

Comparative Studies of *Veronica* and *Veronicastrum*

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Speedwells (*Veronica* spp.) are notable for their graceful and bountiful flowers, as well as their reliable nature. These long-blooming, easy-care perennials offer a range of plant types with a distinct verticality prized by gardeners. Throughout spring and summer their spiky flowers rise like sentinels in the sunny garden. Whether at the front, middle, or back of the border, their slender wands enliven the garden with color and the busyness of butterflies and bees. Their popularity has only increased in recent years due to the introduction of many hybrid cultivars with new flower colors and improved plant forms.

Veronica, known commonly as speedwell or bird's-eye, is a large genus in the figwort family (Scrophulariaceae). There are approximately 250 herbaceous species of *Veronica* native to temperate regions of the Northern Hemisphere, found in such diverse habitats as alpine meadows, grasslands, oak forests, and riverbanks. The taxonomy of *Veronica* is currently under revision. Recent phylogenetic studies have reclassified several woody genera such as *Hebe* and *Parahebe*, thus increasing the number of *Veronica* species to approximately 450.

Although speedwell flowers may be white, pink, violet, or purple, the sumptuous shades of blue are particularly coveted by gardeners. The small, five-petaled blossoms feature a pair of conspicuously protruding stamens and may be loosely or densely clustered in vertical inflorescences in leaf axils or at the tips of stems. While commonly referred to as a spike, the inflorescence is technically an indeterminate raceme. Flowers open from the base upward, which causes the main axis of the raceme to elongate throughout the long anthesis, or bloom period.



Veronica 'Pink Damask'

Foliar characteristics are variable among *Veronica* species—from lanceolate to almost round, glossy to pubescent, with smooth, lobed, or toothed margins. Basal leaves are often opposite, while leaves on flowering stems are alternately arranged. For comparison and distinction, speedwells are usually grouped by habit, either prostrate spreading or upright clump-forming. Among the prostrate species familiar to gardeners are alpine speedwell (*V. alpina*), harebell speedwell (*V. prostrata*), creeping speedwell (*V. repens*), comb speedwell (*V. pectinata*), and gentian speedwell (*V. gentianoides*); whereas, popular upright species include long-leaved speedwell (*V. longifolia*), spiked speedwell (*V. spicata*), and Hungarian speedwell (*V. austriaca*).

Speedwells are generally easy to grow and prefer sunny locations in moist, well-drained soils. Plants grown in less light will not bloom as profusely and may become lax or open in habit. Speedwells can be long-lived provided that garden soils drain freely, which is especially important during winter months. Many speedwells drop their lower leaves in summer, resulting in bare stems and a spindly habit. A midsummer shearing after the first bloom promotes healthy new basal foliage and encourages late summer flowering. Deadheading throughout the bloom cycle produces many new, albeit shorter, floriferous spikes later in the season. Taller speedwells may require staking, especially in overly moist or fertile



Veronica spicata 'Rotfuchs'

soils. Dividing crowns in early spring is beneficial for plants that have lost vigor with age. A number of foliar diseases may affect plant health, including powdery mildew, downy mildew, leaf spots, and foliar rust.

Prostrate speedwells are suitable for the front of the border, as edging along walkways, as ground covers, in rock gardens, or on low walls. These low-growing species begin to bloom in mid-April, making them delightful companions to spring bulbs. In borders and wildflowers gardens, upright speedwells mix nicely with many summer perennials such as yarrows (*Achillea* spp.), coneflowers (*Echinacea* spp.), cranesbills (*Geranium* spp.), and catmints (*Nepeta* spp.). Their telltale spikes are frantically alight with butterflies and abuzz with bees from mid-June onward.



Veronica prostrata 'Mrs. Holt'

The Evaluation Study

The Chicago Botanic Garden (USDA Hardiness Zone 5b, AHS Plant Heat-Zone 5) evaluated 64 taxa of *Veronica* in full-sun trials between 1999 and 2009. The goal of the comparative trial was to recommend outstanding speedwells for northern gardens. Sixty-one taxa completed a minimum four-year trial, with more than half of the taxa evaluated for six years.

