

# Plant Evaluation Notes

## Garden-Worthy Artemisias

Richard G. Hawke, Manager of Plant Evaluation Programs

**A**rtemisia, wormwood, mugwort and southernwood are some of the common names for *Artemisia*, a diverse genus of herbaceous and shrubby species from a variety of climatic regions around the world. *Artemisia* includes garden perennials, such as white sage (*Artemisia ludoviciana*) and absinthe (*Artemisia absinthium*), the culinary herb tarragon (*Artemisia dracuncululus*) and a symbol of the Old West, sagebrush (*Artemisia tridentata*). Gardeners are familiar with the silver artemisias that are commonly grown as foliage plants for texture and color, but there are also artemisias with green leaves and attractive floral displays.

*Artemisia* contains about 300 annual, biennial or perennial herbs and woody shrubs from the temperate Northern Hemisphere, western South America and South Africa. *Artemisia* is a member of the aster family (Asteraceae) and is closely related to other garden perennials such as yarrow (*Achillea*), golden marguerite (*Anthemis*) and tansy (*Tanacetum*). The composite flowers of most artemisias are not regarded as ornamental, and these plants are grown instead for their aromatic, gray- to silvery-green leaves. White mugwort, *Artemisia lactiflora*, is a green-leaved exception grown for the clusters of creamy white flowers borne at the tops of tall stems.

Artemisias come in an array of plant habits and sizes, ranging from a few inches to 8 feet tall, and spreading from 1 to 6 feet wide. Stems can be woody or herbaceous, clumping or rhizomatous with habits that are upright, bushy, low-mounded or ground-hugging. *Artemisia* leaves are typically dissected, gray or white, hairy and aromatic, although some species have green leaves. The scented foliage is considered a repellent to insects, rabbits and deer. The small, gray to white discoid flowers, which are produced in clusters during summer and fall, lack the large or colorful ray florets so identifiable to the aster family.

Many species are native to arid or Mediterranean-like climates and are aptly suited to sunny, dry infertile gardens. Hence, these species are not always well suited to soils that retain moisture during the winter months or to climates with high summer humidity. Excessive moisture can result in root rot during dormant periods and crown melt-out during summer months. The silvery-leaved artemisias are best grown in full sun in well-drained to dry soils with low fertility. Conversely, green-leaved species can tolerate more soil moisture and are easily adapted to average garden conditions. Fertilization is not required and high nitrogen can cause tall, floppy stems especially on the silver-leaved species. Many of the cultivated perennial

species are grown in gardens throughout USDA Hardiness Zones 3 to 8.

Artemisias are commonly used as accents, foils or fillers in gardens and containers. The silvery foliage is invaluable for cooling down harsh colors, and can be used to complement or contrast with the flowers and foliage of adjacent plants. The soft, ferny leaves of *Artemisia absinthium* 'Lambrook Silver' or *A.* 'Powis Castle' are a striking textural contrast with bolder leaves of other perennials. Various flower colors, including blue, pink, purple or yellow, mix well with the bright silver leaves of *A. ludoviciana* 'Valerie Finnis' and *A. ludoviciana* 'Silver Queen'. The creamy white blossoms of *A. lactiflora* are a graceful presence in the back of the border and combine well with other late-season flowers. Artemisias are suitable for perennial borders, herb gardens, containers and rock gardens, and are also used as edging plants. Gardeners who provide the right cultural conditions can take advantage of the variety of plant habits, foliage colors and foliage textures that make artemisias outstanding garden perennials.

### The Evaluation Project

The Chicago Botanic Garden (USDA Hardiness Zone 5b, AHS Plant Heat-Zone 5) completed a four-year comparative study of *Artemisia* in 1996. The project goal was to observe the ornamental characteristics, winter hardiness and cultural requirements of 26 species, cultivars and garden hybrids of *Artemisia*, and to determine the best artemisias for Midwest gardens. The trial included commercially available artemisias as well as species obtained from seed exchanges with European botanic gardens. Nomenclature follows *The New Royal Horticultural Society Dictionary of Gardening* and the *RHS Plant Finder*. The following synonyms are commonly found in reference literature and gardening publications: *A.* 'Huntington' = *A. absinthium* 'Huntington Gardens'; *A. absinthium* 'Silver Frost' = *A. ludoviciana* 'Silver Frost'; *A. alba* = *A. camphorata*; *A.* 'Powis Castle' = *A. arborescens* 'Powis Castle'; *A. ludoviciana* 'Silver Queen' = *A.*



*Artemisia absinthium* 'Lambrook Silver'

*ludoviciana* var. *albula* 'Silver Queen'; *A. purshiana* = *A. ludoviciana*; and *A. schmidtiana* 'Silver Mound' = *A. schmidtiana* 'Nana'.

