Plant Evaluation Notes

An Evaluation Report of Shrub Roses

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The popularity of roses is centuries old, but the care and attention required to grow hybrid roses successfully may no longer fit the lifestyle of today's gardeners. Roses that require less maintenance and fewer biocides to provide a brilliant show are now more important to gardeners, homeowners and landscapers. The solution to this challenge may be modern shrub roses with their lower maintenance requirements, increased disease resistance, greater winter hardiness and, of course, the blossoms that are highly cherished.

Many modern roses have lost the charm of their ancestors. Years of hybridization have created roses with recurrent flowering and a wider color range, but have also resulted in less disease resistance and the loss of fragrance. The desire to bridge the gap between old garden roses and modern roses led to the development of a new class of shrub roses called English roses. The English rose seems exactly what the rose fanciers want—fragrant blossoms with the delicacy and charm of old garden roses, natural shrubby habits and the repeat flowering aspect of modern roses. In the past 30 years David Austin has introduced over 80 hybrids of English roses with blossoms in pastels, rich pinks, reds, purples and yellows. Many of these "old-fashioned" plants are now in the United States and gaining popularity with modern gardeners.

At the same time, two Agriculture Canada breeding programs were developing winter-hardy shrub roses for Northern landscapes. The Explorer series, bred in Ottawa, Ontario, recognizes famous explorers in Canada's history. These roses are of three types—*Rosa rugosa* hybrid, shrub and climber. *Rosa* × *kordesii* was used as a source for disease resistance, winter hardiness and climbing habit. The breeding program at Morden, Manitoba, produced the Parkland series, many of which include "Morden" as part of the cultivar name. The native prairie rose species, *Rosa arkansana*, was a source for winter hardiness in these hybrids.

The English roses are quite unlike the roses from Canada, but each has enhanced landscapes in the United States. The English roses have the romance of a bygone era with improvements for modern times and sensibilities, while the Explorer and Parkland roses enhance Midwestern landscapes with hardy, disease-resistant plants. Both breeding programs have produced a broad palette of shrub roses for many uses—for growing singly, for including in shrub and mixed borders or for massing and naturalizing. Modern shrub roses hold the promise of being better plants for today's landscapes. But which shrub roses are best suited for the gardens of the northern Midwest?

Tom Clark

'Jens Munk' is rated overall one of the best shrub roses.

Evaluation Project

The English, Explorer and Parkland roses were developed to expand the availability of shrub roses for the landscape. But the dissimilar climates of England and Canada produced two very different products. Whether or not the Canadian roses would be hardy in Chicago was not the main question, but rather how would they react to diseases and insects like black spot, powdery mildew and Japanese beetle. Additionally, it was an appropriate concern whether the English roses would even be hardy this far north.

In 1990 the Chicago Botanic Garden began a six-year evaluation project to determine the winter hardiness of English roses, in particular, hybrids developed by David Austin that were available at the time in Canada or the United States. In addition to winter hardiness, the 31 hybrid English roses were evaluated for flower characteristics, plant form and disease and insect resistance. A second project was initiated in 1992 to evaluate many of the Explorer and Parkland roses from Agriculture Canada. While winter hardiness was noted, the main focus of the project was the determination of disease and insect resistance among the 19 Canadian roses. Although the primary goal of each project differed, the overall objective was to compile a complete record of the 51 roses under evaluation (Table 1), including ornamental qualities, winter hardiness and disease concerns.

The projects overlapped in time, but each was considered independently and undertaken at two different evaluation sites. The English roses were grown primarily in Pullman Evaluation Garden, a site surrounded by a wooden fence where other landscape plants

intermingled among the roses. The well-drained, clay loam soil had shredded leaves and wood chips added prior to planting; no additional soil amendments were made at planting time. A pH of 7.4 was recorded during the evaluation period. During the summer months, the site was in full sun approximately 12 hours, but large trees in the vicinity cast shade on the perimeter in early morning and late afternoon. The site received about six hours of winter sun each day. A fence, located on the east, west and north sides of the site, was a buffer to strong winds but also limited air circulation during the growing season. Three plants of each cultivar were evaluated.

The primary site for the Canadian roses, and a secondary site for some of the English roses, was an open area in full sun at the edge of the Garden's lagoon. The planting beds were excavated to 12 inches and then raised 6 inches above ground level to improve drainage. The soil was a mix of clay loam and composted leaves with a pH of 7.4. Turf-grass pathways surrounded the beds on all sides. Plants received no supplemental protection from wind, but were enclosed by an electric fence to control deer damage. Three plants of each cultivar were also represented here.

