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Report



# Helienium

For the Mid-Atlantic Region

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*Helenium* 'Flammendes Kätchen'



*Helenium autumnale*



*Helenium bigelovii* 'The Bishop'



*Helenium flexuosum*

The genus *Helenium*, native to the Americas, has a rich history of cultivation in Europe but, interestingly, has been underutilized in gardens of the United States. *Helenium* are also widely known as sneezeweeds. While this common name conjures up images of allergies caused by windborne pollen, they actually rely on insects for pollination. The true origin of the name is derived from the historical use of dried and ground *Helenium* plant parts inhaled through the nose. This powder was taken for medicinal purposes by Native Americans and as a substitute for tobacco snuff by early European colonists. Due to the misleading connotations of the word sneezeweed, American horticulturists have attempted to rebrand *Helenium* with the alternate common name of Helen's flower, in reference to the beauty of Helen of Troy.

European horticulturists have cultivated, hybridized, and named *Helenium* cultivars since the first plants were brought across the Atlantic in the 18th century. Breeding work began in earnest in the 1930s-'60s, with many hybrids produced by the famous German plant breeder Karl Foerster. He reportedly produced 73 cultivars, touting their improved durability and drought resistance. Our trial evaluated several of Foerster's introductions including *Helenium* 'Zimbelstern', 'Königtiger', and 'Kanaria'. Continued breeding work, primarily in Germany and the Netherlands, resulted in a wide array of colors and forms of *Helenium* that fill diverse niches in garden design.

Unfortunately, there is little to no paper trail to describe how these hybrids were created and to what extent different species were involved; but it is known that the majority of breeding efforts were focused on *Helenium autumnale* and *Helenium bigelovii*. These two species, as well as *Helenium flexuosum*, were included in our trial to represent the breeding history of this genus and to potentially help identify the origins of some cultivars.

The natural distribution of *Helenium autumnale* is widespread, with populations occurring in almost every state and province in the US and Canada, while the native range of *Helenium bigelovii* is restricted to southern Oregon, California, and parts of Arizona. *Helenium flexuosum* is native to the eastern United States and can be observed growing locally in natural areas of the mid-Atlantic region. One major difference between these three species is their bloom time. *H. bigelovii* flowers first in June, followed by *H. flexuosum* in July, and *H. autumnale* in August. Hybrids between these species result in a wide range of blooming periods but all contribute a riot of fiery colors to the landscape.

