

Revised International Registry of Cultivars and Germplasm of the Genus *Amelanchier*

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ABSTRACT. An updated International Registry of the genus *Amelanchier*, consisting of 32 ornamental cultivars and 25 cultivars grown for fruit, was created on the basis of published information, unpublished research data, and observations made by originators or their successors. Additionally, in 1997 a survey of the location and availability of *Amelanchier* germplasm was sent to 60 botanical gardens and arboreta across Canada and throughout the central and northern United States. Thirty-three replies were received of which 31 of the gardens or arboreta had *Amelanchier* germplasm. The collection of *Amelanchier* at the University of Saskatchewan was included in the survey results. The survey indicated that various *Amelanchier* species and cultivars are widely distributed. A total of 25 different species, subspecies or varieties, 8 different hybrids, and 42 different cultivars were reported as being held in the collections surveyed. This study comprises the most recent, comprehensive and quantitatively characterised list of *Amelanchier* cultivars to date. This information will be beneficial to the nursery industry in terms of

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cultivar characterisation, the exchange of plant material, and the development and distribution of new *Amelanchier* cultivars. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <getinfo@haworthpressinc.com> Website: <<http://www.HaworthPress.com>> © 2003 by The Haworth Press, Inc. All rights reserved.]

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INTRODUCTION

The genus *Amelanchier* (Rosaceae, Pomoideae) is comprised of about two dozen species of shrubs and small trees distributed in North America, Europe, northern Africa and Asia (Jones, 1946; Robertson, 1974). The species of *Amelanchier* are closely related, hybridize freely and are often difficult to distinguish (Hilton, 1988). There is no agreement among taxonomists as to the number of *Amelanchier* species (McDaniel, 1974); most recognize 20 to 30 species with the majority of these being native to North America (Robertson, 1974). Much of the taxonomic confusion is due to the extreme variability in foliage characteristics within any given species; leaf shape and size can differ significantly, depending on stage of development and habitat in which the plant grows. The most useful distinguishing taxonomic characters are associated with the form and structure of the flowers and fruit.

The origin of the generic name *Amelanchier* is derived from the French Provençal name, 'amelanche', for the European species, *Amelanchier ovalis*; amelanche is a derivation of the Gauloise word for small apple (St-Pierre, 1997a; Weaver, 1974). The North American species of *Amelanchier* are variously called by the common names serviceberry, saskatoon, sarviceberry, sarvis, maycherry, Juneberry, Junebush, shadblow, shadbush, shadberry, shadblossom, shadwood, sugar pear, Indian pear, grape-pear, lancewood, boxwood, Canadian medlar, bilberry, snowy mespilus and poirier or petites poires (Jones, 1946; St-Pierre, 1997a). The French Canadians referred to *Amelanchier* fruit as 'poires' because of the pear-shaped fruit of some species (St-Pierre, 1997a). The English translation, pear, was used by British and American traders. The common name 'serviceberry' derives from the similarity of the fruit to the service or sarvis, a forgotten English fruit (possibly *Sorbus torminalis*), whereas shadbush is associated with eastern species that

bloom when the shad begin to return to their spring spawning grounds (Jones, 1946).

The fruit of all *Amelanchier* species are edible (Darrow, 1975). However, the species *A. alnifolia*, *A. spicata*, *A. oblongifolia*, and *A. canadensis* are the most suitable for use as fruit (Darrow, 1975). Of these, *A. alnifolia* is presently being researched and developed into a commercial fruit crop on the Canadian prairies. Some 25 cultivars of this species are used for fruit and have been named.

Plants of all *Amelanchier* have ornamental value throughout the year. Their smooth, gray bark and slender branches are attractive in winter (Cool, 1994). Showy white blossoms appear in early spring either before or during the emergence of the leaves (Miller and Stushnoff, 1971). The berry-like fruit are red turning to purple-black when they ripen in mid-summer (Cool, 1994). Autumn foliage can become a striking yellow, orange and red (Cubberley and Hasselkus, 1987). The species *A. laevis* and *A. ×grandiflora* are the most highly prized of the *Amelanchier* as ornamentals (Darrow, 1975).

An up-to-date International Registry of the genus *Amelanchier*, including both ornamental cultivars and cultivars grown for fruit, is not available. The most recent Registry of both types of cultivars is found in Hilton (1982, 1984). The most recent registry of cultivars grown for fruit is on the website of the University of Saskatchewan's Native Fruit Development Program, <<http://www.ag.usask.ca/departments/plsc/nfdp/index.html>>.

The objective of this study was to create a revised International Registry of the cultivars of the genus *Amelanchier* based on available information, and to report on a survey of botanical gardens and arboreta to determine the availability and locations of existing germplasm. This information will be useful for the exchange of plant material, and for the development and distribution of new cultivars.

MATERIALS AND METHODS

Survey of Amelanchier Germplasm. In 1997, 60 botanical gardens and arboreta across Canada and throughout the central and northern United States were asked to report on their collections of *Amelanchier*. Also included within the survey results was the collection of *Amelanchier* at the University of Saskatchewan, Department of Plant Sciences, Saskatoon, SK. The information obtained from the survey was summarized according to the different species, subspecies or varieties re-

ported, and according to the findings of each botanical garden or arboreta that replied to the survey.

Natural hybridization of *Amelanchier* species has led to difficulty with species identification (Weaver, 1974). There is considerable disagreement amongst taxonomists as to whether certain groups should be considered separate species, hybrids, subspecies, or a variety of a species (Miller and Stushnoff, 1971). The current study made no attempt to follow one authority over another, but rather presented the scientific name (species, subspecies or variety) and the designations of a more recent taxonomic authority, that of Kartesz (1994). For species or varieties not included in the classification of Kartesz (1994), other sources in the literature have been drawn from. Recent genetic fingerprinting has established a better defined relationship among some species, subspecies, and varieties of *Amelanchier* (Weir, 1996). Based on these findings, some species groupings according to Weir (1996) were also included. Scientific names of the cultivars presented in the survey results and in the cultivar descriptions were selected from the literature. Any inconsistencies within the literature were assessed according to the author's experience and/or the most common usage. All available information both anecdotal and scientific was compiled.

Cultivar Descriptions. The literature was searched for information on the various cultivars of *Amelanchier*. Cultivars were grouped according to their primary use, either as ornamentals or for fruit production. All *Amelanchiers* have edible fruit and ornamental value; however, some cultivars are more suited for fruit production (generally those of *A. alnifolia*) and have been selected and/or sold for this purpose. Thus, these cultivars were grouped separately as those grown for fruit. All other cultivars were listed as ornamental. Cultivar descriptions were based on limited published data, unpublished research data, and comments by originators or their successors. Hardiness zones are United States Department of Agriculture (USDA) zones.

A number of the cultivars grown for fruit have been recently described (St-Pierre, 1997b). However, new information on these cultivars has been added to these descriptions based on cultivar evaluation trials done at the University of Saskatchewan. These additions included updated information on suckering, fruit yield, resistance to *Entomosporium* leaf and berry spot, and fruit diameter, pH, soluble solids content, and seediness.

Fourteen saskatoon cultivars were planted in a randomized complete block design of three replicates at both the University of Saskatchewan in Saskatoon, SK and at a grower-managed site just outside of Saskatoon at Moonlake. The cultivars included 'Bluff', 'Buffalo', 'Forestburg',

'Honeywood', 'Martin', 'Nelson', 'Northline', 'Parkhill', 'Elizabeth' (at Saskatoon only), 'Pearson II', 'JB30', 'Smoky', 'Success', and 'Thiessen'. These cultivars were planted in 1991 as one-year old clones. Due to difficulties in propagation, 'JB30' and 'Forestburg' (Moonlake only) were planted in 1992, and 'Nelson' in 1993. These sites were maintained using standard recommended management practices (St-Pierre, 1997a).