The evaluation site received approximately 10 hours of full sun during the growing season and was openly exposed to wind in all directions. The well-drained clay-loam soil was amended with composted leaves and had a pH of 7.4 throughout the evaluation term. Turf grass pathways surrounded the beds on all sides; and the plots, each comprised of 15 plants, were separated within the beds by mulched strips.

Maintenance practices were kept to a minimum to simulate home garden culture. Water was provided as needed, and no fertilizer was applied. Faded flowers and lodged stems were not routinely removed or cut back. In 1995 and 1996, all plants were cut back to the ground after flowering to rejuvenate health and habits. Mulch consisting of shredded leaves and wood chips was placed between the plots for weed suppression and aesthetic purposes. Hemlock boughs were placed over the plants in early November to shed water off the crowns of the plants during the winter months.

### Observations

The 26 taxa of *Artemisia* were observed for winter hardiness, cultural adaptability to the soils and conditions of the evaluation site, disease and pest problems, and ornamental attributes including foliage and habit quality, plant size, floral display and spreading potential. Eighteen of the 26 taxa survived all four years of the study. Plant traits and evaluation information for the taxa that

completed the study are shown in Table 1. A summary rating was assigned to each plant based on plant habit and health, cultural adaptability and winter injury. A four-star rating signifies a good performance, whereas a one-star rating indicates a very poor performance.

Plants that died during the evaluation trial were not routinely retested and are not listed in Table 1. *Artemisia* 'Huntington', *A.* 'Mrs. G. Reed', *A.* 'Powis Castle' and *A. arborescens* 'Porquerolles' died during the first winter, but only 'Powis Castle' and 'Porquerolles' were replanted for continued evaluation. Since a one-year trial was considered inconclusive, no determination was made regarding the winter hardiness of the two taxa that were not retested. *Artemisia capillaris*, *A. integrifolia*, *A. laciniata* and *A. selengensis* were removed after two years due to lack of ornamental qualities and a weedy nature. These four taxa were grown from seed obtained from European seed exchange programs.

Six of the 26 taxa received the highest performance ratings based on superior ornamental characteristics, good health and habits, and winter hardiness. Among the best plants were *Artemisia absinthium* 'Lambrook Silver', *A. alba*, *A. lactiflora*, *A. lactiflora* 'Guizhou', *A. ludoviciana* 'Valerie Finnis' and *A. schmidtiana* 'Silver Mound'. These plants, however, were not necessarily exempt from the health and habit issues that affected other taxa. The problems related to health and habit quality included crown melt-out caused by high humidity and/or wet soils; open crowns; floppy to lodged stems; bare lower stems; general decline due to flowering stress; and

rabbit damage. Winter injury due to wet soil conditions and/or cold temperatures was observed on a number of taxa.

The artemisias typically grew well for most of the summer and were not generally afflicted with serious health issues. Melt-out, or the rotting of a portion of the crown, was a periodic problem associated with heavy rain and subsequent high humidity. The stems of many artemisias declined in early August because of the season's heat, humidity and rain. The taxa that experienced melt-out damage in one or more years were *Artemisia absinthium*, *A. absinthium* 'Lambrook Silver', *A. frigida*, *A. ludoviciana* 'Silver Queen', *A. sericea*, *A. schmidtiana* 'Silver Mound', *A. stelleriana* and *A. stelleriana* 'Silver Brocade'. Stem regeneration usually began within a few weeks of damage. Rabbits were an occasional pest to *A. lactiflora* and *A. lactiflora* 'Guizhou'. In 1994, severe damage to *A. lactiflora* resulted in approximately 75% of stem loss over the entire plot.