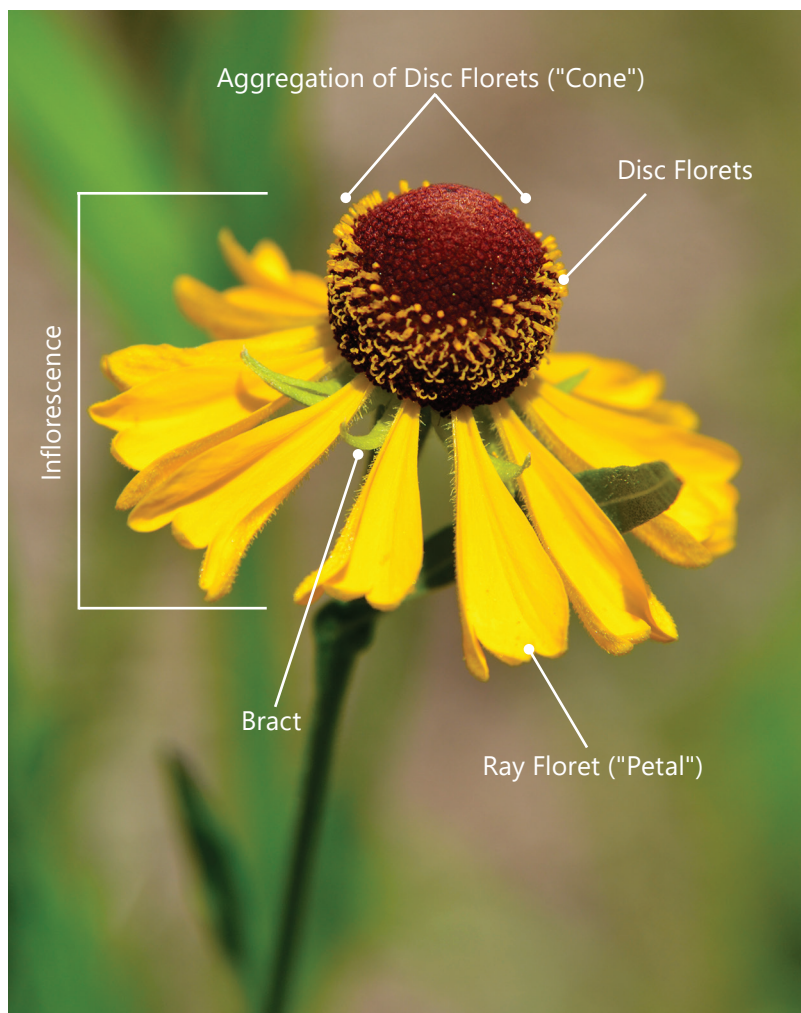


*Helonium flexuosum* rosette in spring

The distinct floral morphology of *Helonium* is easily recognized as a member of the aster family (Asteraceae). The intricate inflorescences are comprised of dozens of neatly arranged individual flowers or florets. Masses of disc florets make up the flower's center, or cone, and ray florets masquerade as a ring of petals. *Helonium* ray florets are defined by three distinct lobes at their terminus. Individual inflorescences range in size from 1" to just over 2" in diameter. *Helonium* bloom, on average, for approximately five weeks, though *Helonium flexuosum* has been observed to produce flowers for as many as eight weeks.

Foliage emerges from congested crowns in early spring to create a lush, green rosette. As the season progresses, clump-forming plants grow taller and reach their final height in mid-July. Depending on the cultivar, plants range from 1.5' to over 5' tall. *Helonium* stems are easily recognized by the leaf-like wings that run vertically from the bottom to the top of the plant. This winged nature is particularly pronounced on *Helonium flexuosum*.

The alternately arranged leaves of sneezeweeds are narrow and willow-like, with notable serrations on *Helonium autumnale* and its cultivars. In late August through September, new basal foliage develops, creating a foundation for the following year's growth. Helen's flowers have shallow, fibrous root systems and are most easily divided in spring or fall when they are still in the rosette stage.