Maintenance practices were kept to a minimum in each test site to simulate home garden culture. Irrigation was supplemented as needed, although the plants in the open area received more water when the turf grass was irrigated. Plants were not routinely fertilized, but the roses in the open site were fertilized in the spring of 1994 with a 20-20-20 water-soluble fertilizer at a rate of one-half gallon per plant. A mulch of shredded leaves and wood chips was maintained for aesthetics, water conservation and weed control. The roses were not additionally mulched or covered for winter protection.

Post-winter care was restricted to the removal of dead or injured canes. The cultural practice of annual renewal pruning (removal of the oldest canes at ground level during each dormant season) was not followed. Roses were not treated with fungicides

Table 1: Shrub Rose Characteristics and Performance Summary Rating

Rating[1]	Rose	Series[2]	Flower Color	Flower Size	Flower Form	Bloom Period (includes repeat period)	Peak Bloom Coverage[3]	Height Range	Width Range
★★★	'Adelaide Hoodless'	PA	red	2¾-3 in.	semidouble	early Jun-late Aug	60-80%	60-97 in.	64-78 in.
★★★★	'Assiniboine'	PA	purplish red	3 in.	single, cupped	early Jun-Sep	60-80%	29-40 in.	32-47 in.
★★	'Belle Story'	ER	silvery pink	3-4 in.	semidouble, incurving	mid Jun-Sep	20-40%	40-54 in.	29-54 in.
★★	'Bredon'	ER	pale yellowish pink	2½-3 in.	quartered, double	mid Jun-Oct	20-40%	39-48 in.	28-38 in.
★★★★	'Champlain'	EX	dark red	2½-3 in.	double	mid Jun-mid Oct	80%	34-52 in.	46-57 in.
★★★★	'Constance Spry'	ER	soft pink	3-4 in.	double	mid Jun-early Jul	60-100%	74-94 in.	74-90 in.
★★★	'Cuthbert Grant'	PA	dark red	2½ in.	semidouble	early Jun-Oct	60-80%	47-73 in.	40-54 in.
★★	'Cymbeline'	ER	pale pink	4 in.	double	mid Jun-Sep	20-40%	45-77 in.	45-55 in.
★★	'Dapple Dawn'	ER	light purplish pink	3½-4 in.	single, flat	mid Jun-Oct	<20%	43-57 in.	36-57 in.
★★★	'David Thompson'	EX	deep purplish pink	2½-3 in.	double	early Jun-mid Oct	40-60%	36-42 in.	48-55 in.
★★	'Emanuel'	ER	pale purplish pink	2½-3 in.	double, rosette	mid Jun-Oct	20-40%	33-39 in.	36-41 in.
★★	'English Elegance'	ER	blush pink	2½-3 in.	double	mid Jun-Oct	20-30%	35-48 in.	32-44 in.
★	'Fair Bianca'	ER	pure white	3 in.	double, cupped	late Jun-Oct	<20%	10-32 in.	8-18 in.
★★	'Francine Austin'	ER	white	1-1½ in.	pompon	late Jun-mid Oct	20-40%	17-34 in.	22-40 in.
★★	'Gertrude Jekyll'	ER	purplish pink	3 in.	double, rosette	mid Jun-late Sep	20%	55-98 in.	45-55 in.
★★★	'Graham Thomas'	ER	deep yellow	2½-3 in.	double, cupped	mid Jun-mid Oct	20-40%	72-108 in.	53-86 in.
★★★	'Henry Hudson'	EX	white	2½ in.	semidouble	mid Jun-early Oct	40%	30-45 in.	44-64 in.
★★★★	'Henry Kelsey'	EX	medium red	2½-3 in.	semidouble	mid Jun-early Oct	60%	63-80 in.	72-85 in.
★★★½	'Heritage'	ER	blush pink	3-3¼ in.	double, cupped	early Jun-early Oct	40-60%	59-89 in.	40-60 in.
★★★★	'Jens Munk'	EX	medium pink	2½ in.	semidouble	early Jun-mid Oct	60-80%	45-72 in.	60 in.