Cultivars were grouped as having low, moderate or high suckering according to the cumulative number of suckers produced from 1993 to 1998 at both sites. These data were used to adjust previous observations. Cultivar fruit yield per plant was averaged over the two sites and for the years 1997 to 2000 (their 6th to 9th growing seasons). An overall mean, and individual cultivar means, were calculated to establish five categories of productivity (in kg/plant) as follows: (a) poor: < 1.3; (b) low: 1.3 to 2.29; (c) moderate: 2.3 to 3.29; (d) good: 3.3 to 4.29; (e) high: > 4.29. If cultivars had average yields that were close to between two ratings, they were given a range in rating. The information on fruit yield is included in the cultivar descriptions as productivity at Saskatoon, SK. Susceptibility to *Entomosporium* leaf and berry spot was determined by Ronald (2001) for 13 saskatoon cultivars grown at the two replicated sites previously mentioned, at another replicated trial within Saskatchewan and from two sites within Alberta. These cultivars included 'Bluff', 'Buffalo', 'Forestburg', 'Honeywood', 'Martin', 'Nelson', 'Northline', 'Parkhill', 'Pearson II', 'Pembina', 'Smoky', 'Success', and 'Thiessen'. Cultivar susceptibility to *Entomosporium* leaf and berry spot was based on hierarchical cluster analysis of data for the incidence and severity of leaf and fruit sporulation following natural infection by *Entomosporium mespili* (Ronald, 2001). Data from 1997 to 2000 fruit harvests from the cultivar trials at Saskatoon and Moonlake were used to calculate mean fruit diameter. Fruit pH and soluble solids for the 14 cultivars were averaged from the 1997 and 1998 harvests from the two sites. Seediness was determined by extracting seed from fruit of each cultivar from the field trials at Saskatoon and Moonlake in 1999 and 2000. Seediness was expressed as the percentage of seed weight to fruit weight. Seediness based on fruit weight may vary from site to site and year to year according to fruit size.

RESULTS AND DISCUSSION

Survey of Amelanchier Germplasm. The number of different species, subspecies and varieties of *Amelanchier* found from the survey are

listed in Table 1. The names of the arboreta or botanical gardens that responded to the survey as well as the number of different species, subspecies or varieties of *Amelanchier* that they contain are shown in Table 2. Of the 60 arboreta and botanical gardens that were sent the survey, 33 replied and of these, 31 reported having *Amelanchier* species. Many smaller arboreta and botanical gardens also exist that were not included in the survey, and, of those written to, only 55% replied. Although the survey was incomplete, it provides a partial listing of the availability and location of *Amelanchier* germplasm.

A total of 25 different species, subspecies or varieties, 7 different hybrids and 36 cultivars of *Amelanchier* were reported by the botanical gardens and arboreta that were surveyed, together representing more than 1,584 plants of this genus. Additionally, the collection at the University of Saskatchewan is comprised of 3,044 plants representing 7 different species or varieties, 3 different hybrids, and 15 cultivars. The results of the survey combined with the University of Saskatchewan collection represents a total of 4,628 plants of 25 different species, subspecies or varieties, 8 different hybrids, and 42 cultivars of *Amelanchier*.

The incorrect labelling of species was evident in the responses of the *Amelanchier* survey. In a number of instances the cultivar name did not correspond with the correct species name. In such situations, the cultivar name was taken to be correct as it is more common for plants to be marketed under an incorrect species name (which is known to be a problem particularly among *Amelanchier*) rather than an incorrect cultivar name. Much confusion has existed in the past in regards to the correct identification of a number of *Amelanchier* species. *Amelanchier* species can hybridize freely in nature creating hybrid populations that are difficult to identify (Cubberley and Hasselkus, 1987; Hilton, 1988). Disagreement exists among taxonomists as to which species are true species, which are hybrids and which are varieties of a species (Miller and Stushnoff, 1971). Many species have been confused by the nursery profession in the past. *A. arborea*, *A. canadensis*, *A. laevis* and *A. ×grandiflora* are difficult to accurately identify unless developing leaves and flowers are present (Dirr, 1990). The nursery industry has had a history of identifying all four of these species as *A. canadensis* (Dirr, 1990). Recent genetic fingerprinting by Weir (1996) suggested a greater similarity among species of *Amelanchier* than what was previously thought. Weir (1996) identified three main groups among the North American species. These included the *canadensis* complex (*A. canadensis*, *A. laevis*, *A. arborea*, and *A. intermedia*), the *alnifolia* complex (*A. alnifolia*, *A. florida*, *A. cusickii*, *A. oxyodon*, and *A. gaspensis*), and the

TABLE 1. The different species and cultivars of *Amelanchier* reported at 32 locations within Canada and the central and northern United States.

Species, subspecies, or variety	Cultivar ^x	Species according to Kartesz (1994) unless referenced otherwise	Species according to Weir (1996)	No. of Arboreta	No. of Plants
<i>alnifolia</i>	'Altaglow'	<i>alnifolia</i>	<i>alnifolia</i> var. <i>alnifolia</i>	2	4
	'Bluff'			1	15
	'Buffalo'			1	15
	'Beaverlodge'			1	1
	'Elizabeth'			1	15
	'Forestburg'			3	20
	'Honeywood'			2	143
	'JB30'			1	15
	'Martin'			1	15
	'Nelson'			2	22
	'Northline'			4	25
	'Pearson II'			1	15
	'Pembina'			4	550
	'Smoky'			7	306
'Thiessen'	2	22			
'Thiessen RS'	1	1			
<i>alnifolia</i>		<i>alnifolia</i> var. <i>alnifolia</i>	<i>alnifolia</i> var. <i>alnifolia</i>	17	1507
<i>alnifolia</i> hybrid				1	104
<i>alnifolia</i> × <i>stolonifera</i>	'Parkhill'	<i>alnifolia</i> × <i>stolonifera</i> (Weir, 1996) ^y	<i>alnifolia</i> × <i>stolonifera</i>	4	20
	'Regent'	<i>alnifolia</i> × <i>stolonifera</i> (Weir, 1996) ^y	<i>alnifolia</i> × <i>stolonifera</i>	8	20
	'Success'	<i>alnifolia</i> × <i>stolonifera</i> (Weir, 1996) ^y	<i>alnifolia</i> × <i>stolonifera</i>	5	23
<i>alnifolia</i> × <i>stolonifera</i>				1	246
<i>arborea</i>		<i>arborea</i>	<i>canadensis</i> var. <i>arborea</i>	18	> 239
<i>arborea</i> hybrid				1	9
<i>asiatica</i>		<i>asiatica</i> (Dirr, 1990)	<i>asiatica</i>	6	24

TABLE 1 (continued)