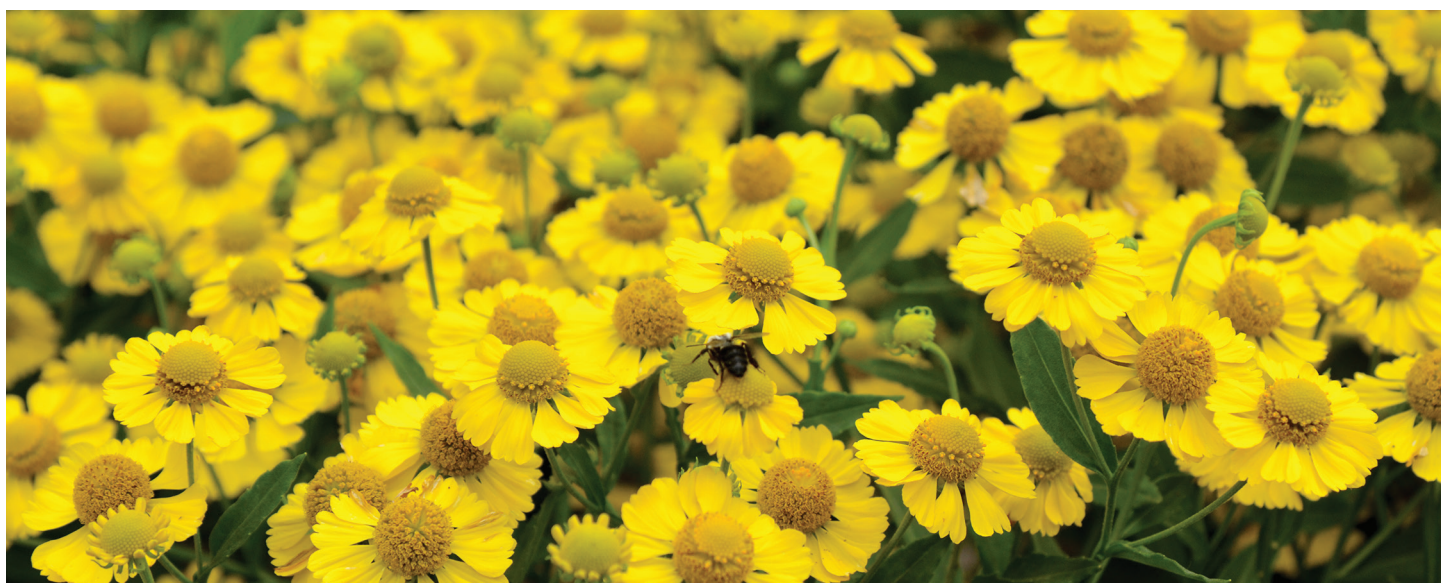


*Helonium flexuosum* inflorescence



Winged stems of *Helonium flexuosum*

Through our evaluation we endeavored to shed new light on an undeservedly overlooked group of plants and determine how *Helenium*, including those that have been selected in Europe, perform when cultivated in a mid-Atlantic climate. The diversity of Helen's flowers in today's market were represented in our trial by 44 *Helenium* species and cultivars. Some of these selections were imported from Europe and may not be readily available in the United States. Several challenges played a significant role in this trial and resulted in the loss of a large percentage of the planting. These challenges included dry soil conditions and diseases such as powdery mildew and aster yellows. Flopping was another significant issue and most *Helenium* benefit from staking or other forms of supplemental support. The following cultivars are the top performers in our trial and will make excellent garden additions.



### ***Helenium* 'Kanaria' ★★★★★**

*Helenium* 'Kanaria', or "canary," is one of the many hybrids of Karl Foerster's prolific *Helenium* breeding efforts in the mid-twentieth century. As the top-performing selection, this cultivar displayed superior disease resistance, sturdy stems, and deeply saturated, canary-yellow flowers. At the apex of its lengthy six-week bloom, plants were completely enveloped in a blanket of flowers similar in color to those of *Helenium autumnale*. However, 'Kanaria' improves upon the floral characteristics of the species with wider and brighter ray petals that are held horizontally as opposed to the more reflexed form of *H. autumnale*. *H.* 'Kanaria' grows to 5' in height but requires less support than other cultivars with a similar stature.

### ***Helenium* 'Zimbelstern' ★★★★★**

*Helenium* 'Zimbelstern', literally translated as "cymbal star," is the second top-performing cultivar bred by Karl Foerster. The apricot-streaked, yellow petals contrast beautifully with the cinnamon-brown cone. This color combination sets 'Zimbelstern' apart from the yellow cones and petals of *Helenium* 'Kanaria', *H.* 'Kugelsonne', and *H.* 'Tijuana Brass'. Masses of flowers are held on robust 5' stems beginning in early August. This cultivar has excellent vigor and disease resistance. Powdery mildew was not observed throughout the duration of the trial.



***Helenium autumnale* 'Can Can' ★★★★★**

*Helenium autumnale* 'Can Can' is an exceptionally vigorous, disease resistant, and floriferous cultivar generated from the breeding efforts of Peter zur Linden in the late 1990s. 'Can Can' has a slightly shorter-than-average bloom time for *Helenium*, but compensates with a notably dense display of gilt-edged, crimson inflorescences in late August. There is some discrepancy in the trade about the true identity of 'Can Can'. Some plants, like those included in this trial, display deep red petals with a picotee edge similar to *Helenium* 'Königstiger'. Other sources describe 'Can Can' as having orange-flushed, yellow flowers resembling *H.* 'Zimbelstern'. While we always try to ensure the accurate identity of our trial plants, we were unable to determine which color form is the true cultivar. Of course, other color variants sold as 'Can Can' may not perform similarly.

***Helenium* 'Flammenspiel' ★★★★★**

'Flammenspiel', or "dancing flame," is the perfect name to describe the dramatic fiery-red flowers that put on a show beginning in the middle of August. A dense conflagration of flowers continues the spectacle for five weeks before concluding in mid-September. This cultivar is another 5' tall *Helenium* that contributes a statuesque presence in the garden making it a perfect addition to the back of the border. 'Flammenspiel' is a tenacious plant with excellent resistance to disease and defoliation. Bare lower stems that are characteristic of many Helen's flowers are not a concern for this cultivar.





***Helenium autumnale* ★★★★★**

This species is a parent to many *Helenium* hybrids and cultivars. Its influence on floral display and vigor is seen in several of the top-performing Helen's flowers, including *H.* 'Kanaria', *H.* 'Kugelsonne', and *H.* 'Tijuana Brass'. While these cultivars exhibit petals that are held horizontally, the petals of *Helenium autumnale* droop. This gives the radiant, butter-yellow inflorescence the overall appearance of a badminton birdie. The flowers themselves are not only highly esteemed by gardeners, but command the attention of insects as well. Mt. Cuba Center's Pollinator Watch Team observed that *Helenium autumnale* attracted the highest number of wasps and bees based on data collected in 2017 and 2018 (see page 14). Additionally, vigorous stems clad with narrow, blue-green foliage provide interest when plants are not in bloom.