Many of the issues related to the decline in habit quality were associated with the onset of flowering. A general decline in plant health during and/or following flowering resulted in open crowns, floppy to lodged stems and leafless lower stems. Open crowns and fallen stems were observed on most taxa in late summer to early fall, coinciding with or following the flowering period. In all cases, new growth began after flowering was completed, whether or not stems were cut back, and many taxa quickly rebounded to improved health by the end of the season. Taxa with open habits and floppy stems in early summer, prior to flower bud development,

**Table 1:** Plant Characteristics and Performance Summary Ratings

Overall Rating	Artemisia	Height	Width	Foliage Color	Winter Injury	Bloom Period	Flower Coverage	Ornamental Floral Display <sup>1</sup>
★	'Silverado'	24 in.	spreading	silver	yes	mid Aug-early Oct	60-80%	yes
★★	<i>absinthium</i>	50 in.	30 in.	silver-green	yes	mid Jul-mid Aug	40-60%	no
★★	<i>absinthium</i> 'Silver Frost'	24 in.	32 in.	silver	yes	mid Aug-mid Sept	40-60%	no
★★★★	<i>absinthium</i> 'Lambrook Silver'	40 in.	27 in.	silver	yes	early Jul-mid Aug	60-80%	yes
★★★★	<i>alba</i>	30 in.	spreading	light-green	no	late Aug-late Sept	60-80%	yes
★★★	<i>frigida</i>	16 in.	33 in.	silver	yes	late Aug-late Sept	<20%	yes
★★★★	<i>lactiflora</i>	68 in.	30 in.	green	no	late Aug-early Oct	80-100%	yes
★★★★	<i>lactiflora</i> 'Guizhou'	60 in.	28 in.	dark green	no	late Jul-early Oct	60-80%	yes
★★★	<i>ludoviciana</i> 'Silver Bouquet'	34 in.	spreading	silver-green	yes	late Aug-late Sept	80-100%	yes
★★★	<i>ludoviciana</i> 'Silver King'	37 in.	spreading	silver	no	early Sept-early Oct	60-80%	no
★★★	<i>ludoviciana</i> 'Silver Queen'	38 in.	spreading	silver	no	late Aug-late Sept	60-80%	yes
★★★★	<i>ludoviciana</i> 'Valerie Finnis'	32 in.	spreading	silver	no	late Jun-late July	40-60%	yes
★★	<i>pontica</i>	12 in.	12 in.	light green	yes	mid-late Aug	<20%	no
★★★	<i>purshiana</i>	50 in.	spreading	silver	no	late Aug-late Sept	80-100%	yes
★★★★	<i>schmidtiana</i> 'Silver Mound'	10 in.	32 in.	silver	no	late Aug-late Sept	20-40%	no
★★	<i>sericea</i>	29 in.	40 in.	gray-green	yes	Did not bloom		
★★	<i>stelleriana</i>	10 in.	spreading	silver	yes	Did not bloom		
★★	<i>stelleriana</i> 'Silver Brocade'	4 in.	spreading	silver	yes	late Jul-late Aug	40-60%	no

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

<sup>1</sup>Ornamental quality rated before flowers began to fade.



Richard Hawke/Royal Botanical Gardens, Ontario, Canada

*Artemisia lactiflora* 'Guizhou'

were *Artemisia* 'Silverado', *A. absinthium* 'Silver Frost', *A. frigida*, *A. ludoviciana* 'Silver Bouquet' and *A. purshiana*. Excessive soil moisture, rather than flowering stress, affected the habits of *A. sericea* and *A. stelleriana* in late summer, causing open crowns and some stem loss. The health and habits of *A. lactiflora* and *A. lactiflora* 'Guizhou' were not adversely affected by flowering.

The artemisias that had some degree of winter injury in one or more years are noted in Table 1. Winter injury ranged from partial crown loss to death of plants. All plants of *Artemisia* 'Huntington', *A. 'Mrs. G. Reed'*, *A. 'Powis Castle'* and *A. arborescens* 'Porquerolles' died during the first winter of 1993-94. 'Powis Castle' and 'Porquerolles' were replanted in 1994 and 1995, but died in each subsequent winter. *Artemisia* 'Mrs. G. Reed' and *A. 'Huntington'* were not retested, so lack of winter hardiness was not confirmed. Excessive soil moisture during winter months, rather than cold temperatures, was the cause of the decline and death of plants of *A. 'Silverado'*, *A. frigida*, *A. pontica*, *A. stelleriana* and *A. stelleriana* 'Silver Brocade'.