Species, subspecies, or variety	Cultivar ^x	Species according to Kartesz (1994) unless referenced otherwise	Species according to Weir (1996)	No. of Arboreta	No. of Plants
<i>bartramiana</i>		<i>bartramiana</i>	<i>bartramiana</i>	8	18
<i>bartramiana</i> hybrid				1	2
<i>canadensis</i>	'Nana'	<i>canadensis</i>	<i>canadensis</i> var. <i>canadensis</i>	1	3
	'Prince William'			7	27
	'Rainbow Pillar'			4	12
	'Silver Fountain'			1	2
	'White Pillar'			2	3
<i>canadensis</i>		<i>canadensis</i>	<i>canadensis</i> var. <i>canadensis</i>	22	> 260
<i>cusickii</i>		<i>alnifolia</i> var. <i>cusickii</i>	<i>alnifolia</i> var. <i>cusickii</i>	4	8
<i>fernaldii</i>		<i>fernaldii</i>		2	24
<i>florida</i>		<i>alnifolia</i> var. <i>semiintegrifolia</i>	<i>alnifolia</i> var. <i>florida</i>	4	4
<i>gaspensis</i>		<i>sanguinea</i> var. <i>gaspensis</i>	<i>alnifolia</i> var. <i>gaspensis</i>	1	2
<i>humilis</i>		<i>humilis</i>		2	16
<i>interior</i>		<i>interior</i>		3	30
<i>intermedia</i>		× <i>intermedia</i> (<i>arborea</i> × <i>canadensis</i>)	<i>canadensis</i> var. <i>intermedia</i>	5	41
<i>intermedia</i> × <i>laevis</i>				1	1
<i>laevis</i>	'Cumulus'	<i>laevis</i>	<i>canadensis</i> var. <i>laevis</i>	7	21
	'Flambeau'			2	3
	'Lustre'			2	2
	'Majestic'			5	11
	'Prince Charles'			3	7
	'R.J. Hilton'			2	5
<i>laevis</i>		<i>laevis</i>	<i>canadensis</i> var. <i>laevis</i>	20	> 184
<i>laevis</i> × <i>bartramiana</i>		× <i>neglecta</i>		1	1
<i>lucida</i>		<i>canadensis</i>		1	1
<i>nantucketensis</i>		<i>nantucketensis</i>		1	12

<i>oblongifolia</i>		<i>arborea</i> var. <i>arborea</i>		1	5
<i>ovalis</i>		<i>ovalis</i> (Weaver, 1974)		10	67
<i>pumila</i>		<i>pumila</i>		4	5
<i>rotundifolia</i>		<i>ovalis</i> (Lancaster, 1996)		2	4
<i>sanguinea</i>		<i>sanguinea</i> var. <i>sanguinea</i>	<i>spicata</i> var. <i>sanguinea</i>	9	> 39
<i>sanguinea</i> × <i>laevis</i>				1	5
<i>semiintegrifolia</i>		<i>alnifolia</i> var. <i>semiintegrifolia</i>	<i>alnifolia</i> var. <i>oxyodon</i> (<i>semiintegrifolia</i>)	2	2
<i>spicata</i>	'Hollandia' or var. <i>hollandii</i>	<i>stolonifera</i>	<i>spicata</i> var. <i>spicata</i>	3	9
<i>spicata</i>		<i>stolonifera</i>	<i>spicata</i> var. <i>spicata</i>	13	108
<i>stolonifera</i>	'Fergi'	<i>stolonifera</i>	<i>spicata</i> var. <i>stolonifera</i>	1	1
<i>stolonifera</i>		<i>stolonifera</i>	<i>spicata</i> var. <i>stolonifera</i>	10	48
<i>utahensis</i>		<i>utahensis</i>		1	4
<i>weigandii</i>		<i>interior</i>		4	6
× <i>grandiflora</i> (<i>lamarckii</i>) ^z	'Autumn'	<i>arborea</i> × <i>laevis</i> (Dirr, 1987)	<i>laevis</i> × <i>intermedia</i> (Hilton, 1988; Weir, 1996)	12	26
	'Brilliance'			10	20
	'Ballerina'			7	15
	'Cole's Select'			5	7
	'Forest Prince'			10	39
	'Princess Diana'			10	29
	'Robin Hill'			5	8
	'Rubescens'			3	6
	'Spring Glory'			4	7
	'Strata'			3	6
	'Tradition'			18	> 67
unknown				5	19

^xCultivar names are not listed if the cultivar or cultivars were unknown, or if cultivar names were not given to the material held in the collection.

^yRecent genetic fingerprinting by Weir (1996) suggests that the cultivars Parkhill, Regent and Success are hybrids of *A. alnifolia* × *stolonifera*.

^z*A. lamarckii* F.G. Schroeder is considered synonymous with *A. ×grandiflora* Rehd. (Hilton, 1982).

TABLE 2. The locations of *Amelanchier* germplasm found in response to a survey of botanical gardens and arboreta within Canada and the northern and central United States.

Botanical garden or arboretum	Location	No. of species or varieties ^y	No. of hybrids	No. of cultivars	No. of plants
Alexandra Botanic Gardens and Hunnewell Arboretum	Wellesley, MA	3	1	1	6
The Arboretum, University of Guelph	Guelph, ON	14	4	3	79
The Arnold Arboretum of Harvard University	Jamaica Plain, MA	16 + 2 ^z	1	2	> 73
Bartlett Arboretum, University of Connecticut	Stamford, CT	3	0	0	?
Bickelhaupt Arboretum	Clinton, IA	2	1	4	7
Bowman's Hill Wildflower Preserve	Washington Crossing, PA	4	0	0	> 39
Core Arboretum, West Virginia University	Morgantown, WV	2	0	0	101
Cornell Plantations	Ithaca, NY	2	2	8	97
Cox Arboretum	Dayton, OH	3	0	0	> 53
The Dawes Arboretum	Newark, OH	9	2	15	68
Denver Botanic Gardens	Denver, CO	10	2	7	> 55
Devonian Botanic Garden, University of Alberta	Edmonton, AB	5 + 1	2	9	57
Dominion Arboretum of Canada	Ottawa, ON	4	2	9	> 22
Fernwood Botanical Garden	Niles, MI	3	1	0	16
Hayes Regional Arboretum	Richmond, IN	1	0	0	8
The Holden Arboretum	Mentor, OH	11 + 2	2	11	148

Humber Arboretum	Rexdale, ON	3	1	1	> 27
Leach Botanical Garden	Portland, OR	2	1	1	10
Montreal Botanical Garden	Montreal, PQ	14	3	9	170
Morden Arboretum, Agriculture Canada	Morden, MB	8	2	9	39
Morris Arboretum of the University of Pennsylvania	Philadelphia, PA	6	2	10	49
The Morton Arboretum	Lisle, IL	10 + 4	1	10	226
Niagara Parks Botanical Gardens & School of Horticulture	Niagara Falls, ON	2	1	1	7
Royal Botanical Gardens	Hamilton, ON	4	1	7	34
Royal British Columbia Museum, Native Plant Garden	Victoria, BC	1	0	0	8
Shaw Arboretum of the Missouri Botanical Garden	Gray Summit, MO	1	0	0	> 15
Sherwood Fox Arboretum, University of Western Ontario	London, ON	2 + 1	1	0	17
University of Idaho Arboretum and Botanical Garden	Moscow, ID	0	1	2	3
University of Saskatchewan, Dept. of Plant Sciences	Saskatoon, SK	7	3	15	3044
University of Wisconsin Arboretum	Madison, WI	14	2	20	58
VanDusen Botanical Garden	Vancouver, BC	5	1	5	43
Willowood Arboretum	Morristown, NJ	4	0	2	36

^yNumber of species, subspecies or varieties.

^zNumbers following the + sign indicate the number of unknown species.

spicata complex (*A. spicata*, *A. sanguinea*, and *A. stolonifera*). Based on the DNA evidence, Weir (1996) concluded that members within each group should actually be considered as varieties of *A. canadensis*, *A. alnifolia* or *A. spicata*.

Cultivar Descriptions. Information was found in the literature on 32 ornamental cultivars and 25 cultivars grown for fruit. Of the 57 cultivars described, 9 ornamental cultivars and 7 cultivars grown for fruit were not found at any of the locations surveyed and the availability of these cultivars is uncertain. Of the 42 cultivars reported in the survey, no information was found only for the cultivar 'Nana'. This cultivar was received as seed in 1931 by the Morton Arboretum from the Central Experimental Farm Botanical Garden and Arboretum, Ottawa Research Station, Agriculture and Agri-Food Canada, Ottawa, Ontario, and is probably no longer available.