***Helenium 'Kugelsonne'* ★★★★★**

The bumblebee-yellow flowers of *Helenium 'Kugelsonne'*, translated as "sunball," strongly resemble those of *Helenium 'Kanaria'*. Exuberant floral displays are produced during the latter half of August, making up for its slightly shorter-than-average bloom period. Although derived from *Helenium autumnale*, 'Kugelsonne' has wider, outwardly held petals that contribute to a showier inflorescence than the species. The lime green color of its buds and unopened disc florets adds another dimension to the display of this top-performing cultivar.



***Helenium* 'Tijuana Brass' ★★★★★**

*Helenium* 'Tijuana Brass' was introduced in 2012 by Joy Creek Nursery in Scappoose, Oregon. The original plant, of unknown parentage, was discovered in their garden and observed to have outstanding, larger-than-usual flowers. The semi-double and overlapping nature of this cultivar's lemon-yellow petals adds considerable volume to their blossoms. Due to this trait, *Helenium* 'Tijuana Brass' stands out from the other yellow-blooming cultivars. Unusually wide leaves also give this plant a unique texture, both in and out of bloom. 'Tijuana Brass' is purported to maintain its lower foliage late into the season; however, like most cultivars, lower leaf drop was observed. Thanks to its robust stems, *H.* 'Tijuana Brass' requires only minimal supplemental support to maintain an upright habit.

***Helenium flexuosum* ★★★★★**

Two unnamed accessions of *Helenium flexuosum* (purple-headed sneezeweed) were evaluated and received slightly different ratings. This disparity was attributed to differences in survivability and form. A commercially sourced *Helenium flexuosum* displayed a rambling and prostrate habit, while plants grown from seed collected from a natural population in New Castle County, DE were upright. However, both produced flowers with nearly spherical, garnet-colored cones and strongly reflexed, maize-yellow petals. Individual flowers are somewhat diminutive, but what they lack in size, they more than make up for in quantity. A profusion of inflorescences are borne over a prolonged eight-week period from late July into September. Unlike other cultivars, we found *Helenium flexuosum* to be a prolific self-seeder in the garden. It was difficult to distinguish rapidly growing seedlings from the original plants, which may have resulted in the evaluation of multiple generations. Like most *Helenium*, this species benefits from staking. However, due to its smaller stature, unsupported plants of *Helenium flexuosum* display a growth habit that fits nicely in naturalistic garden designs.



***Helenium* 'Potter's Wheel' ★★★**

*Helenium* 'Potter's Wheel' is a compact selection that originates from the work of the Dutch breeder Inez Arnold. *H.* 'Potter's Wheel' has the most pure red flowers of the top-performing Helen's flowers. The pigmentation is so saturated that the rays appear to have a soft, velvety texture. A thin, golden halo highlights the perimeter of the rays and accentuates the eye-catching quality of the late summer display. This cultivar is so floriferous that its 3.5' stems are unfortunately weighed down by the masses of flowers. For this reason, *H.* 'Potter's Wheel' requires some supplemental support when in peak bloom at the end of August.

***Helenium* 'Flammendes Käthen' ★★★**

*Helenium* 'Flammendes Käthen', or "flaming Kate," is similar in form and flower color to *H.* 'Flammenspiel' but is 1' shorter and blooms three weeks earlier. In early July, flowers begin as a deep brick-orange color and then fade to muted tones of bronze before they finally senesce. This range in color creates an intriguing and noteworthy display in late summer. Due to its slightly smaller stature, this *Helenium* is more easily staked and managed than its larger counterparts. Even under heavy disease pressures, 'Flammendes Käthen' maintained clean, healthy foliage.





## Honorable Mentions

By the beginning of the final year of the trial, only a third of the original 220 *Helenium* plants remained. Such significant losses could be the result of several factors, including dry soil conditions, powdery mildew, aster yellows, and possibly poor winter hardiness. Although the following *Helenium* selections received a rating of 4.1 or higher based on data averaged from 2017 and 2018, they experienced significant losses in the third year. These selections may have performed better had they been grown in a less stressful environment. In more favorable conditions, the following nine *Helenium* cultivars could be worthy of consideration.



*Helenium* 'Ranchera'\*



*Helenium* 'Salsa'



*Helenium* 'Sahin's Early Flowerer'



*Helenium* 'Siesta'\*



*Helenium* 'Indiansommer'



*Helenium* 'Kokarde'



*Helenium* 'Waltraut'



*Helenium* 'Kupfersprudel'\*



*Helenium* 'El Dorado'\*

\* Indicates cultivar did not survive the duration of the trial.