Eight plants of each taxon were grown in side-by-side plots for easy comparison of ornamental traits and landscape performance. The evaluation garden was openly exposed to wind in all directions and received approximately 10 hours of full sun daily during the growing season, an average of 165 days per year. The clay-loam soil was amended with composted leaves and had a pH of 7.4 throughout the evaluation term. The site was normally well drained, but at times the soil retained moisture for short periods in summer and winter.

Maintenance practices were kept to a minimum to simulate home-garden culture, thereby allowing plants to thrive or fail under natural conditions. Water was provided as needed and mulch consisting of shredded leaves and wood chips helped with water conservation and weed suppression. Moreover, plants were not fertilized, winter mulched, or chemically treated for insect or disease problems.



Veronica gentianoides 'Pallida'

Table 1: Performance Ratings and Summary of Plant Traits

Overall Rating	<i>Veronica</i>	Flower Color	Flower Size	Bloom Period ¹	Flower Production ²	Plant Habit	Plant Height	Plant Width
★★★★	'Bergen Blue'	blue	3/8 in.	mid Apr-early Jun	heavy	prostrate	6 in.	36 in.
★★★★	'Blue Charm'	lavender blue	1/4 in.	mid Jun-early Sep+	moderate	upright	35 in.	38 in.
★★★★	'Blue Reflection'	lavender blue	1/4 in.	late Apr-mid Jun	moderate	prostrate	8 in.	36 in.
★★★★½	'Darwins Blue'	purple blue	1/4 in.	mid Jun-late Sep+	heavy	upright	26 in.	20 in.
★★★★	'Eveline'	violet	1/4 in.	mid Jun-late Sep+	heavy	upright	28 in.	30 in.
★★★★½	'Fairytale'	pale pink	1/4 in.	mid Jun-late Sep+	heavy	upright	32 in.	27 in.
★★★★½	'Giles Van Hees'	pink	1/4 in.	mid Jun-early Sep+	heavy	upright	9 in.	13 in.
★★★★½	'Goodness Grows'	purple blue	3/8 in.	mid Jun-early Oct+	moderate	upright	14 in.	22 in.
★★★★	'Heraud'	purple blue	1/4 in.	mid Jun-early Sep+	heavy	upright	30 in.	24 in.
★★★★	'Midnight'	violet	1/4 in.	late Jun-mid Aug	low	upright	18 in.	26 in.
★★★★	'Pink Damask'	light pink	3/8 in.	mid Jun-late Aug	heavy	upright	36 in.	36 in.
★★★★	'Purpleicious'	purple	1/4 in.	late Jun-mid Sep+	heavy	upright	18 in.	18 in.
★★★★	'Royal Pink'	pink	3/8 in.	mid Jun-late Sep+	heavy	upright	24 in.	21 in.
★★★★½	'Sonja'	purple	1/4 in.	early Jul-mid Sep+	heavy	upright	30 in.	27 in.
★★	'Sunny Border Blue'	violet blue	1/4 in.	late Jun-mid Sep+	moderate	upright	22 in.	22 in.
★★★★½	'Waterperry Blue'	pale blue	1/4 in.	early May-early Sep+	low	prostrate	4 in.	36 in.
★★	'White Jolanda'	white	1/4 in.	mid Jun-Oct+	heavy	upright	31 in.	32 in.
★★★★½	<i>austriaca</i> 'Ionian Skies'	pale blue	1/2 in.	mid May-mid Jun	heavy	upright	12 in.	28 in.
★★★★	<i>austriaca</i> ssp. <i>teucrium</i> 'Crater Lake Blue'	deep blue	1/2 in.	late May-late Jun	heavy	upright	24 in.	36 in.
★★★★	<i>chamaedrys</i> 'Miffy Brute'	blue	3/8 in.	mid May-late Jun	low	prostrate	6 in.	36 in.
★★★★	<i>gentianoides</i> 'Pallida'	pale blue	5/8 in.	mid May-mid Jun	heavy	prostrate	24 in.	24 in.
★★★★	<i>livanensis</i>	light blue	3/8 in.	early May-late Jun	moderate	prostrate	1 in.	30 in.
★★	<i>longifolia</i>	lavender blue	1/4 in.	late Jun-mid Aug+	heavy	upright	28 in.	28 in.
★★	<i>longifolia</i> 'Blauriesin' (Blue Giant)	lavender blue	1/4 in.	late Jun-late Aug+	low	upright	27 in.	34 in.
★★★★½	<i>longifolia</i> 'Blue John'	purple blue	1/4 in.	mid Jun-mid Sep+	heavy	upright	36 in.	32 in.
★★	<i>longifolia</i> 'Joseph's Coat'	pale lavender	1/4 in.	late Jun-late Aug+	low	upright	21 in.	16 in.