This study comprises the most comprehensive list and most up-to-date quantitative characterization of *Amelanchier* cultivars to date. Many cultivars have not been formally registered with the International Registry and, furthermore, it is very likely that some cultivars have been missed. Of the cultivars found described in the literature, many of the descriptions are more anecdotal than scientific. However, all available information has been compiled. Any additional information should be directed to the International Registrar of the genus *Amelanchier*.

Ornamental Cultivars

'Altaglow'—*A. alnifolia* Nutt. Originated in Red Deer Valley, Alberta (51°N); selected by A. Griffin prior to 1923; wild plant transplanted to Alberta Horticultural Research Station, Brooks; initial selection and distribution for testing, 1928; tested at Agriculture Canada Research Station, Beaverlodge (BRS), Alberta as Brooks White; selected as an ornamental by J.A. Wallace, BRS, in 1946; introduced by P.D. Hargrave, Alberta Horticultural Research Station, Brooks, AB, in 1964. Shrub; height to 4.5-7 m; erect, habit pyramidal or columnar; spread to 3 m, crown expanding indefinitely; reported as having low to moderate suckering close to the crown; crown long-lived, 40+ years. Leaves gold to red, reddish-brown and deep purple in fall; retained late. Fruit sparse, large, up to 16 mm in diameter, very uneven in size; nearly spherical; white, easily bruised; 5-9 per cluster, clusters tight; even ripening; flavour bland but sweet. Apparently self-sterile. Hardy to zone 2. Introduced as an ornamental based on the columnar habit, white fruit and fall

foliage colours. (Darrow, 1975; Facciola, 1990; Harris, 1970; Hilton, 1982; McConkey, 1979; Miller and Stushnoff, 1971; St-Pierre, 1997b; Wallace and Graham, 1976).

'Autumn Brilliance'—*A. ×grandiflora* Rehd. Originated at Urbana, Illinois (40°N) as a seedling in the nursery of Willet Wandell; introduced by Wandell; patented in the U.S. in 1986 (P.P. 5717). Large shrub or small tree; height to 4.5-7.5 m; multi-stemmed habit with a rounded crown, upright main stems, heavily branched; spread moderate; vigorous, growth is faster than other *Amelanchier*. Trunk smooth with fine longitudinal fissures. Bark light gray with longitudinal fissures exposing light, reddish-brown bark underneath; attractive in winter. Branches numerous; one year old twigs reddish-brown, somewhat glaucous. Winter buds 0.8-1.3 cm long; solitary, sessile, elongate, sharp-pointed, mostly adpressed; reddish-brown or greenish-brown. Leaves thick, 4.4-6.3 cm long, 3.8 cm wide; obovate or elliptical, apices broadly acute, bases rounded or slightly cordate; margin finely denticulate nearly to base; glabrous above and below; medium green, glossy in summer; uniform brilliant red in fall turning colour simultaneously; young leaves bright green, densely pubescent beneath, slightly pubescent above, folded at flowering time; petioles 1.9-3.1 cm long, pubescent when young, glabrous at maturity; persistent, clean summer foliage. Flowers abundant; white; petals 0.9 cm long, 0.3 cm wide, narrowly ovate; racemes spreading or pendulous, 3.8-7.5 cm long; 12 flowers per cluster. Fruit 6.3-8.3 mm in diameter; globose; reddish turning dark purple or black at maturity; edible, juicy; containing 5 or fewer seeds. Hardy to zone 3. Resistant to summer leaf drop due to the fungus, *Coccomyces tumidus*. This cultivar is distinguished from other *Amelanchiers* by its rapid growth, resistance to winter ice damage due to dense branching and large diameter branches, abundance of white flowers in the spring, the absence of summer leaf drop due to fungal disease and a brilliant red fall leaf colour with the leaves almost all changing simultaneously (Cubberley and Hasselkus, 1987; Dirr, 1987, 1990; Wandell, 1986).

'Autumn Sunset'—*A. arborea* (Michx. f.) Fern. or *A. ×grandiflora* Rehd. Originated from seedlings on the University of Georgia campus, Athens, Georgia (34°N); selected by M. Dirr in 1986. Tree; height to 6-7.5 m; rounded habit with a strong single trunk. Summer foliage typical of *A. arborea*. Flowers typical of *A. arborea*. Resistant to summer leaf drop with excellent heat and drought tolerance (Dirr, 1987, 1990).

'Ballerina'—*A. ×grandiflora* Rehd. Originated from selections made by the Experimental Station at Boskoop, Netherlands (52°N) from plants sent as *A. ovalis* by Hillier and Sons, Winchester, England; introduced in 1980 by H.J. van de Laar of the Experimental Station at Boskoop, Netherlands. Large shrub or small tree; height to 4.5-6 m; upright habit with spreading branches. Leaves 5-7.5 cm long, 3.1-3.75 cm wide; broad elliptic; margin finely saw-toothed; bronze-coloured when young, with or without pubescence; dark green in summer; purple-bronze in fall. Flowers large, 2.5-2.8 cm in diameter; white; racemes 7.5-12.5 cm long, fleecy, more or less pendent; 6-8 flowers per cluster. Fruit 9.3-12.5 mm in diameter; red, purplish-black when ripe; flavour tasty, tender and sweet. Hardy to zone 4 (Dirr, 1987, 1990; Facciola, 1990; Hilton, 1982).

'Carleton'—*A. laevis* Wieg. Selected at Carleton, Nova Scotia (44°N) by R.J. Hilton, University of Guelph, Guelph, Ontario in May 1975; tested at the University of Guelph Arboretum; named in 1979. Small tree; height to 6 m; upright habit with single trunk. Flower petals 2-2.5 cm long; racemes drooping, to 11 cm long (Hilton, 1984).

'Cole' or **'Cole's Select'**—*A. ×grandiflora* Rehd. Originated as a selection grown by Cole Nursery Co., Circleville, Ohio (40°N) but unnamed; designated as 'Cole' by M. Dirr; listed as 'Cole's Select' in the 1991 catalogue of Sheridan Nurseries, Georgetown, Ontario. Shrub; height to 5 m. Leaves thick and glossy; retain colour well throughout summer; exceptional red to bright red-orange in fall (Anonymous, 1991; Cubberley and Hasselkus, 1987; Dirr, 1987, 1990).

'Cumulus'—*A. laevis* Wieg. Introduced by Princeton Nurseries, Princeton, New Jersey (40°N); a seedling selection from a cross made by William Flemer, III, Princeton, NJ; patented in the U.S. in 1972 (P.P. 3092). Small tree; height to 6-9 m; upright habit with an oval outline in youth; spread 4.5-6 m; vigorous growth; suckers less than other forms. Trunk slender; smooth; gray. Branches slender; smooth; grayish-brown; stronger and stiffer than other varieties with greater resistance to extreme bending and damage by wind, snow and ice. Leaves thick, 9 cm long, 4.5 cm wide; oval-lanceolate; margin serrate; moderately olive-green upper surface, moderate yellow-green under surface in summer; bright yellowish-orange to orange-scarlet to dark red in fall; petiole 2.5 cm long. Flower buds 1 cm long, 0.3 cm wide; globular; very hardy. Flowers abundant; large, 2.5 cm in diameter; white; petals 1 cm long, 0.7 cm wide, rounded. Fruit abundant; small, 12 mm in diameter, 9 mm long; globular; dark red-purple. Hardy to zone 4. Susceptible to fire-

blight (Anonymous, 1991; Cubberley and Hasselkus, 1987; Dirr, 1987, 1990; Flemer, 1972).