*Helenium flexuosum*

## ***Helenium* Cultivation**

The habitats where *Helenium* species are found offer clues to cultural conditions that are necessary for successful garden cultivation. Many species are found in wet meadows, along stream and river banks, and even in bogs. In these settings, the upper foliage receives full to partial sun while the roots remain shaded and have consistent access to moisture. By siting Helen's flower in garden locations with moist to average soil, gardeners can best mimic the conditions in the wild where they naturally thrive. Rain gardens can be particularly well suited for cultivating this genus. Aside from their aversion to dry soils, properly sited *Helenium* are tough and adaptable perennials. Many Helen's flowers, particularly cultivars that can trace their lineage back to *Helenium autumnale*, are very cold tolerant and able to withstand temperatures of -30 to -40 degrees Fahrenheit. The hardiness of other cultivars, particularly those that are derived from the western native, *Helenium bigelovii*, may be less tolerant to these temperature extremes. Although not examined in this trial, the experience of other gardeners suggests that periodically dividing *Helenium* can increase their longevity.



*Helenium autumnale* on a river bank in southern Delaware. Photo taken by Bill McAvoy, DE State Botanist.

Helen's flowers are generally not tolerant of prolonged dry periods. In the Trial Garden, supplemental irrigation is rarely provided beyond the first year of establishment. Mt. Cuba Center's trials are designed to mimic minimal care in typical landscape conditions and allow environmental stressors to help identify durable and adaptable cultivars. Improved drought tolerance was a primary goal in Karl Foerster's breeding efforts so it might not be a coincidence that *Helenium* 'Kanaria' and *H.* 'Zimbelstern,' two of his hybrids, are the top performing cultivars in our trial.

## Plant Diseases

*Helenium* showed significant susceptibility to powdery mildew and aster yellows in our trial. Plants clearly infected with aster yellows were removed to prevent the spread of the disease. Powdery mildew either caused or contributed to the loss of lower leaves and sometimes resulted in near-complete defoliation. However, bare lower stems are easily hidden by other plants, allowing the impressive late summer floral display to be appreciated by both gardeners and insect pollinators.

### Aster Yellows

Aster yellows was likely a significant and under-recognized problem in our trial. This systemic disease manifests in sneezeweed as sickly yellow foliage and abnormal, clustered growth. In many other susceptible genera, green malformed flowers are a telltale indication of aster yellows; however, they are rarely observed in *Helenium*. This makes visual diagnosis challenging and infected plants can remain undetected. Aster yellows is caused by infectious microorganisms called phytoplasmas that are typically spread by leafhoppers. These highly mobile insects feed on infected plants with piercing and sucking mouthparts and then transmit the disease through subsequent feedings on non-infected hosts. Once the plant is infected it will act as a reservoir for the pathogen, enabling leaf hoppers to spread it to neighboring plants. Since no treatment or cure is available, prompt removal of symptomatic plants is the most effective method to prevent the continued spread of this disease. Although aster yellows affects many plant families, the Trial Garden's density and volume of plants in the aster family likely exacerbated the frequency of this pathogen. The pictures below show manifestations of aster yellows symptoms.



Yellow foliage



Foliar rosettes and condensed growth



Floral deformities

### Powdery Mildew

Powdery mildew appears as a white, dusty film on the surfaces of leaves, stems, and sometimes flowers of *Helenium*. While this fungal disease is often a cosmetic issue that has few adverse effects on overall plant health, severe infestations can compromise plant vigor and survivability. Favorable conditions for the proliferation of powdery mildew include warm, dry days and cool, humid nights. Some of the worst infections occur in shaded locations near the base of plants, as well as garden locations with poor air circulation. It is difficult to fully eliminate powdery mildew, but it can be managed through the selection and use of resistant cultivars or species, planting in areas with good air circulation, and prompt removal and disposal of infected material. During the first two years of evaluation, powdery mildew was severe and, in some cases, caused heavy defoliation.



Powdery mildew damage



## Strategies to "Stop the Flop"

Tall plants like *Helenium* typically grow in a community of plants that support each other, literally. Without this neighborly reinforcement, sneezeweeds often flop in the garden, especially in stormy weather. We observed that flopping was further aggravated by profuse flower production in some popular selections. Although they are not factors in the Trial Garden, conditions such as nutrient-rich soils, overfertilization, and inadequate sunlight can also contribute to poor form in cultivated plants. Floppy habits were one of the primary reasons for poor ratings for the majority of *Helenium* in this trial. To improve their horticultural appeal and bolster an upright habit, we investigated several methods to create sturdier plants and provide supplemental support for Helen's flower.