★★★★	'John Davis'	EX	medium pink	3-3½ in.	double, quartered	mid Jun-early Sep	80-100%	34-55 in.	58-72 in.
★★	'John Franklin'	EX	medium red	2½ in.	double	mid Jun-early Sep	60%	31-43 in.	32-48 in.
★★★★	'Lucetta'	ER	blush pink	3½-4½ in.	semidouble, flat	mid Jun-mid Oct	60-80%	64-80 in.	53-76 in.
★★★	'Martin Frobisher'	EX	soft pink	2½ in.	double	early Jun-early Oct	60%	60-65 in.	50-68 in.
★★★½	'Mary Rose'	ER	medium pink	3½-4 in.	double, cupped	early Jun-early Oct	60-80%	52-63 in.	48-60 in.
★★★	'Mary Webb'	ER	pale lemon yellow	2½-3½ in.	double, cupped	mid Jun-late Sep	40-60%	41-45 in.	34-45 in.
★★★	'Morden Amorette'	PA	red	2½-3 in.	double, incurved	mid Jun-early Sep	40%	41-48 in.	42-49 in.
★★★½	'Morden Blush'	PA	light pink to white	2½-3 in.	double, flat	early Jun-early Oct	60-80%	32-36 in.	35 in.
★★	'Morden Cardinette'	PA	cardinal red	3 in.	double, cupped	mid Jun-early Oct	40%	32-38 in.	35-42 in.
★★★½	'Morden Centennial'	PA	medium pink	2½-3 in.	double	mid Jun-early Oct	60-80%	48-66 in.	45 in.
★★	'Morden Fireglow'	PA	scarlet	2¼-3 in.	double	mid Jun-Oct	20-40%	22-26 in.	25-32 in.
★★	'Morden Ruby'	PA	ruby red	2½ in.	double	mid Jun-early Oct	60-80%	36 in.	29 in.
★★½	'Othello'	ER	crimson to purple	4 in.	double, cupped	mid Jun-early Oct	30-60%	79-114 in.	40-58 in.
★★	'Perdita'	ER	blush apricot	3½ in.	double, cupped	mid Jun-early Oct	20-40%	36-53 in.	32-51 in.
★★★	'Pretty Jessica'	ER	rich pink	2½-3 in.	double, cupped	mid Jun-early Oct	20-40%	35-40 in.	24-30 in.
★★★	'Red Coat'	ER	scarlet	3-4 in.	single	mid Jun-mid Oct	40%	36-46 in.	42-50 in.
★★★★	*Rosa rugosa* 'Albo-Plena'	O	white	3 in.	double	late May-early Oct	60%	40-48 in.	36-48 in.
★★	'Saint Cecilia'	ER	pale buff apricot	3½ in.	double, cupped	mid Jun-late Sep	20-40%	33-78 in.	33-52 in.
★★★	'The Countryman'	ER	deep pink	2½-3 in.	loosely double, rosette	mid Jun-late Aug	60-80%	39-64 in.	36-54 in.
★★	'The Miller'	ER	rose pink	2½-3 in.	double, rosette	mid Jun-late Sep	20-40%	40-69 in.	30-65 in.
★★★★	'The Reeve'	ER	dark pink	3 in.	double, cupped	mid Jun-late Sep	40-60%	54-89 in.	29-72 in.
★	'The Squire'	ER	crimson	2½ in.	double, cupped	mid Jun-early Oct	20%	19-38 in.	21-38 in.
★	'Troilus'	ER	honey-buff	3-4 in.	double, cupped	mid Jun-early Oct	<20%	39-68 in.	20-28 in.
★★½	'Warwick Castle'	ER	pink	3½ in.	double, flat	mid Jun-mid Sep	20%	50-60 in.	50-70 in.
★★	'Wenlock'	ER	crimson	2½-3½ in.	double, cupped	mid Jun-late Sep	20-40%	41-57 in.	32-37 in.
★★	'Wife of Bath'	ER	rose pink	3-3½ in.	double, cupped	mid Jun-early Oct	0-40%	40-52 in.	22-30 in
★★★★	'William Baffin'	EX	dark pink	2¼-2¾ in.	semidouble	early Jun-early Sep	40-60%	72-82 in.	72-90 in.
★★½	'Windrush'	ER	lemon yellow	3-4 in.	single to semidouble	mid Jun-early Oct	20-40%	54-64 in.	41-50 in.
★★	'Winnipeg Parks'	PA	medium red	3 in.	double	early Jun-early Oct	20-40%	24-27 in.	30 in.
★★	'Wise Portia'	ER	purple	3½-4½ in.	double, cupped	mid Jun-late Sep	20%	22-41 in.	24-42 in.
★	'Yellow Button'	ER	light yellow	2½ in.	double, quartered	mid Jun-mid Sep	20%	24-33 in.	17-24 in.