★★★★	<i>longifolia</i> 'Lilac Fantasy'	pale lavender	1/4 in.	mid June-mid Sep+	heavy	upright	33 in.	24 in.
★★★★	<i>pectinata</i>	blue	1/4 in.	late Apr-late Jun	heavy	prostrate	3 in.	30 in.
★★★★	<i>pectinata</i> 'Rosea'	violet	1/4 in.	mid May-mid Jun	low	prostrate	2 in.	20 in.
★★★★	<i>peduncularis</i>	white	1/2 in.	late Apr-mid Jun	moderate	prostrate	9 in.	30 in.
★★★★	<i>pinnata</i> 'Blue Eyes'	blue	3/8 in.	early May-mid Jun	heavy	prostrate	8 in.	40 in.
★★★★	<i>prostrata</i> 'Aztec Gold'	pale blue	3/8 in.	early Jun-late Jun	low	prostrate	9 in.	24 in.
★★★★	<i>prostrata</i> 'Goldwell'	lavender blue	3/8 in.	late May-late Jun	heavy	prostrate	2 in.	14 in.
★★★★	<i>prostrata</i> 'Mrs. Holt'	pale purple	1/4 in.	early May-early Jun	heavy	prostrate	3 in.	22 in.
★★★★	<i>prostrata</i> 'Trehane'	blue	1/2 in.	late May-early Jul	heavy	prostrate	7 in.	26 in.
★	<i>repens</i> 'Sunshine'	very pale blue	1/4 in.	mid May-mid Jun	low	prostrate	1 in.	14 in.
★★	<i>spicata</i> 'Alba'	white	1/4 in.	mid Jun-early Sep+	low	upright	28 in.	24 in.
★★★★½	<i>spicata</i> 'Baby Doll'	pink	1/4 in.	late Jun-late Aug+	heavy	upright	18 in.	22 in.
★★★★	<i>spicata</i> 'Blaufuchs' (Blue Fox)	blue	3/8 in.	mid May-early Jul	moderate	upright	16 in.	30 in.
★★	<i>spicata</i> 'Blautteppich' (Blue Carpet)	purple blue	1/4 in.	mid Jun-late Aug+	moderate	upright	7 in.	15 in.
★★★★	<i>spicata</i> 'Blue Peter'	purple blue	1/4 in.	mid Jun-mid Sep+	heavy	upright	23 in.	23 in.
★★★★	<i>spicata</i> 'Erika'	magenta pink	1/4 in.	mid Jun-mid Aug+	heavy	upright	16 in.	24 in.
★★★★	<i>spicata</i> 'Glory' (Royal Candles)	dark purple	1/4 in.	mid Jun-early Sep+	heavy	upright	18 in.	18 in.
★★★★	<i>spicata</i> 'Heidekind'	magenta	1/4 in.	mid Jun-early Sep+	moderate	upright	8 in.	18 in.
★★★★	<i>spicata</i> 'High Five'	lavender blue	1/4 in.	late Jun-early Sep+	heavy	upright	30 in.	30 in.
★★★★	<i>spicata</i> 'Icicle'	white	1/4 in.	late Jun-mid Sep+	heavy	upright	24 in.	24 in.
★★★★	<i>spicata</i> 'Minuet'	pink	1/4 in.	mid Jun-early Aug	moderate	upright	18 in.	25 in.
★★	<i>spicata</i> 'Noah Williams'	white	1/4 in.	mid Jul-early Sep+	low	upright	12 in.	14 in.
★★★★	<i>spicata</i> 'Pavane'	pink	1/4 in.	mid Jun-mid Aug+	moderate	upright	17 in.	24 in.
★★★★	<i>spicata</i> 'Pink Panther'	pink	1/4 in.	mid Jun-late Aug+	moderate	upright	18 in.	14 in.
★★★★½	<i>spicata</i> 'Romiley Purple'	purple	3/8 in.	mid Jun-late Aug+	moderate	upright	20 in.	26 in.
★★	<i>spicata</i> 'Rosenrot'	magenta pink	1/4 in.	mid Jun-mid Sep+	moderate	upright	12 in.	20 in.
★★★★	<i>spicata</i> 'Rotfuchs' (Red Fox)	magenta pink	3/8 in.	mid Jun-early Sep+	heavy	upright	20 in.	24 in.
★★★★½	<i>spicata</i> 'Snow White'	white	1/4 in.	late Jun-early Sep+	moderate	upright	24 in.	20 in.
★★★★	<i>spicata</i> 'Spitzenstraum'	purple blue	1/4 in.	late Jun-mid Sep+	heavy	upright	30 in.	20 in.
★★★★	<i>spicata</i> 'Twilight'	lavender blue	1/4 in.	mid Jun-mid Aug+	heavy	upright	22 in.	21 in.
★★★★½	<i>spicata</i> 'Ulster Blue Dwarf'	purple blue	1/4 in.	mid Jun-mid Sep+	heavy	upright	12 in.	14 in.
★★★★	<i>spicata</i> ssp. <i>incana</i>	purple blue	1/4 in.	mid Jun-late Aug+	moderate	upright	20 in.	27 in.
★★	<i>spicata</i> ssp. <i>incana</i> 'Silbersee'	purple blue	1/4 in.	mid Jun-late Jul	moderate	upright	12 in.	14 in.
★★★★	<i>umbrosa</i> 'Georgia Blue'	blue	1/2 in.	early May-late Aug+	heavy	prostrate	6 in.	20 in.
★★★★½	<i>wormskjoldii</i>	purple blue	1/4 in.	early Jun-mid Aug+	heavy	upright	12 in.	28 in.