'Fergi'—*A. stolonifera* Wieg. Selected by Roy Klehm of Klehm Nursery, Champaign, Illinois (40°N). Small shrub; height to 1.2-2 m; stems erect. Flowers white. Fruit purplish-black. (Beaver Creek Nursery, Poplar Grove, IL, pers. comm.; Dirr, 1990; E.R. Hasselkus, pers. comm.).

'Flambeau'—*A. laevis* Wieg. Wild plant collected in Vilas County, Wisconsin (ca. 46°N). Selected for its intense bronze-purple spring foliage. Introduced by Dr. E.R. Hasselkus of the University of Wisconsin. May no longer be available in commerce (E.R. Hasselkus, pers. comm.).

'Forest Prince'—*A. ×grandiflora* Rehd. Introduced by Klehm Nursery, Champaign, Illinois (40°N). Small tree; height to 6-7.5 m, spread 4.5-6 m. Leaves leathery; dark green in summer, orange-red in fall. Summer foliage clean and healthy. Flowers abundant; white; open over the length of the stems instead of the tip; give the plant a billowy appearance. Fruit red; edible (Anonymous, 1999; Dirr, 1990).

'Helvetia'—*A. rotundifolia/ovalis* Medic. (these two species are considered to be the same by some authorities). Parent plant originated in the Swiss Alps close to the Italian border (46°N); discovered by Swiss nurseryman Max Frei some time prior to 1980; he sold seedlings from this plant as *A. pumila* to a Dutch nursery; a superior seedling was propagated and sold to other Dutch nurserymen as *A. pumila*; in 1980, one of these plants was given to the Research Station in Boskoop, Netherlands where Harry van de Laar recognised it as *A. ovalis*; later van de Laar and the donor named it 'Helvetia'; released by the Research Station at Boskoop in 1988. Dwarf shrub; height to 1.5 m; neat and compact habit; spread to 1-1.2 m; moderate suckering. Leaves rounded; margin sharply toothed; bluish-green; no significant fall colour. Flowers 1.5-2 cm across; creamy white; racemes short and dense (Lancaster, 1996).

'Hollandia'—*A. spicata hollandia* or may be a form of *A. sanguinea* (Pursh) DC. Introduced by Hillier & Sons, Winchester, England (51°N) ca. 1971. Shrub; height to 2 m; profuse suckering (Hilton, 1982).

'Indian'—species unknown. Originated in Montmorency County, Michigan (45°N) ca. 1960; selected by Dennis Maclison, River Rouge, Michigan. A superior dual purpose form for both fruit and as an ornamental (Hilton, 1982).

'Jennybelle'—*A. obovalis* (Michx.) Ashe. Small shrub; height to 3-3.6 m; low suckering; vigorous growth. Flowers bloom late. Fruit to 12.5 mm in diameter; flavour sweet even when not fully ripe. Produc-

tive, bears at an early age. Resistant to drought, frost, and high temperatures (Facciola, 1990).

‘Lustre’—*A. laevis* Wieg. Selected by Carlton Plants, Dayton, Oregon (45°N). Small tree; height to 6-9 m, spread 4.5-6 m; upright, open form. Suckering minimal. Leaves orange-red in fall. Flowers white. Fruit edible. Hardy to zone 4 (Anonymous, 1999).

‘Majestic’—*A. laevis* Wieg. Originated as a seedling selection from a nursery near Princeton, New Jersey (40°N); discovered by William Flemer, III, Princeton, New Jersey; patented in the U.S. in 1990 (P.P. 7203). Previously named ‘Snowcloud’. Medium tree; height of parent tree 8.5 m; tall, upright habit; spread 6.4 m; vigorous growth. Trunk about 17 cm in diameter when mature, slender; smooth; pale grey. Branches numerous; slender; smooth, with very few lenticels; medium-brown. Leaves exceptionally large, very thick, 12 cm long, 6 cm wide; ovate-oblong, shortly acuminate, rounded base; margin serrate; red until 1/2 to 2/3 expanded in spring and then a dark reddish-orange; dark yellowish-green upper surface and moderate olive-green under surface in summer; vivid red in fall; petiole medium, 4 cm long. Flower buds 1.1 cm long; ovate, acuminate; very hardy. Flowers abundant; large; white; petals 2 cm long, 0.6 cm wide, narrow oval with rounded tips; racemes drooping; 12-14 flowers per cluster. Fruit abundant; 12 mm in diameter, 10 mm long; globose; dark purple. Retains leaves undamaged in hot, humid weather. Growth is vigorous being almost twice as rapid as most *A. laevis* (E.R. Hasselkus, pers. comm.; Flemer, 1990).

‘Paleface’—*A. alnifolia* Nutt. Discovered and introduced by Wm. Oaks, Miami, Manitoba (49°N). Shrub; height to 1.8-2.1 m; pyramidal habit; little to no suckering. Fruit large; white; flavour mild. Very productive. The fruit browns where it is handled after picking (Hilton, 1982; McConkey, 1979; St-Pierre, 1997a; Wallace and Graham, 1976).

‘Prince Charles’—*A. laevis* Wieg. Originated in Madison, Wisconsin (43°N) at the University of Wisconsin Arboretum; selected from among seedlings of *A. laevis* being evaluated by Tom Watson and Dr. Ed Hasselkus of the University of Wisconsin; introduced by Tom Watson, Christom Farms Nursery, Cambridge, Wisconsin in 1983; patented in the U.S. in 1987 (P.P. 6039). Small tree; height to 7.5-9 m; slender, upright habit; spread probably to 4.5 m. Trunk slender; smooth; brown-gray. Branches smooth; grayish-brown. Winter buds narrow, pointed; light brown. Leaves thick, 7 cm long, 4 cm wide; oval-lanceolate; margins serrate, serrations 1 mm deep and 0.3 cm apart; unfolding new foliage bronzy-red in spring; medium olive-green upper surface and

medium yellowish-green under surface in summer; deep orange to orange-red in fall; petioles 2 cm long. Flower buds 0.9 cm long, 0.3 cm wide; globular; white. Flowers abundant; 2 cm in diameter; white; petals 1 cm long, 0.6 cm wide, rounded; flowers unfold before leaves. Fruit abundant; 9 mm in diameter, 8 mm long; very deep red-purple; edible. Particularly characterised by the flowers opening prior to the leaves maximizing the floral display (Cubberley and Hasselkus, 1987; Dirr, 1987, 1990; Hilton, 1984; Watson, 1987c).

'Prince William'—*A. canadensis* (L.) Medic. or a hybrid with *A. canadensis* as one parent. Originated at Madison, Wisconsin (43°N); introduced and propagated by Tom Watson, Christom Farms Nursery, Cambridge, Wisconsin in 1983; patented in the U.S. in 1987 (P.P. 6040). Large shrub; height to 2-3 m; multistemmed habit with a full form; original plant spread to 2.7 m; profuse suckering, suckers originating close to the base. Trunk slender; smooth; gray-brown. Branches thick; smooth; reddish-brown. Winter buds plump; slightly blunted. Leaves abundant; thick, 7 cm long, 5 cm wide; oval-lanceolate; margin serrate, serrations 1 mm deep, 0.3 cm apart; reddish tinged when emerging; rich green, glossy when mature, very dark yellow-green upper surface, dark yellow-green under surface in summer; dull yellow to orange and red in fall; petiole 1.3 cm long, reddish. Flower buds 0.9 cm long, 0.5 cm wide; globular; yellow-white. Flowers abundant; large, 2 cm in diameter; white; petals 1 cm long, 0.7 cm wide, rounded. Fruit abundant; 12 mm in diameter, 10 mm long; globular; very deep red-purple; edible; flavour sweet, good quality. Hardy to zone 3. Leaves withstand hot and humid summers that defoliate other *Amelanchiers*. Particularly characterised by its large flowers and plentiful fruit; its texture is more refined than most other serviceberries (Cubberley and Hasselkus, 1987; Dirr, 1987, 1990; Facciola, 1990; Hilton, 1984; Watson, 1987b).