Summary Ratings: ★★★★ Good, ★★★ Fair, ★★ Poor, ★ Very Poor

[1]Ratings based on bloom coverage at peak, habit quality, plant health, resistance to diseases and insects and winter injury; some data included in Table 2.

[2]Series: ER = English Rose; EX = Explorer; PA = Parkland; O = other.

[3]Peak bloom coverage was approximately 1 to 2 weeks after first flowers open; greatest percentage of flowers on plant at this time; produced intermittently later in season.

or insecticides to ensure that accurate disease and insect resistance information was collected. However, the roses in the open site were accidentally treated one time in 1994 with diazanon to control rose midge when the adjacent All-America Rose Selections (AARS) plants were sprayed. Leaves infected with black spot were removed from the ground each fall to help decrease the level of the disease in both test areas.

Observations

The evaluation projects were undertaken in order to study the attributes of three new series of shrub roses, not to make a direct comparison between the English and Canadian roses. Plants were evaluated on winter hardiness; disease and insect resistance; flower color, size, bloom period and coverage; plant size and form; and health. The English roses were observed from spring 1990 until fall 1995, and the Explorer/Parkland roses were evaluated from spring 1992 until fall 1995. A summary rating was given to each rose based on bloom coverage at peak, habit quality, plant health, resistance to diseases and insects and winter hardiness.

The English Roses

The term "English roses" was coined by David Austin to describe the shrub roses resulting from his breeding program. His roses combine the old flower forms with the colors and repeat flowering aspect of modern shrub roses. English roses, although not a recognized rose class, are commonly accepted as a distinct type of modern shrub rose.

The following 25 roses were located in Pullman Evaluation Garden: 'Belle Story', 'Bredon', 'Cymbeline', 'Dapple Dawn', 'English Elegance', 'Fair Bianca', 'Francine Austin', 'Gertrude Jekyll', 'Graham Thomas', 'Heritage', 'Mary Rose', 'Othello', 'Perdita', 'Pretty Jessica', 'Saint Cecilia', 'The Countryman', 'The Miller', 'The Reeve', 'The Squire', 'Troilus', 'Warwick Castle', 'Wife of Bath', 'Windrush', 'Wise Portia' and 'Yellow Button'. Six additional English roses were evaluated in the exposed site: 'Constance Spry', 'Emanuel', 'Lucetta', 'Mary Webb', 'Red Coat' and 'Wenlock'.

Flowers are undeniably the reason gardeners spend their time and energy growing rose plants. And the blossoms of the English roses were beautiful beyond expectations. The colors and forms of these blossoms were exquisite gems during the summer months. Flowers were single, semidouble or double, cupped, quartered or rosette in shape. Colors were predominately pastel shades, but were also deep pink, scarlet, purple, rich yellow and white. Bloom quality was always good, but some of the more beautiful blossoms were found on 'Constance Spry', 'Graham Thomas', 'Heritage', 'Lucetta', 'Mary Rose', 'Pretty Jessica', 'Red Coat', 'Saint Cecilia' and 'The Reeve'. No cultivars received low ratings for flower quality, although the flowers of 'Mary Webb' persisted when brown, which detracted from the display.

Flower production in general was rarely high, with peak bloom coverage commonly at 20% to 40%, although 'Constance Spry' was in the range of 60% to 100%, and 'Lucetta', 'Mary Rose' and 'The Countryman' all ranged from 60% to 80%. A number of the cultivars had low flower coverage of 20% or less, including 'Dapple Dawn', 'Fair Bianca', 'Gertrude Jekyll', 'The Squire', 'Troilus', 'Wise Portia' and 'Yellow Button'. Peak bloom occurred one to two weeks after the first flowers opened. All cultivars exhibited recurrent flowering except 'Constance Spry', which is a one-time bloomer. Sporadic rebloom was commonly noted into late September and October.

The fragrance of the English roses was sometimes light, but most often strongly scented. Some of the most fragrant cultivars were 'Constance Spry', 'Emanuel', 'Graham Thomas', 'Heritage' and 'Windrush'. 'Red Coat' was notable in having little-to-no scent. Hips were not commonly produced on the English roses, but were noted on a number of the cultivars, including 'Constance Spry', 'Dapple Dawn', 'Lucetta', 'Mary Rose', Red Coat', 'The Reeve', 'Wenlock' and 'Wise Portia'. Fruit was most bountiful on 'Constance Spry and 'Lucetta', but much less so on the others because of their lower flower production.

Habits of the English roses also varied greatly among cultivars. Some of the roses with long canes had gangly forms while others with shorter canes had the habit of hybrid tea roses, and yet a few others had true shrubby forms. Plant habits were allowed to develop naturally, with minimal pruning to enhance or improve forms. Plants were not routinely pruned each spring, except to remove winter dieback and dead wood. Roses that displayed full, robust, shrubby habits were 'Constance Spry', 'Graham Thomas', 'Heritage', 'Lucetta', 'Mary Rose' and 'The Reeve'. Habits were affected by a combination of winter dieback, rabbit and/or deer damage, disease and insect damage and in certain cases, improper siting. Among the weakest plant habits were 'Belle Story', 'Cymbeline', 'Fair Bianca', 'Francine Austin', 'Gertrude Jekyll', 'Othello', 'Perdita', 'The Countryman', 'Troilus', 'Wise Portia' and 'Yellow Button'. These roses suffered serious winter injury, severe defoliation from black spot and rabbit and deer browsing in most years. Competition from shade and/or other plants contributed to the poor health and inferior habits of one or more plants of 'Belle Story', 'Cymbeline', 'Dapple Dawn', 'Emanuel', 'Saint Cecilia', 'Troilus' and 'Wife of Bath'.