*Helenium* cut-back experiment, May

## The Chelsea Chop

Cutting back perennials in mid to late spring is a practical method for reducing the height of tall or leggy perennials in the garden. This practice is often called the "Chelsea Chop," which refers to the Chelsea Flower Show held in the United Kingdom. When the show starts in May, gardeners are reminded that it is time to cut back late-blooming perennials. This keeps the plants more compact and stimulates branching. In 2018, a cutback experiment was performed on each *Helenium* accession where two of the five plants were reduced to a height of 12" in early May. The resulting *Helenium* were more compact and generally bloomed a week or two after un-pruned plants. One unexpected benefit was that cut-back plants were generally more resistant to powdery mildew than their taller counterparts. While the Helen's flowers that were given the Chelsea Chop did seem more sturdy initially, they ultimately flopped during stormy weather.



*Helenium* cut-back experiment, July



## Staking

Since cutting back *Helenium* proved ineffective in preventing flopping, the following year we tested various staking methods. In June of 2019, *Helenium* 'Flammenspiel' was selected to demonstrate different techniques for plant support due to its predictably floppy habit. Three methods of staking were used and evaluated to determine their efficacy, ease of installation, and aesthetic appeal.



**Tomato Cage:** A metal tomato cage placed over the plant was the easiest and least time-consuming support method to keep *Helenium* upright through the growing season. The initial investment is higher than the other two techniques, but materials can be reused year-to-year.



**Bamboo Staking:** String was secured to the cane placed behind the plant, then twisted around the largest stems and tied back to the bamboo stake. The plant was tied additional times as it grew taller. This technique is inexpensive, easily repeatable, and relatively quick to install. All support structures were obscured by the end of the growing season; however, this method provided less support than the tomato cage or pea-staking.



**Pea-Staking:** Flexible yet sturdy twigs were used to construct a cage through which the plant stems could grow. This technique is known as pea-staking because it is traditionally used in vegetable gardening. The base of the branches were placed in the ground in a circle around the plant, and the thinner ends were interwoven to form a dome and secured at a few points with string. Although this method is time-consuming, the final product has a very attractive and natural appearance. As the *Helenium* stems grow through the basket-like matrix, they are individually supported and obscure the structure that holds them up. If your garden only has a handful of tall, late-flowering perennials, this might be a great technique to try.



Bumblebees (*Bombus* spp.) feeding on flowers of *Helianthus* 'Flammenspiel'

**H***elanium* provide a welcome source of nectar and pollen for bees and wasps in the late summer months. To determine the species and cultivars that attracted the most pollinators, Mt. Cuba Center's Pollinator Watch Team maintained rigorous, observational records of the *Helianthus* included in the trial. A single plant in each selection was observed for one minute, twice weekly, through the growing seasons of 2017 and 2018. The totals from these two seasons were averaged to determine the top 15 most visited *Helianthus*. *Helianthus autumnale* accumulated the most pollinator visits (162) with *H.* 'Zimbelstern' following closely behind (151). Nine of the ten top-performing Helen's flowers are represented in this list with only *Helianthus* 'Flammendes Kätchen' falling short. While several *Helianthus* were preferred by pollinators, the addition of any Helen's flowers listed here will bring late season delight and ecological value to your landscape. This chart shows the 15 most frequented *Helianthus* cultivars based on data collected and averaged between 2017 and 2018. Top-performing cultivars, from a horticultural perspective, are indicated with an asterisk (\*).



## About the *Helianthus* Trial

This evaluation took place at Mt. Cuba Center, located near Wilmington, DE (USDA Hardiness Zone 7a/6b). Forty-four taxa including three species were trialed over a three-year period (2017–2019). Plants were evaluated to assess their habit, vigor, floral display, and disease resistance. Five plants of each taxon were placed linearly on 2' centers. They were grown in full sun in a soil best described as clay-loam with a pH near 6.5. Each species or cultivar was measured weekly and assigned three different ratings, each on a scale of 1–5 (1 being very poor and 5 being excellent). The floral display rating was based on flower coverage and overall appeal and then adjusted for bloom periods longer or shorter than average. The rating for plant/foilage quality includes attributes like habit, vigor, and foliage retention. The rating for powdery mildew resistance was based on the percentage of foliage infected by the disease. The plant and floral ratings were then averaged, after which points were added or deducted for powdery mildew resistance. Points were also deducted for the death of two or more plants. Throughout the *Helianthus* trial, plants were given minimal care. No fungicides were used, and supplemental water was provided only during the first year to encourage establishment and during any extremely dry periods. This strategy is designed to test the plants in a manner similar to how most landscapes are maintained. However, many of these plants would have performed better with more frequent watering.