'Princess Diana'—*A. ×grandiflora* Rehd. Originated at Elm Grove, Wisconsin (43°N); propagated and introduced by Tom Watson of Christom Farms Nursery, Cambridge, Wisconsin in 1983; patented in the U.S. in 1987 (P.P. 6041). Small, slender tree; height to 6-7.5 m; multi-stemmed or single-stemmed, upright habit, gracefully spreading; spread 4.5-6 m. Trunk slender, 1-5 in number; brown-gray. Branches very wide-spread. Winter buds narrow, pointed; light brown. Leaves thick, 7 cm long, 4 cm wide; oval-lanceolate; margins serrate, serrations 2 mm deep and 0.3 cm apart; unfolding new leaves moderately pubescent on underside, red-bronze; medium olive-green upper surface, deep yellow-green under surface in summer; brilliant red to deep red-orange

in fall, colours early and lasts till late in the fall; petiole 2 cm long; foliage clean. Flower buds 1 cm long, 0.4 cm wide; globular; yellow-tinged. Flowers abundant; 2 cm in diameter; white; petals 1.2 cm long, 0.6 cm wide, round. Fruit abundant; 9 mm in diameter, 8 mm long; globular; deep bluish-purple; edible. Hardy to zone 4. Characterised by its unique yellow flower buds that unfold into white flowers, its wide-spread branches and its outstandingly brilliant red fall foliage (Cubberley and Hasselkus, 1987; Dirr, 1987, 1990; Facciola, 1990; Hilton, 1984; Watson, 1987a).

‘Rainbow Pillar’—*A. canadensis* (L.) Medic. Patented under the name ‘Glenn Form’. Referred to as ‘Glenn’s Upright’ in 1993 American Nurseryman magazine. Originated at the nursery, Herman Losely and Son Inc., Perry, Ohio (42°N) as a chance seedling; discovered by Glenn Weingart and Edward Losely both of Herman Losely and Son; introduced by Herman Losely and Son Inc., Perry, Ohio; patented in the U.S. in 1995 (P.P. 9092). Large shrub or small tree; height 4.5-6 m; upright, symmetrical habit with dense branching; spread to 5 m; moderate growth rate. Trunk smooth; light gray. Branches thin; smooth with numerous lenticels; medium brown; 1-2 yr. old twigs covered with a waxy bloom which later weathers off to reveal brown colour. Leaves 4-5 cm long, 2-2.5 cm wide; ovate; margin serrulate; upper surface glabrous, lower surface of expanding leaves pilose, becoming glabrous except on midrib; green with a sheen in summer; bright red mottled with green, eventually turning red in fall; petiole 5-10 mm long, eglandular. Flowers abundant; white; petals 8 mm long; racemes erect; 10-12 flowers per cluster. Fruit sparse, 2-3 per cluster; red-purple when mature with a waxy bloom and persistent calyx; 2-4 seeds per fruit. Hardy to zone 4. Foliage substantially resistant to powdery mildew; no observed pest or disease problems. Distinguished from the species by its upright, dense branching habit and symmetrical growth (Higginbotham and Turner, 1993a; Losely, 1995).

‘Reflection’—*A. canadensis* (L.) Medic. or possibly *A. ×grandiflora* Rehd. Introduced by Lake County Nursery, Perry, Ohio (42°N). Small tree; height 6-7.5 m, spread 3-6 m; tall, slender, columnar habit; vigorous growth. Leaves gray-green in summer; turn an outstanding gold and orange colour in the fall. Flowers numerous; white; open in early spring. Fruit blue-black (Anonymous, 2000; E.R. Hasselkus, pers. comm.).

‘R.J. Hilton’—*A. laevis* Wieg. Originated in a hedgerow in eastern Kings County, Nova Scotia (45°N). Selected by research scientist Peter

Hicklenton from a collection of *Amelanchier* obtained from wild stands throughout Nova Scotia and Newfoundland; Dr. R.J. Hilton was primary collector; cuttings taken from parent plant in 1985 were established at the Agriculture Canada Research Station, Kentville, Nova Scotia, in 1986 and 1987 at the Memorial University Oxon Pond Botanical Garden, St. John's, Newfoundland, and at the University of Guelph Arboretum, Guelph, Ontario; introduced by the Agriculture Canada Research Station, Kentville, Nova Scotia. Small tree; height to 5 m; spread to 1.5 m. Trunk when young nearly smooth, green-gray; developing moderately deep striations with age. Leaves copper-bronze when unfolding; lustrous green in midsummer; red to orange in fall. Flower buds blood-red when swelling. Flowers abundant even on young (3 yr. old) plants; 3.8 cm in diameter; white with pink on the underside; racemes lax; 9 flowers per cluster. Fruit 10 mm in diameter; nearly spherical; purple; very sweet, mean sugar content 18%. *A. laevis* hardy to zone 4a. No observed disease problems during 7 years of evaluation; aphid infestations can occur. Distinguished by the retained pink flower colour that has only been described once before with the cultivar 'Rubescens' (Hicklenton and Cairns, 1994; Higginbotham and Turner, 1993b).

'Robin Hill'—*A. ×grandiflora* Rehd. Originated in Pennsylvania (ca. 44°N). Small tree; height to 6-9 m; upright habit when young, spreading with age; spread to 3.6-4.5 m. Leaves yellow, orange-red to red in fall. Flower buds pink. Flowers large; pink-tinged when first open but soon fading to white especially in hot and dry weather; racemes slender. Hardy to zone 4 (Cubberley and Hasselkus, 1987; Dirr, 1987, 1990; Hilton, 1982).

'Rubescens'—*A. ×grandiflora* Rehd. Originated as a seedling in Seneca Park or in Durand-Eastman Park in Rochester, New York (43°N); cultivated since 1920. Small tree; height to 6-7.5 m. Leaves described in England as having excellent fall colour. Flower buds purple-pink. Flowers white tinged with pink. Fruit few; inferior. Hardy to zone 4 (Cubberley and Hasselkus, 1987; Dirr, 1987, 1990; Hilton, 1982; McDaniel, 1974).

'Shannon'—Species unknown. Originated in north-western Michigan (ca. 46°N); discovered by Dennis Maclison, River Rouge, Michigan ca. 1960. Fruit numerous; large. Considered a dual purpose shrub (Darrow, 1975; Hilton, 1982).

'Shanty Rapids'—Probably *A. bartramiana* (Tausch) Roem. Originated in Montmorency County, Michigan (45°N); selected and named by Dennis Maclison, River Rouge, Michigan, ca. 1962 (Hilton, 1982).

‘Silver Fountain’—*A. canadensis* (L.) Medic. Introduced by Handy Nursery Co., Boring, Oregon (45°N). Shrub; height 2.4-3.6 m, spread 3.6-4.5 m; weeping habit forming a gradual arching branch structure. Leaves red-purple when unfolding, medium-green in summer, orange-red in fall. Flowers white; racemes pendulous, 5-10 cm long. Fruit purple-black. Hardy to zone 3. The only known weeping serviceberry (Anonymous, 1997; E.R. Hasselkus, pers. comm.).

‘Spring Glory’—Species uncertain. *A. canadensis* (L.) Medic. or *A. ×grandiflora* Rehd. Previously named ‘Springtime’. Introduced by Lake County Nursery, Perry, Ohio (42°N). Shrub; height to 4 m, spread 2.4-3 m; upright, compact habit. Leaves grayish-green in summer, brilliant golden-amber and orange in fall. Flowers white. Fruit purple-black (Anonymous, 2000; Dirr, 1990; E.R. Hasselkus, pers. comm.).