Diseases and pests affecting the English roses included black spot, powdery mildew, rose midges, Japanese beetles, deer and rabbits (Table 2). Black spot *(Diplocarpon rosae)* was the most prevalent disease and in numerous cases was quite devastating to the appearance and health of the roses. Black spot is characterized by circular, black lesions on the leaves, which turn yellow before dropping. Severe defoliation for several years eventually weakens the plants. Environmental conditions that encourage black spot are wet leaves, high humidity and temperatures above 70 degrees Fahrenheit for several days (Sinclair, Lyon and Johnson 1993). Improving air circulation, removing fallen leaves and eliminating close planting of susceptible varieties are cultural practices that will decrease the incidence of black spot. Fungicides and mixtures containing horticultural oils or baking soda can also be used to prevent or control black spot.

The onset of black spot in Pullman Evaluation Garden varied each year, sometimes showing up as early as mid-June but more commonly arising in late July and early August. The degree of infection progressively worsened throughout the season, often resulting in total leaf drop. All plants were affected in one or more years during the evaluation period, with most plants infected in all years (Table 2). Degree of infection and leaf drop were frequently at 50% per plant, but 'Cymbeline', 'Lucetta' and 'The Reeve' were the most resistant with less than 25% of their leaves infected with black spot. The most seriously infected cultivars were 'Bredon', 'Emanuel', 'English Elegance', 'Fair Bianca' and 'Perdita', with 75% to 100% defoliation each year. With the exception of 'Lucetta' and 'Emanuel', the cultivars noted above were grown in Pullman Evaluation Garden, where diminished air movement was a contributing cause of the high level of black spot. But black spot levels were not notably less severe in the open, exposed site. Powdery mildew was an infrequent and a non-serious disease. Only four roses were infected: 'Belle Story', 'The Squire' and 'Wise Portia' in 1990, and 'Mary Rose' in 1994.

The most significant external influence on flower production was rose midge *(Dasineura rhodophaga)* damage. The larvae of rose midge feed on shoots and flower buds, resulting in the death of the injured plant tissue. Flowering can be greatly reduced when the rose midge adult emerges from the soil early in the spring to lay its eggs. However, a cool spring can delay the emergence of the adult until after the rose has produced its first flowers. Many generations of rose midge can occur within a year (Johnson and Lyon 1991). Rose midge damage was first observed in the evaluation plots in 1993 and subsequently in 1994. Flower production on affected plants was reduced, and midge damage was most severe in 1994. Damage was first noted in late May to early June of 1993, but due to the cold winter of 1993-94, damage was not observed until late June to mid-July of 1994. Six roses had significant reductions in flower production during 1993 and/or 1994 because of rose midge damage. 'Lucetta', 'The Reeve' and 'Windrush' had decreases of 40% to 60% in flower coverage in both years whereas 'Mary Webb', 'Othello' and 'Wife of Bath' had 30% to 40% decreases in 1993 or 1994.

Japanese beetles were first observed on test roses in 1993 but were not present in significant numbers until 1995.[1] Damage to flower buds, flowers and leaves was minor, although at times beetle populations appeared significant. Minor to moderately serious damage from deer and rabbits was also noted periodically. Deer browsing was infrequent, but loss of flowers was noted on 'Belle Story', 'Bredon', 'Graham Thomas', 'Othello', 'Perdita', 'Saint Cecilia' and 'The Reeve'. Rabbit damage occurred in both spring and summer, and the loss of canes was noted on 'Belle Story', 'Cymbeline', 'Dapple Dawn', 'Francine Austin', 'Gertrude Jekyll', 'Heritage', 'Mary Rose', 'Perdita', 'Pretty Jessica', 'The Countryman', 'The Miller', 'The Reeve', 'Troilus', 'Warwick Castle' and 'Wenlock'.

There were no complete losses of any cultivar, although there were incidences of individual plants being killed over winter. One or two plants of 'Belle Story', 'English Elegance' and 'Fair Bianca' were killed, and one plant of 'Windrush' never fully recovered to good health after a near loss the winter of 1993-94. That winter was the most severe of the evaluation period with eight consecutive days of subzero temperatures in January of 1994. The highest daytime temperatures ranged from -1 to -12 degrees Fahrenheit, with nightly lows to -22 degrees. All English roses died back to the crowns or to the snow line, which was about 6 inches above ground level. In other years, injury ranged from tip damage to one-year wood to full cane loss. Typical winter injury patterns are noted in Table 2.