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

¹Bloom Period: (+) indicates that sporadic or remontant flowers were observed after the initial bloom period ended

²Flower Production Ratings: heavy 70-100%; moderate 40-70%; low <40%

Performance Report

Plants were regularly monitored during the evaluation period for ornamental traits such as flower color, bloom period, plant size, and plant habit. In addition, data were collected on disease and pest problems, winter injury, and habit quality and plant health issues related to and/or affected by cultural and environmental conditions. Final performance ratings are based on flower production, plant health, habit quality, and winter hardiness. Plant traits and final performance ratings for 61 taxa are noted in Table 1. Three of the original 64 taxa were eliminated because of identification issues: *Veronica spicata* 'Schneeriesin', *V. repens*, and *V. alpina* 'Alba' were determined to be incorrect and were not retested. Wherever possible, nomenclature follows the recommendations of the Royal Horticultural Society (RHS Plant Finder, 2009). Weather statistics for the trial period are noted in Table 2.

Seven speedwells received good-excellent ratings for their overall performance, including *Veronica* 'Fairytale', *V.* 'Giles Van Hees', *V. austriaca* 'Ionian Skies', *V. longifolia* 'Blue John', *V. spicata* 'Baby Doll', *V. spicata* 'Ulster Blue Dwarf', and *V. wormskjoldii*. These top-rated speedwells exhibited strong habits and excellent flower production throughout the evaluation period. The lack of any serious pest or disease problems, along with good winter survivability, contributed to their high ratings. Additionally, 18 taxa received four-star good ratings for similarly strong performances.



Richard Hawke

Veronica 'Giles Van Hees'