## Plant Characteristics & Performance Summary Ratings

<i>Helenium</i>	Rating		Avg. HxW	Flower Color	Bloom Time	Powdery Mildew Resistance	Pollinator Favorite
<b><i>H. autumnale</i></b>	<b>3.9</b>	<b>★★★★</b>	<b>70" x 42"</b>	<b>yellow</b>	<b>early Aug-early Sept</b>	<b>excellent</b>	<b>favorite</b>
<b><i>H. autumnale</i> 'Can Can'</b>	<b>4.1</b>	<b>★★★★</b>	<b>62" x 30"</b>	<b>yellow-orange</b>	<b>mid Aug-early Sept</b>	<b>excellent</b>	<b>favorite</b>
<i>H.</i> 'Butterpat'	2.4	★★★	62" x 30"	yellow	early Aug-early Sept	very poor	
<b><i>H.</i> 'Flammendes Kästchen'</b>	<b>3.1</b>	<b>★★★</b>	<b>56" x 32"</b>	<b>orange-red</b>	<b>late July-late Aug</b>	<b>excellent</b>	
<b><i>H.</i> 'Flammenspiel'</b>	<b>4.2</b>	<b>★★★★</b>	<b>64" x 32"</b>	<b>orange-red</b>	<b>mid Aug-mid Sept</b>	<b>fair</b>	<b>favorite</b>
<b><i>H. flexuosum</i></b>	<b>4.0</b>	<b>★★★★</b>	<b>42" x 40"</b>	<b>yellow</b>	<b>late July-mid Sept</b>	<b>excellent</b>	
<b><i>H. flexuosum</i> (DE ecotype)</b>	<b>3.1</b>	<b>★★★</b>	<b>30" x 32"</b>	<b>yellow</b>	<b>early July-late Aug</b>	<b>fair</b>	<b>favorite</b>
<i>H.</i> 'Helbro' (Mardi Gras)	1.5	★★	28" x 30"	orange-red	mid July-mid Aug	fair	favorite
<i>H.</i> 'Indiansommer'	2.8	★★★	48" x 30"	orange-red	mid Aug-early Sept	fair	
<b><i>H.</i> 'Kanaria'</b>	<b>4.3</b>	<b>★★★★★</b>	<b>60" x 30"</b>	<b>yellow</b>	<b>early Aug-early Sept</b>	<b>good</b>	<b>favorite</b>
<i>H.</i> 'Kokarde'	2.5	★★★	54" x 36"	yellow	late July-mid Aug	good	
<i>H.</i> 'Königstiger'	1.9	★★	65" x 34"	orange	late July-late Aug	good	
<b><i>H.</i> 'Kugelsonne'</b>	<b>3.7</b>	<b>★★★★</b>	<b>64" x 33"</b>	<b>yellow</b>	<b>early Aug-late Aug</b>	<b>fair</b>	<b>favorite</b>
<b><i>H.</i> 'Potter's Wheel'</b>	<b>3.2</b>	<b>★★★</b>	<b>40" x 30"</b>	<b>red</b>	<b>mid Aug-mid Sept</b>	<b>good</b>	<b>favorite</b>
<i>H.</i> 'Rotgold'	2.6	★★★	50" x 30"	orange-red	early Aug-late Aug	poor	
<i>H.</i> 'Rubinzweig'	2.8	★★★	38" x 28"	red	early Aug-late Aug	excellent	
<i>H.</i> 'Sahin's Early Flowerer'	2.8	★★★	30" x 32"	orange	early July-mid Aug	fair	favorite
<i>H.</i> 'Salsa'	2.8	★★★	18" x 32"	orange	early Aug-late Aug	excellent	
<i>H.</i> 'Tie Dye'	2.8	★★★	47" x 22"	orange	early Aug-late Aug	very poor	
<b><i>H.</i> 'Tijuana Brass'</b>	<b>3.6</b>	<b>★★★★</b>	<b>58" x 29"</b>	<b>yellow</b>	<b>early Aug-late Aug</b>	<b>excellent</b>	<b>favorite</b>
<i>H.</i> 'Waltraut'	2.7	★★★	37" x 35"	yellow-orange	early July-late July	fair	favorite
<i>H.</i> 'Wyndley'	2.4	★★★	22" x 30"	yellow	early July-mid Aug	excellent	
<b><i>H.</i> 'Zimblestern'</b>	<b>4.2</b>	<b>★★★★</b>	<b>60" x 27"</b>	<b>yellow</b>	<b>early Aug-late Aug</b>	<b>excellent</b>	<b>favorite</b>

**Rating Key:** 5=excellent, 4=good, 3=fair, 2=poor, 1=very poor. Plants in **bold** are top performers. Visit [mtcubacenter.org/research/trial-garden](http://mtcubacenter.org/research/trial-garden) for detailed information.