The Explorer and Parkland Roses

The roses from Canada contrasted sharply with the English roses: flower colors were more saturated, habits were shrubbier and winter injury was less common or less severe. The Explorer/Parkland roses are discussed together and compared to each other although they originate from different breeding

Table 2: Disease Resistance and Insect and Winter Injury of Shrub Roses

Rose	Black Spot Resistance	Powdery Mildew Resistance	Rose Midge Injury[1]	Japanese Beetle Injury	Winter Injury
'Adelaide Hoodless'	no	yes	some	some	some
'Assiniboine'	no	yes	some	some	no
'Belle Story'	no	some	some	no	yes
'Bredon'	no	yes	some	no	yes
'Champlain'	no	some	yes	some	yes
'Constance Spry'	no	yes	some	some	some
'Cuthbert Grant'	no	yes	some	some	some
'Cymbeline'	some	yes	some	some	yes
'Dapple Dawn'	no	yes	some	no	yes
'David Thompson'	some	yes	no	some	yes
'Emanuel'	no	yes	some	no	yes
'English Elegance'	no	yes	some	some	yes
'Fair Bianca'	no	yes	no	no	yes
'Francine Austin'	no	yes	some	no	yes
'Gertrude Jekyll'	no	yes	some	no	some
'Graham Thomas'	no	yes	some	some	yes
'Henry Hudson'	some	yes	no	some	yes
'Henry Kelsey'	no	yes	yes	some	some
'Heritage'	no	yes	some	some	some
'Jens Munk'	yes	yes	no	some	some
'John Davis'	no	no	yes	no	some
'John Franklin'	no	yes	yes	no	yes
'Lucetta'	some	yes	some	some	yes
'Martin Frobisher'	some	yes	some	some	no
'Mary Rose'	no	some	some	no	some
'Mary Webb'	no	yes	some	some	yes
'Morden Amorette'	no	yes	yes	some	yes
'Morden Blush'	no	yes	some	some	some
'Morden Cardinette'	no	yes	some	no	yes
'Morden Centennial'	no	yes	no	no	some
'Morden Fireglow'	no	yes	some	some	some
'Morden Ruby'	no	yes	no	no	yes
'Othello'	no	yes	some	no	yes
'Perdita'	no	yes	some	no	yes
'Pretty Jessica'	no	yes	some	no	yes
'Red Coat'	no	yes	some	some	yes
Rosa rugosa 'Albo-Plena'	yes	yes	no	some	some
'Saint Cecilia'	no	yes	some	no	yes
'The Countryman'	no	yes	some	no	some
'The Miller'	no	yes	some	no	some
'The Reeve'	some	yes	some	some	some
'The Squire'	no	some	some	no	yes
'Troilus'	no	yes	some	no	yes
'Warwick Castle'	no	yes	some	no	some
'Wenlock'	no	yes	some	some	some
'Wife of Bath'	no	yes	some	no	yes
'William Baffin'	some	yes	yes	some	some
'Windrush'	no	yes	some	some	some
'Winnipeg Parks'	no	yes	some	no	some
'Wise Portia'	no	some	some	no	yes
'Yellow Button'	no	yes	some	no	yes

Yes—resistance to diseases; moderate to severe insect or winter injury noted in most years.
No—susceptibility to diseases; no insect or winter injury noted in most years.
Some—infrequent minor damage from diseases and insects; minor winter injury noted (tip injury).
[1]For 1993 and 1994 only.

[1]In 1993 only 94 beetles were removed from pheromone traps set on the grounds of the Chicago Botanic Garden. In 1995, 9,349 beetles were trapped.

programs. All roses were evaluated in the open, exposed test site.

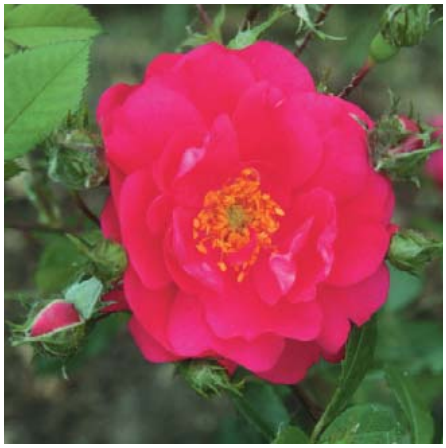
Nineteen shrub roses from Agriculture Canada were evaluated: 'Adelaide Hoodless', 'Assiniboine', 'Champlain', 'Cuthbert Grant', 'David Thompson', 'Henry Hudson', 'Henry Kelsey', 'Jens Munk', 'John Davis', 'John Franklin', 'Martin Frobisher', 'Morden Amorette', 'Morden Blush', 'Morden Cardinette', 'Morden Centennial', 'Morden Fireglow', 'Morden Ruby', 'William Baffin' and 'Winnipeg Parks'. An additional rose, *Rosa rugosa* 'Albo-Plena', was also grown with the Canadian roses and, although it was not part of these series, it will be discussed and compared here too.