While artemisias are not known for dramatic floral displays, flowers can be ornamental in some species, and the taxa with flower buds and/or flowers that added ornamental or textural interest are noted in Table 1. However, with the exception of *Artemisia lactiflora* and *A. lactiflora* 'Guizhou', the flowers of all taxa ultimately detracted from the ornamental display or caused a decline in plant health. Browning lower leaves, a decrease in the intensity of leaf color, stem laxity and off-color flower parts marked this deterioration. The decrease in the

ornamental aspect of the flowers and a decline in general plant health usually began shortly after flowers opened or as flowers faded.

*Artemisia absinthium* 'Lambrook Silver' was one of the best artemisias overall. The dissected, silver-gray leaves were complemented by attractive, airy panicles of yellow flowers in midsummer. The graceful, arching habit was akin to that of *A. 'Powis Castle'*, except that the leaves were not as fine-textured. Open crowns were observed beginning with flower production in early July; however, when plants were cut back to basal shoots in late August, vigorous stem regeneration resulted. Although minor crown injury occurred in the winters of 1994-95 and 1995-96 and melt-out was observed following heavy rainfall in August 1995, 'Lambrook Silver' performed much better than *A. absinthium* and *A. absinthium* 'Silver Frost'.

*Artemisia ludoviciana* 'Valerie Finnis' was the best cultivar of the white sage group. The silver color of its broad, lance-shaped leaves was the most vibrant of all. Plants occasionally opened up or had floppy stems, but this problem was never as significant as with other cultivars. *Artemisia ludoviciana* spreads by rhizomes and has the potential to become invasive in the garden. 'Valerie Finnis' was also rhizomatous but spread more slowly than the others. The broad, spreading habits of 'Silver King', 'Silver Queen' and 'Silver Bouquet' were similar, but the stems of 'Silver King' remained upright longer in the season. The leaves of 'Silver King' were finer textured than those of 'Silver Queen', but its rhizomes spread more freely, moving easily into the surrounding turf grass. 'Silver Bouquet' resembled 'Silver Queen' in habit and foliage but did not produce as many suckers along its

perimeter. In general, *A. ludoviciana* cultivars tended toward bare lower stems as the summer progressed.

*Artemisia purshiana* was similar in habit and appearance to *A. ludoviciana*, and is sometimes noted as a synonym. Pursh sagebrush was taller than any of the *A. ludoviciana* cultivars, but with a similar spreading habit. The plants resembled a more robust 'Silver Queen' with leaves that were greenish rather than silver and lobed near the base of the stems. Unlike 'Silver Queen', Pursh sagebrush was unaffected by rain or humidity.

Lacy silver leaves and a tufted habit were ornamental attributes of *Artemisia schmidtiana* 'Silver Mound'. The late-season flowers provided a textural effect rather than a floral display. Open centers caused by melt-out affected the mounded habits in late summer of 1995 and 1996. The habit and silver-gray leaves of *A. frigida* were similar in appearance to 'Silver Mound'. The habit typically remained tight until August when the plants began to flower. New growth began to fill in the open crowns by late August. *Artemisia frigida* did not hold up as well as 'Silver Mound' in hot, humid weather. Crown injury from melt-out caused a fair amount of damage in 1995 and 1996. Overall, the habit and health of 'Silver Mound' surpassed *A. frigida*.

The lacy, light green leaves of *Artemisia alba* had a sweet camphor scent when crushed. The robust stems remained upright until flower buds began to form in mid-August; the relaxed habit became untidy by early September. Although the flowers added textural interest to the plants, the flowers themselves were not ornamental. *Artemisia alba* was not adversely affected by rain or humidity like the artemisias with silver-green leaves.

The green leaves and creamy white flowers of *Artemisia lactiflora* and *A. lactiflora* 'Guizhou' were a departure from the physical traits of the other artemisias in the trial. The coarse, dissected leaves formed basal rosettes from which upright stems developed. The flowers were produced in large panicles atop the tall stems in late summer. The stems of *A. lactiflora* 'Guizhou' were a medium purple color, but the plant traits were otherwise similar to the species.