Table 2: Weather Summary for 1999-2009

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Lowest temperature °F (°C)	-16 (-26)	-9 (-23)	-4 (-20)	-5 (-21)	-5 (-21)	-9 (-23)	-2 (-19)	-8 (-22)	-10 (-23)	-6 (-21)	-17 (-27)
Lowest temperature date	1/5	12/22	1/1	3/4	3/4	1/30	12/7	2/18	3/5	1/20	1/16
Highest temperature °F (°C)	104 (40)	94 (34)	98 (37)	101 (38)	98 (37)	93 (34)	100 (38)	100 (38)	96 (35)	93 (34)	96 (35)
Highest temperature date	7/31	8/31	6/29	7/21	8/22	6/6	6/24	7/31	7/9	7/17	8/9
Number of growing season days ^a	175	177	171	146	150	155	158	143	196	181	175
Number of days below 0°F (-18°C)	8	9	2	1	4	10	2	2	11	16	8
Number of days above 90°F (32°C)	16	8	19	30	15	5	24	15	20	6	7
Last frost date	4/19	4/12	4/19	5/21	5/4	5/3	5/4	5/7	4/16	4/30	4/18
First frost date	10/20	10/7	10/7	10/14	10/1	10/5	10/23	10/12	10/28	10/28	10/10
Annual rainfall in inches (cm) ^b	36.5 (92.7)	43.5 (110.5)	44.3 (112.5)	33.6 (85.3)	31.7 (80.5)	35.5 (90.2)	24.4 (61.9)	42.5 (107.9)	41.0 (104.1)	49.5 (125.7)	38.8 (95.5)
Annual snowfall in inches (cm) ^c	41.9 (106.4)	56.5 (143.5)	10.9 (27.7)	37.6 (95.5)	15.6 (39.6)	27.2 (69.1)	44.4 (112.7)	23.4 (59.4)	38.5 (97.8)	78.5 (199.4)	28.8 (75.2)

^a Average length of growing season is 161 days. ^b Average rainfall is 35.8 inches (90.9 cm). ^c Average snowfall is 38.1 inches (96.8 cm). Data collected at Chicago Botanic Garden weather station. Latitude: 41°51'N. Longitude: 87°37'W. Altitude: 578.74 ft. (176.4m)

Table 3: Winter Injury Data for 1999-2009

Years ¹	<i>Veronica</i>	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09
3/6	'Bergen Blue'			c	cd	d					
1/6	'Blue Charm'		c								
1/5	'Blue Reflection'				c						
1/4	'Darwins Blue'							d			
1/6	'Giles Van Hees'					cd					
1/6	'Goodness Grows'		c								
2/4	'Heraud'						c	c			
1/4	'Midnight'		c								
1/4	'Purpleicious'								c		
4/5	'Sunny Border Blue'	c		c	d	d					
2/6	'Waterperry Blue'			c	c						
1/3	'White Jolanda'								d		
2/5	<i>chamaedrys</i> 'Miffy Brute'			c	c						
2/5	<i>liwanensis</i>		c		cd						
3/5	<i>longifolia</i>			c	d	d					
2/4	<i>longifolia</i> 'Blauriesin'			d	d						
3/6	<i>longifolia</i> 'Joseph's Coat'			d	cd	cd					
3/4	<i>longifolia</i> 'Lilac Fantasy'					c	d	d			
2/6	<i>pectinata</i>		c		c						
1/6	<i>pectinata</i> 'Rosea'				c						
1/5	<i>peduncularis</i>				c						
1/6	<i>pinnata</i> 'Blue Eyes'				c						
2/4	<i>prostrata</i> 'Aztec Gold'			c	d						
1/4	<i>prostrata</i> 'Goldwell'										d
3/4	<i>repens</i> 'Sunshine'	c	c	d							
1/6	<i>spicata</i> 'Alba'			d							
5/6	<i>spicata</i> 'Blauteppich'	d	c	d	d	d					
2/6	<i>spicata</i> 'Blue Peter'		d	c							
2/6	<i>spicata</i> 'Erika'		d	cd							
2/4	<i>spicata</i> 'Glory'				d	cd					
4/6	<i>spicata</i> 'Heidekind'		d	c	c	c					
1/4	<i>spicata</i> 'High Five'								cd		
2/6	<i>spicata</i> 'Icicle'		c			c					
2/4	<i>spicata</i> 'Noah Williams'		c		d						
1/6	<i>spicata</i> 'Pavane'					d					
3/4	<i>spicata</i> 'Pink Panther'							c	c	c	
1/6	<i>spicata</i> 'Romiley Purple'				c						
2/3	<i>spicata</i> 'Rosenrot'		cd	d							
2/6	<i>spicata</i> 'Snow White'				c	d					
1/4	<i>spicata</i> 'Spitzenstraum'				d						
1/6	<i>spicata</i> ssp. <i>incana</i>		c								
4/6	<i>spicata</i> ssp. <i>incana</i> 'Silbersee'		c	c	c	d					
1/6	<i>umbrosa</i> 'Georgia Blue'				c						

¹Number of years with winter injury observed/number of years under evaluation
 Injury Designations: c – crown damage observed; d – dead plants observed

The floriferous nature of speedwells was evident, with over 80 percent of taxa having moderate to heavy flower production. The measure of flower production was based on the number of flowering stems in relation to the size and vigor of the plant. For example, if a plant had 20 stems with one inflorescence per stem, then flower production was considered heavy. Conversely, an equally sized plant with fewer inflorescences received a correspondingly lower rating for flower production.