Saturated colors typified the flowers of the Explorer/Parkland roses. Colors of rich scarlet, ruby and red were joined by white and shades of pink. Forms were single to semi-double to fully double, cupped, quartered or flattened. 'John Davis' and 'Morden Blush' had blossoms in the form and character of old-fashioned roses, much like the English roses. Flower quality was usually good, but a number of cultivars had diminished floral displays because of the balling of flower buds.[2] Balling was common on 'Cuthbert Grant', 'John Davis', 'Morden Cardinette' and 'Morden Ruby'. These dried brown buds often persisted over winter on 'Morden Ruby'. Spent flowers that hung brown (not balling) were occasionally a problem on 'David Thompson', 'Henry Hudson', 'Jens Munk', 'John Davis', 'Martin Frobisher', 'Morden Amorette', 'Morden Blush', 'Morden Centennial' and *Rosa rugosa* 'Albo-Plena'. The ornamental quality of a blossom typically lasted four to five days. Flowers of 'Morden Cardinette' had an average longevity of seven days, while blossoms of *Rosa rugosa* 'Albo-Plena' turned brown within three days. Many of the Parkland roses had little or no fragrance, while most of the Explorer series were pleasantly scented. The Parkland rose 'Cuthbert Grant' was an exception with its strongly fragrant flowers.

Flower production was typically high with peak bloom coverage often in the 60% to 80% range. 'John Davis' often had up to 100% coverage during the peak period. Only 'Henry Hudson', 'Morden Amorette', 'Morden Cardinette', 'Morden Fireglow' and 'Winnipeg Parks' had less than 40% flower coverage. Each year flowering began in early to mid-June. Peak bloom was one to two weeks after the first flowers opened. All cultivars exhibited recurrent bloom with most repeating into

Tom Clark

'Constance Spry' is a one-time blooming English rose.



Tom Clark

One of the best Parkland roses is 'Adelaide Hoodless'.

September or early October.

Unlike the English roses, the Canadian roses commonly produced hips. The fruit display was often good into the winter months, with some hips remaining on the plants until spring. The following roses produced generous amounts of ornamental fruit: 'Adelaide Hoodless' (orange, ½ inch), 'Champlain' (orange, ⅜ inch), 'Henry Kelsey' (orange, ½ inch), 'Jens Munk' (rosy red, ¾ inch), 'Morden Centennial' (red-orange, 1 inch) and 'William Baffin' (orange, ½ inch).

The Explorer series can be placed in three general categories: *Rosa rugosa* hybrids, climbers and shrubs. The *Rosa rugosa* types include 'David Thompson', 'Henry Hudson', 'Jens Munk' and 'Martin Frobisher'. The foliage of these plants was highly resistant to black spot, a trait common to *R. rugosa*, but alkaline-induced chlorosis was always a problem. Chlorosis, which was observed in each year, was noted as moderate on 'Henry Hudson' and 'Jens Munk' and severe on 'David Thompson' and 'Martin Frobisher'. *Rosa rugosa* 'Albo-Plena' also exhibited minor chlorosis most years. Habits were allowed to develop naturally, with only minimal pruning to improve forms. Plants of 'Jens Munk' were tall, robust and full, as were plants of 'Martin Frobisher', although it had a suckering nature. 'David Thompson' and 'Henry Hudson' were both smaller plants with open habits.

The climbers included 'Henry Kelsey', 'John Davis' and 'William Baffin', which were three of the best roses in the trial. Left to grow naturally, these robust plants had arched stems up to 7 feet long. The arching canes of 'Henry Kelsey' were at times a bit sprawling, and 'William Baffin' was also a suckering shrub. 'Champlain' and 'John Franklin' were both shrub types with full, bushy habits.

The habits of the Parkland roses varied from low-growing, compact shrubs to upright, vigorous plants. Roses with good forms were 'Adelaide Hoodless', 'Assiniboine', 'Morden Amorette' and 'Morden Blush'. Poor health and habit were the main reasons for the lower final ratings of about half of the Parkland roses. Roses affected by repeated severe defoliation from black spot and successive years of heavy winter injury included 'Cuthbert Grant', 'Morden Cardinette', 'Morden Centennial', 'Morden Fireglow' and 'Morden Ruby'. 'Morden Centennial' was the only Parkland rose with severe chlorosis.