The remaining taxa received poor to very poor ratings based on winter injury, poor health and habit, and/or melt-out damage caused by rain and humidity. *Artemisia* 'Silverado', *A. pontica*, *A. sericea*, *A. stelleriana* and *A. stelleriana* 'Silver Brocade'



*Artemisia ludoviciana* 'Valerie Finnis'

*Artemisia ludoviciana* 'Valerie Finnis'

*Artemisia schmidtiana* 'Silver Mound'

were severely injured in one or more winters, ultimately diminishing the health of the remaining plants in subsequent years. Wet winter soils were the cause of crown damage or plant loss for these taxa. Cold hardiness was the primary cause of death for *A.* 'Powis Castle' and *A. arborescens* 'Porquerolles'; however, each year the new plants grew quickly and robustly, and remained ornamental until dying back in the fall. Plants of *A. absinthium* and *A. absinthium* 'Silver Frost' both declined to very poor condition by the end of 1994 due to melt-out and flowering stress. Severe crown damage occurred on *A. absinthium* and *A. absinthium* 'Silver Frost' over the winters of 1994-95 and 1995-96; plants remained weak and did not recover during the subsequent growing seasons.

### Summary

Not all artemisias can be recommended for growing under general garden conditions. Cultural issues related to soil moisture and humidity caused some artemisias to decline during the growing season or be killed over the winter. In addition, the rhizomatous nature of many artemisias makes them weedy or potentially aggressive. Six of the 26 taxa of *Artemisia* received high ratings based on good plant habit and health, cultural adaptability and winter hardiness. The top-rated plants, which express the diversity of the genus, include *Artemisia absinthium* 'Lambrook Silver', *A. alba*, *A. lactiflora*, *A. lactiflora* 'Guizhou', *A. ludoviciana* 'Valerie Finnis' and *A. schmidtiana* 'Silver Mound'.

The artemisias tested were relatively pest- and disease-free plants, but certain cultural conditions caused problems for plant health and longevity. The most prevalent problem for the silver-leaved artemisias was

crown melt-out caused by excessive soil moisture and humidity. Other health and habit issues affecting the artemisias included open crowns, floppy to lodged stems and winter injury caused by wet soil conditions and/or cold temperatures. Open crowns due to floppy or lodged stems were observed on most of the taxa in late summer to early fall. In all cases, new growth began after flowering was completed, and many taxa rebounded to improved health by the end of the season. Although the artemisias were not routinely cut back in the trial, stems can be pruned hard in mid- to late summer to rejuvenate the plant's health and habit.

Artemisia flowers are not significantly ornamental although the buds or flowers can add textural interest to the plants. Unfortunately, the health of the silver-leaved taxa generally declined during or following the flowering period. Removing flower buds or deadheading is recommended to keep plants healthy throughout the summer months. *Artemisia lactiflora* and *A. lactiflora* 'Guizhou' were the only artemisias in the trial grown specifically for their ornamental floral display.

Approximately one-half of the test group had some level of winter damage, ranging from crown injury to complete plant loss. A lack of cold hardiness was noted for *Artemisia* 'Mrs. G. Reed', *A.* 'Powis Castle', *A.* 'Huntington' and *A. arborescens* 'Porquerolles'. 'Powis Castle' and 'Porquerolles' were retested and determined to be tender perennials that are not reliably hardy in Zone 5. *Artemisia absinthium* 'Lambrook Silver' is a good hardy replacement for 'Powis Castle' because of the similarity of the habits and foliage. Excessive

soil moisture, rather than cold temperatures, occasionally affected plant habits or caused winter injury of some artemisias. *Artemisia* 'Silverado', *A. frigida*, *A. pontica*, *A. stelleriana* and *A. stelleriana* 'Silver Brocade' were particularly affected by too much soil moisture, resulting in a general decline in health followed by loss of plants during winter. Consequently, planting artemisias in lighter soils with sharp drainage may reduce the potential for winter injury or loss of these taxa.

Foliage plants are increasingly gaining attention in the perennial garden, and the silver-leaved artemisias are handsome additions wherever they are grown well. Their lacy, silver leaves provide perfect foils for the colors and textures of adjacent flowering plants. In addition, foliage color and texture are ornamental qualities that make artemisias first-rate perennials in their own right. Perhaps not all artemisias are suitable to all gardens or climates, but providing an appropriate environment will ensure healthy plants and a beautiful display. Artemisias are versatile perennials for containers, perennial borders and rock gardens.

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