It is the nature of an indeterminate raceme that various bloom stages are observed at the same time; that is, flower buds, open flowers, and spent flowers are usually present together on the ever-elongating raceme.

While the racemes of many speedwells elongated to 12 inches or less, a number of species had racemes that grew up to 24 inches long. Flowers at the base of the inflorescence bloomed first, with subsequent buds opening steadily in an upward fashion until all flowers were spent. Given their floral nature, speedwells have prolonged bloom periods despite not having large quantities of flowers open at any time. In the trial it was noted that between 25 and 50 percent of the total flowers produced in an inflorescence were open at the same time.

In Table 1, bloom periods followed by a "+" are inclusive of any sporadic or remount flowering that occurred after the primary floral display; the actual length of each bloom



Veronica 'Heraud'



Veronica pectinata (middle) and *Veronica pectinata* 'Rosea' (on right)

cycle is not delineated. For example, *Veronica* 'Eveline' bloomed from June 11 to August 9 and then again from August 30 to September 21; in the table, the two distinct bloom periods are combined into an overall designation of mid-June to late September. Bloom periods without a "+" indicate exact flowering dates without any rebloom observed.

Speedwells are typically grouped into two habit types for comparison: prostrate, mat-forming species, and upright, clump-forming species. The difference between the two habit types is that prostrate taxa generally feature a mat of leaves with distinct flowering stems above the plants; whereas, the inflorescences of upright taxa are a continuation of leafy stems. The plant height designation in Table 1 refers to the size of the plant with flowers at peak bloom and not the height of the foliage only. For example, *Veronica gentianoides* 'Pallida' had flowering stems 20 inches long above a mat of leaves 4 inches tall.

Prostrate speedwells were among the earliest taxa to bloom in the spring, often beginning as early as mid-April, and they tended to have a discrete or limited anthesis. Since the plants were without flowers for much of the summer, it was important that these taxa maintain healthy foliage and robust habits after flowering. Open crowns or floppy stems were only occasionally observed amongst the prostrate types. *Veronica prostrata* 'Goldwell' remained sparse or loose throughout the trial; it never formed a dense carpet like other *V. prostrata* cultivars. *Veronica repens* 'Sunshine' had a patchy appearance due to crown melt out during

the summer; winter losses in successive years also reduced plant vigor and habit quality during the following summers. Each year *V. umbrosa* 'Georgia Blue' was robust early in the season but the centers of crowns opened or died by the end of the bloom period. Late-season habit quality was greatly improved by shearing stems to the ground in midsummer. *Veronica pectinata* 'Rosea' was never as robust and vigorous as the species, and competition from weeds and adjacent test plants was an annual problem.

The majority of speedwells under evaluation had upright, clump-forming habits. This group consisted predominately of *Veronica spicata* and *V. longifolia* as well as related hybrid cultivars. With few exceptions, these speedwells were long-blooming plants with strong flower production each year. The seasonal decline of flowering stems and/or open crowns after flowering were common occurrences and should be expected for most upright speedwells. Thirty-one of the 45 upright taxa exhibited some degree of seasonal stem decline, ranging from gradual leaf drop to complete stem dieback, in most years. Because of this prevalent and presumed inherent condition, seasonal stem decline did not automatically reduce health or habit quality ratings. However, severe stem dieback and/or habitual floppiness did result in lower overall ratings for a number of speedwells. Taxa with early stem decline, often while plants were still flowering, included *Veronica* 'Midnight', *V. longifolia* 'Blauriesin', and *V. spicata* 'Alba'. Taxa that were prone to severe floppiness in early summer included *V.* 'Royal Pink', *V. longifolia* 'Blauriesin', *V. spicata* 'Blaufuchs',

V. spicata 'Blue Peter', and *V. spicata* 'Spitzensträum'. Shearing back dead or declining stems is recommended to improve ornamental display and plant health, and to promote rebloom.