## Plants That Did Not Complete The Trial

<i>Helenium</i>	Years of Survival	Avg. HxW	Flower Color	Bloom Time	Powdery Mildew Resistance	Pollinator Favorite
<i>H.</i> 'Bandera'	2	14" x 14"	orange	early Aug-late Aug	excellent	
<i>H.</i> 'Betty'	2	32" x 28"	yellow-orange	early Aug-early Sept	fair	
<i>H. bigelovii</i> 'The Bishop'	1	22" x 28"	yellow	late June-late July	excellent	
<i>H.</i> 'Chelsey'	2	48" x 28"	orange	mid Aug-early Sept	excellent	
<i>H.</i> 'Double Trouble'	2	28" x 16"	yellow	early Aug-early Sept	very poor	favorite
<i>H.</i> 'El Dorado'	2	43" x 29"	yellow	early July-mid Aug	poor	
<i>H. flexuosum</i> 'Tiny Dancer'	2	36" x 27"	yellow	early July-late Aug	good	
<i>H.</i> 'Fuego'	2	23" x 18"	yellow-orange	mid Aug-mid Sept	good	
<i>H.</i> 'Hot Lava'	1	34" x 26"	orange-red	early Aug-late Aug	poor	
<i>H.</i> 'Kupfersprudel'	2	36" x 32"	orange	early July-mid Aug	fair	favorite
<i>H.</i> 'Loysder Wieck' (Carnival)	2	36" x 32"	yellow-orange	early Aug-early Sept	fair	
<i>H.</i> 'Moerheim Beauty'	2	32" x 24"	orange	late June-mid July	fair	
<i>H.</i> 'Pumilum Magnificum'	2	28" x 30"	yellow	mid July-mid Aug	fair	favorite
<i>H.</i> 'Ranchera'	2	14" x 24"	orange-red	late Aug-mid Sept	good	
<i>H.</i> 'Rauchtopas'	2	57" x 30"	yellow-orange	early Aug-late Aug	fair	
<i>H.</i> 'Red Army'	2	36" x 27"	orange-red	mid July-early Aug	good	
<i>H.</i> 'Red Jewel'	2	30" x 30"	orange-red	mid July-early Aug	excellent	
<i>H.</i> 'Ruby Tuesday'	1	34" x 28"	orange-red	mid Aug-early Sept	poor	
<i>H.</i> 'Short 'n' Sassy'	1	20" x 38"	orange	late June-late Sept	good	
<i>H.</i> 'Siesta'	2	15" x 12"	red	early Aug-late Aug	excellent	
<i>H.</i> 'Sombrero'	2	20" x 24"	yellow	early Aug-late Aug	good	



MT. CUBA  
CENTER

Gardening on a higher level

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## About Mt. Cuba Center

Mt. Cuba Center is a botanical garden that inspires an appreciation for the beauty and value of native plants and a commitment to protect the habitats that sustain them. Over the past 80 years the landscape at Mt. Cuba Center has been transformed from fallow cornfields into thriving, ecologically functional gardens, thanks to the initiative of the late Mr. and Mrs. Lammot du Pont Copeland.

The gardens at Mt. Cuba Center now represent a variety of habitats, from upland forests and meadows to lowland ponds. With its support of biodiverse communities, Mt. Cuba Center serves as a model for environmentally beneficial gardening. Mt. Cuba Center also conducts original research on native plants in the Trial Garden and manages over 1,000 acres of natural lands. Mt. Cuba Center is open for visitation April-November and classes are offered year-round.

## About Trial Garden Research

Mt. Cuba Center's Trial Garden, managed by Sam Hoadley, evaluates native plants and their related cultivars for their horticultural and ecological value. The goal of this research is to provide gardeners and the horticulture industry with information about superior plants for the mid-Atlantic region as well as highlight the important ecosystem services native plants provide. Mt. Cuba Center has conducted trial garden research since 2002, including previously completed evaluations of *Phlox*, *Monarda*, *Baptisia*, *Coreopsis*, *Heuchera*, *Echinacea*, and asters.

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**Front Cover:** *Helenium* 'Flammenspiel'

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