	coral to burgundy	4 in.	late June to mid-September	27 in.	30 in.
★★★★	SOMBRERO POCO™ Hot Coral ['Balsomcor']	red-orange fades to coral-pink	3 in.	late June to mid-October	16 in.	22 in.
★	SOMBRERO POCO™ Yellow ['Balsompocel']	deep yellow	3 in.	mid-June to mid-October	12 in.	14 in.
★★★★	SUMMERSONG™ Firefinch™ [formerly LAKOTA™ Fire]	bright orange, dark pink, red mix	3½ in.	late June to early September	28 in.	30 in.
★★★★	'Sunbird'	golden yellow	3½ in.	mid-June to mid-September	24 in.	26 in.
★★★★	'Tanager'	deep red-orange	3½ in.	late June to mid-September	21 in.	20 in.
★★	'The Fuchsia is Bright'	fuchsia-pink	3½ in.	late June to mid-September	15 in.	17 in.
★★	'The Price is White'	white	4 in.	mid-June to mid-September	24 in.	24 in.
★	'Tweety'	orange-yellow	2½ in.	mid-June to mid-September	11 in.	14 in.
★	'Yellow My Darling'	orange-yellow	3½ in.	mid-June to early September	23 in.	22 in.
★	'Yellow Passion'	yellow	4 in.	mid-June to early September	22 in.	22 in.

¹ Overall Ratings: ★★★★★ excellent, ★★★★ good, ★★★ fair, ★ poor



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Table 2: Disease, pest, and winter injury information

<i>Echinacea</i> ¹	Aster Yellow ²	Leaf Spot ³	Winter Loss ⁴	Alive in 2023 ⁵
'Big Kahuna' EMD	0%	severe	0%	100%
'Blushing Meadow Mama'	0%	minor	60%	40%
'Canary Feathers' EMD	20%	none	60%	20%
'Cheyenne Spirit' EMD	0%	none	0%	100%
'Chiquita' EMD	60%	none	40%	0%
'Delicious Candy' EMD	20%	severe	40%	40%
'Dixie Blaze'	0%	minor	60%	40%
'Dixie Scarlet' EMD	0%	severe	60%	60%
'Fiery Meadow Mama' EMD	0%	severe	20%	80%
'Glowing Dream'	0%	minor	0%	100%
'Golden Skipper' EMD	0%	minor	60%	40%
'Julia' EMD	20%	none	40%	40%
KISMET® Intense Orange ['TNECHKIO'] EMD	60%	none	20%	20%
KISMET® Raspberry ['TNECHKR'] EMD	0%	minor	0%	100%
KISMET® White ['TNECHKW'] EMD	0%	minor	0%	100%
KISMET® Yellow ['TNECHKY'] EMD	0%	minor	60%	40%
'Mellow Yellow ² ' EMD	0%	none	0%	100%
'Orange Skipper' EMD	0%	none	20%	80%
'Peacock'	0%	minor	40%	60%
'Pica Bella'	0%	none	0%	100%
'Playful Meadow Mama' EMD	20%	minor	0%	80%
'Postman' EMD	20%	minor	0%	80%
PRIMA™ Ginger ['TNECHPG']	0%	none	100%	0%
PRIMA™ Ruby ['TNECHPR']	0%	minor	100%	0%
'Purple Emperor'	0%	none	20%	80%
<i>purpurea</i> 'Starlight' EMD	0%	none	0%	100%
'Rainbow Marcella' EMD	20%	minor	60%	20%
'Sante Fe' EMD	0%	none	0%	100%
'Satin Nights'	40%	none	0%	60%
'Sensation Pink'	0%	none	0%	100%
SOMBRERO® Adobe Orange ['Balsomador'] EMD	20%	none	0%	80%
SOMBRERO® Baja Burgundy ['Balsombabur']	20%	minor	0%	80%
SOMBRERO® Blanco ['Balsomblanc'] EMD	0%	none	0%	100%
SOMBRERO® Fiesta Orange ['Balsomstor'] EMD	20%	none	0%	80%
SOMBRERO® Flamenco Orange ['Balsomenco'] EMD	0%	minor	0%	100%
SOMBRERO® Granada Gold ['Balsomold']	20%	none	0%	80%
SOMBRERO® Lemon Yellow Improved ['Balsomemyim']	0%	minor	60%	40%
SOMBRERO® Rosada ['Balsomrosa']	20%	none	60%	20%
SOMBRERO® Salsa Red ['Balsomsed'] EMD	80%	none	0%	20%
SOMBRERO® Sangrita ['Balsomanita']	20%	none	60%	20%
SOMBRERO® Summer Solstice ['Balsomsolst'] EMD	20%	none	20%	60%
SOMBRERO® Tres Amigos ['Balsomtresgo'] EMD	0%	none	0%	100%
SOMBRERO POCO™ Hot Coral ['Balsomcor']	0%	none	20%	80%
SOMBRERO POCO™ Yellow ['Balsompocel']	0%	none	100%	0%
SUMMERSONG™ Firefinch™ [formerly LAKOTA™ Fire]	40%	none	20%	40%
'Sunbird'	0%	severe	20%	80%
'Tanager'	0%	none	0%	100%
'The Fuchsia is Bright' EMD	0%	none	60%	40%
'The Price is White' EMD	60%	minor	0%	40%
'Tweety' EMD	0%	none	100%	0%
'Yellow My Darling' EMD	0%	none	100%	0%
'Yellow Passion' EMD	100%	none	0%	0%

¹EMD denotes eriophyid mite damage observed in one or more years; severity of damage unspecified

²Percentage of trial group (five plants) removed due to aster yellows

³Severity of fungal leaf spotting

⁴Percentage of trial group (five plants) killed over winter

⁵Percentage of trial group (five plants) that survived from planting in spring 2019 through autumn 2023