Disease issues were minor or infrequent during the evaluation period. Powdery mildew was present on a number of taxa in one or more years. The most cases of powdery mildew, ranging from minor to severe infection, were recorded in 2003 and included *Veronica* 'Pink Damask' (severe), *V. longifolia* (moderate), *V. longifolia* 'Blauriesin' (severe), *V. longifolia* 'Joseph's Coat' (minor), and *V. spicata* 'Spitzensträum' (severe). Additionally, infections were noted on *V.* 'Blue Charm' (minor, 1999), *V. spicata* 'Romiley Purple' (minor, 2000), *V.* 'Darwins Blue' (severe, 2005), and *V.* 'White Jolanda' (moderate, 2005). Only *V. spicata* 'Spitzensträum' was infected with powdery mildew in two years, 2003 and 2004.



Veronica pinnata 'Blue Eyes'



Veronica wormskjoldii

Leaf spot was occasionally observed during the trial period. Determination of the exact cause was not confirmed although symptoms were similar to *Septoria* leaf spot. Among the taxa affected were *Veronica* 'Blue Charm' (minor, 2004), *V.* 'Giles Van Hees' (minor, 2003), *V.* 'Goodness Grows' (minor, 1999 and moderate, 2003), *V. longifolia* 'Blue John' (moderate, 2003), *V. spicata* 'Alba' (moderate, 2004), and *V. spicata* 'Blue Peter' (minor, 2003). *Veronica* 'Midnight', *V.* 'Sunny Border Blue', *V. spicata* 'Icicle', *V. spicata* 'Pavane', and *V. spicata* 'Rosenrot' had minor infections confirmed in 1999 only.

Unfortunately, winter injury was not an infrequent occurrence in the speedwell trial. However, losses were not attributed to cold temperatures but rather to moisture-retentive soils or poor drainage. Forty-four of the 61 taxa incurred some form of winter injury, from crown damage to plant death, in one or more years (Table 3). The most

significant losses were noted in the winter of 2002-2003, with 14 taxa having some degree of crown loss and 35 plants of 11 taxa killed outright. Heavy plant losses were also observed following the winters of 2001-2002 and 2003-2004, with 30 plants killed in each winter.

A number of taxa suffered repetitive winter losses in more than half of the evaluation years, including *Veronica* 'Sunny Border Blue', *V. repens* 'Sunshine', *V. spicata* 'Blauteppich', *V. spicata* 'Heidekind', and *V. spicata* ssp. *incana* 'Silbersee'. All plants of the following taxa were dead by the end of the trial: *V.* 'Sunny Border Blue', *V.* 'White Jolanda', *V. longifolia*, *V. spicata* 'Blauteppich', *V. spicata* 'Erika', *V. spicata* 'Noah Williams', and *V. spicata* 'Rosenrot'. In each of these cases, serious crown injury and/or significant plant losses during winter were the leading cause for their lower overall ratings.

Summary

Many of the speedwells received four-star good ratings or higher for heavy flower production, robust plant habits, disease and pest resistance, and winter hardiness. Among the top-rated plants were outstanding ground-hugging speedwells such as: *Veronica* 'Blue Reflection', *V. gentianoides* 'Pallida', and *V. prostrata* 'Mrs. Holt'; as well as exceptional upright clumpers such as *V. austriaca* 'Ionian Skies', *V. longifolia* 'Blue John', and *V. spicata* 'Baby Doll'. Regardless of their stature or habit, they all featured spiky inflorescences rising from several inches to a foot or more above the foliage. Speedwells were generally long-blooming plants, often flowering from June into September, although not continually during that time.

Seasonal stem decline was a prevalent condition that affected the upright speedwells each summer. Despite leaf drop and/or stem death, most plants recovered quickly after being sheared to the ground at the end of the first bloom period. Cold hardiness was not an issue, but crown loss or plant death due to wet soil conditions in winter was a fairly significant problem for the speedwell trial. Powdery mildew and leaf spot were observed in multiple years but were neither widespread nor severe in most cases.

Thanks to selection and breeding programs, speedwells with new flower colors and improved plant habits have been introduced in recent years. Pale pink 'Fairytale' and blue-flowered 'Ulster Blue Dwarf' are among the many outstanding new offerings for gardens.