‘Strata’—*A. ×grandiflora* Rehd. Originated in 1959 as a seedling from Tures and Sons Nursery in Kingston, Illinois (42°N); grown at the University of Wisconsin arboretum and selected there by Dr. Edward R. Hasselkus, University of Wisconsin, Madison for its strong horizontal branching habit. Name first published in Briggs Nursery, 1985-86 catalogue, Olympia, Washington. Tree; height to 7.5 m; habit symmetrical with strong horizontal branching; spread to 10.5 m. Leaves pale orange in fall. Flowers white (Anonymous, 1990; Cubberley and Hasselkus, 1987; Dirr, 1987, 1990; E.R. Hasselkus, pers. comm.).

‘Tradition’—Species uncertain. *A. canadensis* (L.) Medic. or possibly *A. ×grandiflora* Rehd. Introduced by Lake County Nursery, Perry, Ohio (42°N). Tree; height 7.5-10 m, spread 4.5-6 m; upright habit; strong tree form with a central leader and excellent branching. Leaves grayish-green in summer, orange and red in fall. Flowers white. Fruit abundant; blue-black (Anonymous, 2000; Dirr, 1990; E.R. Hasselkus, pers. comm.).

‘White Pillar’—*A. canadensis* (L.) Medic. Originated as a seedling in a nursery; discovered by William Flemer, III, Princeton, New Jersey (40°N). Patented in the U.S. in 1989 (P.P. 7072). Small tree; height to 6 m; habit very upright, narrow and dense; spread to 2.5 m. Trunk slender; smooth; pale gray. Branches numerous; slender; smooth; moderate reddish-brown; lenticels sparse; side branches erect, closely appressed to trunk or stems with a 10-14 degree crotch angle. Leaves abundant; leathery and thick; 5-6 cm long, 3 cm wide; ovate; margin minutely serrate; moderate olive-green on both surfaces in summer; red and purple shades in fall; petiole short, 2 cm long, no glands. Flower buds 1 cm long; slender, ovate, pointed; dark greenish-yellow; very hardy. Flowers

very abundant, so dense as to hide stems; small; white; petals 1 cm long, 0.4 cm wide, ovate; 8-10 flowers per cluster. Fruit sparse; 10 mm in diameter; purple. Resistant to defoliation from leaf spot fungi in warm, humid weather. Distinguished by its substantially more upright, columnar habit than what is usual for the species (Flemer, 1989).

Cultivars Grown for Fruit

'Beaverlodge'—*A. alnifolia* Nutt. Fruit large; juicy; flavour excellent. Cultivar largely unknown (Facciola, 1990).

'Bluff'—*A. alnifolia* Nutt. Originated near Buffalo Lake, Sexsmith, Alberta (55°N); wild plant discovered by P. Student on his farm in 1946; selected by J.G.N. Davidson and K.T. (Student) Davidson in 1975; introduced in 1990. Shrub; height to 5 m; initially upright, tends to retain tall, erect habit; spread to 2.5 m; moderate suckering close to crown; crown long-lived, 50+ years. Fruit average 11.1 mm in diameter, even size; nearly spherical; purple-black with light bloom; 7-13 per cluster, cluster tight; even ripening; flavour good, well-balanced, moderately tangy; pH 4.1; soluble solids 14.0°Brix; holds its flavour when cooked better than other cultivars; seeds few and small, 3.1% seeds by weight. Moderately productive at Saskatoon, SK. Hardy to zone 2. May have partial resistance to powdery mildew; highly susceptible to *Entomosporium* leaf and berry spot. Currently being evaluated in a comprehensive cultivar trial (St-Pierre, 1997b).

'Buffalo'—*A. alnifolia* Nutt. Originated near Buffalo Lake, Sexsmith, Alberta (55°N); wild plant discovered by A. Student on his farm in 1925; selected in 1980 from suckers transplanted in 1975 by J.G.N. Davidson and K.T. (Student) Davidson; introduced in 1990. Shrub; height to 4 m; initially upright, to spreading at maturity; spread to 5 m; moderate suckering near crown; crown expands similarly to 'Pembina'; crown long-lived, 70+ years. Fruit average 11.6 mm in diameter; obovate to nearly spherical; purple-black with slight bloom; 7-13 per cluster, cluster fairly loose, fairly even ripening; flavour excellent with very good balance between tanginess and sweetness; pH 4.1; soluble solids 15.6°Brix; best fresh but also cooks, cans, and jams well; 3.6% seeds by weight. Moderately productive at Saskatoon, SK. Hardy to zone 2. Highly susceptible to *Entomosporium* leaf and berry spot. Currently being evaluated in a comprehensive cultivar trial (St-Pierre, 1997b).

‘Elizabeth’—*A. alnifolia* Nutt. Originated near Langham, Saskatchewan (52°N); selected by J. Blushke; propagated from wild plant discovered by E. Blushke (date unknown); commercially introduced in 1991 under the name ‘Pasture’. Name later changed to ‘Elizabeth’. Shrub; height to 4 m; habit upright to spreading; low suckering. Fruit average 13.8 mm in diameter; purple-black with bloom; ripening fairly even; flavour sweet, full; pH 3.8; soluble solids 14.8°Brix; 2.5% seeds by weight. Moderately productive at Saskatoon, SK; consistent bearer. Hardy to zone 2. Currently being evaluated in a comprehensive cultivar trial (St-Pierre, 1997a).

‘Forestburg’—*A. alnifolia* Nutt. Originated near Forestburg, Alberta (52°30′); wild plant discovered by A. Nixon on his farm; transplanted to the Agriculture Canada Research Station, Beaverlodge (BRS), Alberta in 1948; tested as B.E.F. 0003; selected by J.A. Wallace, BRS; introduced in 1963 by BRS. Shrub; height to 2.4-4 m; habit initially upright to arching-spreading; spread to 5 m, crown expands slowly; low to moderate suckering near crown; crown long-lived, 40+ years. Fruit large, average 12.5 mm in diameter; nearly spherical; purple-black with bloom; 7-11 per cluster, cluster very tight; ripening fairly even, later than ‘Smoky’; flavour mild, quite sweet, juicy, quality fair; pH 4.2; soluble solids 15.2°Brix; 3.3% seeds by weight. Heavy fruit producer; good productivity at Saskatoon, SK. Hardy to zone 2. More drought tolerant than other cultivars of Alberta origin. Highly susceptible to *Entomosporium* leaf and berry spot. Currently being evaluated in a comprehensive cultivar trial (Darrow, 1975; Facciola, 1990; Harris, 1976; Hilton, 1982; McConkey, 1979; Miller and Stushnoff, 1971; St-Pierre, 1997b; Wallace and Graham, 1976).

‘Gypsy’—*A. alnifolia* Nutt. Fruit large; juicy; flavour good. Cultivar largely unknown (Facciola, 1990).

‘Honeywood’—*A. alnifolia* Nutt. Originated near Parkside, Saskatchewan (53°N); wild plant discovered by A.J. Porter ca. 1955 near his Honeywood Nursery; introduced by him in 1973. Shrub; height to 5 m; habit initially upright to arching-spreading; spread to 4 m; low to moderate suckering near crown; crown expands slowly like ‘Pembina’. Flowers 4-8 days later than other cultivars, and ripens somewhat later also. Fruit average 12.3 mm in diameter; flattened to spherical; purple-black with little bloom; 9-15 per cluster, cluster fairly tight; fairly even ripening; flavour excellent, full and tangy; pH 4.1; soluble solids 15.4°Brix; seeds large, 3.5% seeds by weight. Very productive and precociously fruitful; good to high productivity at Saskatoon, SK, but less

than 'Smoky'; biennial bearing to some extent. Hardy to zone 2. May have some resistance to powdery mildew; moderately susceptible to *Entomosporium* leaf and berry spot. Currently being evaluated in a comprehensive cultivar trial (Facciola, 1990; Hilton, 1982; McConkey, 1979; Stushnoff, 1990; St-Pierre, 1997b; Wallace and Graham, 1976).