Diseases and pests affecting the Explorer/Parkland roses included black spot, powdery mildew, rose midges and Japanese beetles (Table 2). As with the English roses, black spot was the most serious disease observed. Most plants were infected in one or more years, with 25% to 50% of leaves with black spot damage. The *Rosa rugosa* types showed the best resistance, with no injury noted on 'Jens Munk' and *Rosa rugosa* 'Albo-Plena' and only minor injury on 'David Thompson', 'Henry Hudson' and 'Martin Frobisher'. 'William Baffin' was also rarely injured by black spot. The least resistant roses, with more than 75% defoliation, were 'Cuthbert Grant', 'John Franklin', 'Morden Cardinette', 'Morden Centennial', 'Morden Fireglow' and 'Morden Ruby'. Powdery mildew was also an uncommon disease among these roses. Only plants of 'Champlain' and 'John Davis' were observed with powdery mildew.

Rose midge damage was observed on most plants in either 1993 or 1994. Six cultivars, 'Champlain', 'Henry Kelsey', 'John

[2]Prolonged rain during the late bud stage causes the outer petals to rot and congeal, thus preventing the flower from opening. If strong sunshine follows the rain, the petals can become crispy and ultimately kill the bud. The rotted bud can fall off or remain on the plant, creating an unsightly display. Balling is most pronounced with multipetaled, double varieties. There is no control or remedy for balling (Beales 1985).


Tom Clark

'Cymbeline' is rated highly for black spot resistance.


Mary E. Nicholson

'Graham Thomas' has uniquely deep yellow flowers.


Tom Clark

The blossoms of 'Red Coat' are among the most beautiful of all.

Davis', 'John Franklin', 'Morden Amorette' and 'William Baffin', had rose midge damage in both years. The accidental application of diazinon in 1994 did not decrease or stop rose midge damage. In fact, in addition to the roses that were damaged in both years, six other cultivars were damaged in 1994 only, including 'Adelaide Hoodless', 'Assiniboine', 'Cuthbert Grant', 'Morden Blush', 'Morden Fireglow' and 'Winnipeg Parks'. Only 'Morden Cardinette' had damage noted in 1993, but not in 1994. The *Rosa rugosa* types were highly resistant to rose midges, and no damage was noted on 'David Thompson', 'Henry Hudson', 'Jens Munk' and *R. rugosa* 'Albo-Plena', although 'Martin Frobisher' did have some damage in 1993. 'Morden Centennial' and 'Morden Ruby' were the only non-rugosa types that were uninjured.

Damage to flowers and leaves from Japanese beetles was rarely more than minor, and did not usually decrease the ornamental display. Foliage and flowers of 'Cuthbert Grant' were severely damaged by beetles in 1995. The following plants were never observed with beetles present or with feeding damage: 'John Davis', 'John Franklin', 'Morden Cardinette', 'Morden Centennial', 'Morden Ruby' and 'Winnipeg Parks'.

Winter hardiness was not a primary consideration with the Explorer/Parkland roses. Tip dieback was the most common injury observed each year. Roses with damage to one-year wood and the oldest canes in some years were 'Champlain', 'David Thompson', 'Henry Hudson', 'John Franklin', 'Morden Cardinette' and 'Morden Ruby'. In the severe winter of 1993-94, about half of the roses died back to the snow line. The roses that were not killed to the snow line in 1994 were 'Assiniboine', 'David Thompson', 'Henry Hudson', 'Jens Munk', 'John Davis', 'Martin Frobisher', 'Morden Blush', 'Morden Fireglow', *Rosa rugosa* 'Albo-Plena' and 'Winnipeg Parks'. Two plants of 'John Franklin' were killed during the 1993-94 winter season, and all plants of 'Morden Ruby' died after three seasons. 'Assiniboine' and 'Martin Frobisher' were never injured during winter.

Summary

So, which shrub roses are best suited for Midwestern gardens? When considering winter hardiness alone, just about every rose in this evaluation project is suitable. Winter losses were insignificant since only nine plants out of 153 were killed over six years. The English roses proved to be hardy beyond our expectations. All of the English roses died to the ground during the coldest weather of 1994, but half of the hardy shrub roses from Canada also died to the ground that winter.

Winter hardiness alone does not make the best shrub rose. Flowers, habit and disease and insect resistance must also be taken into account. The charming allure of the English roses was undeniable, but the often severe susceptibility to black spot lessened the ornamental quality and health of these plants. The winter hardy roses from Canada not only had attractive blossoms but in more cases exhibited greater resistance to black spot.

In the end, there are only a few shrub roses from this evaluation project that can be wholly recommended for Midwestern gardens. The very best of the evaluation group included three English roses: 'Constance Spry', 'Lucetta' and 'The Reeve'; as well as seven Canadian roses: 'Assiniboine', 'Champlain', 'Henry Kelsey', 'Jens Munk', 'John Davis' and 'William Baffin'. *Rosa rugosa* 'Albo-Plena' also did well. A good number of plants that received fair ratings might give better performances with regular pruning to improve habits and with annual fertilizer and fungicide applications to increase flower production and plant health.

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