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Comparative Trial of *Veronicastrum virginicum* Cultivars

In the past, *Veronicastrum* has been taxonomically grouped with *Veronica*; however, its distinct floral habit and leaf arrangement readily sets *Veronicastrum* apart. Although literature cites anywhere from two to 20 species of *Veronicastrum* worldwide, the North American native *Veronicastrum virginicum*, or Culver's root, is the most commonly grown species in gardens.

The inflorescence of Culver's root differs from speedwells in its compound structure, although like *Veronica*, the inflorescence is actually a spike-like raceme. The central flower spike, which opens first, is surrounded by a whorl or two of secondary spikes. The entire effect is reminiscent of a candelabrum. In addition, lateral spikes from leaf axils bloom after the terminal flowers have finished, thus prolonging the bloom period for several more weeks. The white to pale blue flowers of the species are small, typically ¼ inch wide, while the racemes can elongate up to a 12 inches or longer. The lanceolate leaves of Culver's root likewise stand apart from speedwells; they are clustered in whorls of up to seven leaves along the stem. Culver's root has a robust, vertical habit with stems 36 inches to 72 inches tall.

Between 1999 and 2004, seven cultivars of *Veronicastrum virginicum* were evaluated in the full-sun trials at the Chicago Botanic Garden (Table 4). Four of the seven cultivars received four-star good ratings. Cultural conditions were the same as the *Veronica*

trial. Strong habits and heavy flower production were common in the early season; however, all cultivars, to some extent, were prone to stem collapse or decline after flowering, usually occurring in late August. Interestingly, this was a common and early season problem observed during a previous trial of *Veronicastrum sibiricum* that had been wild collected in the Lake Baikal and Far East regions of Russia. Since a number of the cultivars are likely hybrids between *V. virginicum* and *V. sibiricum*, it was not surprising to see this similar result.

In regards to the top-rated cultivars, plant health and habit quality usually remained good to the end of the bloom period. Typically in early to mid-August the lower leaves began to wither, followed by stems turning brown. At this stage, the weakened stems were often snapped off at the base during windy weather. Plants of 'Apollo', 'Fascination', and 'Lavendelturm' (Lavender Tower) were cut back to the base in late August or early September each year; strong regeneration of basal leaves was noted by mid-September. 'Pink Glow' often remained healthier longer than the other cultivars, with little or no dieback noted in most years.

The health of 'Pointed Finger', 'Spring Dew', and 'Temptation', declined by mid-July, approximately one month earlier than the other cultivars. Plants were regularly cut to the ground at this point but foliar regeneration was weak or nonexistent for these taxa.



Richard Hawke

Veronicastrum virginicum 'Apollo'**Table 4:** *Veronicastrum* Performance Summary

Overall Rating	<i>Veronicastrum</i>	Flower Color	Bloom Period	Flower Production ¹	Plant Height	Plant Width
★★★★	<i>virginicum</i> 'Apollo'	lavender	late Jun-mid Aug	heavy	62 in.	36 in.
★★★★	<i>virginicum</i> 'Fascination'	lavender	late Jun-mid Aug	heavy	62 in.	36 in.
★★★★	<i>virginicum</i> 'Lavendelturm'	lavender	mid Jun-early Aug	heavy	60 in.	32 in.
★★★★	<i>virginicum</i> 'Pink Glow'	pale pink	late Jul-mid Sep	heavy	48 in.	36 in.
★★	<i>virginicum</i> 'Pointed Finger'	lavender	late Jun-mid Jul	low	42 in.	20 in.
★★	<i>virginicum</i> 'Spring Dew'	white	late Jun-late Jul	moderate	45 in.	26 in.
★★	<i>virginicum</i> 'Temptation'	lavender	late Jun-late Jul	low	44 in.	20 in.

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

¹ Flower Production Ratings: heavy 70-100%; moderate 40-70%; low <40%

'Pointed Finger' and 'Spring Dew' are suspected to be either cultivars of *Veronicastrum sibiricum* or hybrids. Their early stem decline is similar to the observations in the *V. sibiricum* trial of 1996-2002.

Culver's root is best grown in full sun and moist, well-drained soils. Although adaptable to light shade, stems will lean toward the light and not be as strongly upright. Staking may be necessary under these conditions. Culver's root has a commanding presence in the back of the border and its elegantly dramatic flowers draw the eye as well as butterflies.

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