'Idaho Giant'—*A. alnifolia* Nutt. Selected for its large fruit size. Cultivar largely unknown (Facciola, 1990).

'JB30'—*A. alnifolia* Nutt. Originated near Langham, Saskatchewan (52°N); selected and propagated from wild plant discovered by J. Blushke (date unknown); commercially introduced in 1991 under the name 'Quaker'. Name later changed to 'JB30'. Shrub; height to 3.5 m; habit upright to spreading; low suckering. Fruit average 13.0 mm in diameter; purple-black with bloom; ripening over an extended period; flavour good, rounded; pH 3.7; soluble solids 13.7°Brix; 2.8% seeds by weight. Productive; moderately productive at Saskatoon, SK. Hardy to zone 2. Currently being evaluated in a comprehensive cultivar trial (St-Pierre, 1997a).

'Killarney'—*A. alnifolia* Nutt. Originated near Killarney, Manitoba (49°N); wild plant discovered by A. Eigler ca. 1990 on his farm; propagated and introduced by him in 1994(?). Shrub; height to 4-5 m. Fruit good-sized, flavour pleasant. Very productive, consistent bearer (Hysop, 1995; St-Pierre, 1997a).

'Lee #3'—*A. alnifolia* Nutt. Originated near Barrhead, Alberta (54°N); selected by L. Lee in 1989 as a seedling from a cross between 'Pembina' and one of his selections; introduced in 1994 by K. Pruski, Alberta Agriculture, Crop Diversification Centre—North, Edmonton, Alberta. Compact shrub; height to 1.5-3 m; spreads slowly. Fruit up to 16 mm in diameter; intense flavour and bouquet, very fleshy; few seeds (Delidais, 1993; St-Pierre, 1997b).

'Martin'—*A. alnifolia* Nutt. Originated in Langham, Saskatchewan (52°N); seedling of 'Thiessen' selected by D. Martin in his nursery; introduced by him in 1990. Selected for its large fruit size and more uniform ripening, otherwise similar to 'Thiessen'. Low suckering. Fruit average 14.3 mm in diameter; purple-black with bloom; pH 3.7; soluble solids 14.6°Brix; 2.7% seeds by weight. Moderately productive at Saskatoon, SK. Hardy to zone 2. Moderately susceptible to *Entomosporium* leaf and berry spot. Currently being evaluated in a comprehensive cultivar trial (St-Pierre, 1997b).

'Moonlake'—*A. alnifolia* Nutt. Originated on the west shore of Moon Lake, near Saskatoon, Saskatchewan (52°N); wild plant discovered by

G. Krahn, Lakeshore Nurseries, Saskatoon, and introduced by him in 1974. Shrub; height to 3 m; habit initially upright to arching-spreading; spread to 3 m; moderate suckering. Leaves beautiful red in fall. Flowers white. Fruit large, up to 16 mm in diameter; obovate to nearly spherical; blue-black with light bloom; 6-10 per cluster, cluster open; flavour good, mild, sweet; pH 3.9. Moderately productive but somewhat sporadic. Hardy to zone 2. May have partial resistance to powdery mildew (Facciola, 1990; Hilton, 1982; McConkey, 1979; St-Pierre, 1997b; Wallace and Graham, 1976).

'Nelson'—*A. alnifolia* Nutt. Originated near Bradwell, Saskatchewan (52°N); selected by S.H. Nelson in 1974; introduced by R. St-Pierre, University of Saskatchewan, Saskatoon, Saskatchewan, in 1992. Compact shrub; height to 1.5 m; low to moderate suckering. Fruit average 12.1 mm in diameter; nearly spherical; purple-black with little bloom; 6-12 per cluster, cluster compact; ripening somewhat uneven; flavour tangy; pH 3.7; soluble solids 18.0°Brix; few seeds, 3.6% seeds by weight. Low to moderate productivity at Saskatoon, SK. Hardy to zone 2. Possibly some resistance to saskatoon-juniper rust (*Gymnosporangium* spp.); partial resistance to *Entomosporium* leaf and berry spot. Currently being evaluated in a comprehensive cultivar trial (St-Pierre, 1997b).

'Northline'—*A. alnifolia* Nutt. Originated near Beaverlodge, Alberta (55°N); wild plant selected by J.A. Wallace, Beaverlodge Nursery in 1958; introduced by him in 1965. Shrub; height to 1.5-4 m; habit initially upright to arching-spreading; spread to 6 m; moderate suckering near crown; crown expands indefinitely; crown long-lived, 50+ years. Fruit slightly larger than 'Pembina', average 12.4 mm in diameter; obovate to nearly spherical; purple-black with bloom; 7-13 per cluster; ripening fairly even; flavour excellent, full, fairly sweet, similar in quality to 'Pembina'; very firm; pH 3.8; soluble solids 14.7°Brix; resistant to cracking; 3.9% seeds by weight. Very productive, exceeds 'Smoky' at some locations; moderately productive at Saskatoon, SK; biennial bearing to some extent. Hardy to zone 2. Partial resistance to *Entomosporium* leaf and berry spot. Occupies an increasing proportion of commercial hectareage in Canada. Currently being evaluated in a comprehensive cultivar trial (Facciola, 1990; Hilton, 1982; McConkey, 1979; St-Pierre, 1997b; Stushnoff, 1990; Wallace and Graham, 1976).

'Parkhill'—Species uncertain, recent genetic fingerprinting suggests a hybrid of *A. stolonifera* and *A. alnifolia*. Originated in Michigan (ca. 44°N); introduced by Parkhill Nursery, Bismark, North Dakota, in 1974. Small shrub; height to 1.5 m; habit initially upright to spreading;

spread to 2.5 m; moderate to high suckering depending on site; crown expands slowly. Fruit average 11.6 mm in diameter; obovate to nearly spherical; purple-black with bloom; 7-11 per cluster, cluster fairly open; flavour mild and bland; pH 4.2; soluble solids 15.2°Brix; 3.5% seeds by weight. Moderately productive at Saskatoon, SK. Hardy to zone 3. Susceptible to powdery mildew. Superior resistance to *Entomosporium* leaf and berry spot. Currently being evaluated in a comprehensive cultivar trial (Hilton, 1982; McConkey, 1979; St-Pierre, 1997a,b; Wallace and Graham, 1976; Weir 1996).

‘Pearson II’—*A. alnifolia* Nutt. Originated in Bowden, Alberta (52°N); open-pollinated seedling of ‘Smoky’ selected by L. Pearson; introduced by him in 1990. Shrub; height to 3 m; moderate to high suckering. Fruit average 12.4 mm in diameter; purple-black with bloom; flavour similar to ‘Smoky’; pH 4.2; soluble solids 15.0°Brix; 3.6% seeds by weight. Good to high productivity at Saskatoon, SK, often yielding as much as ‘Smoky’; biennial bearing to some extent. Hardy to zone 2. Extremely susceptible to *Entomosporium* leaf and berry spot. Currently being evaluated in a comprehensive cultivar trial (St-Pierre, 1997a).

‘Pembina’—*A. alnifolia* Nutt. Originated near Barrhead, Alberta (54°N) in the Pembina River Valley; wild plant selected by J.A. Wallace, Agriculture Canada, Beaverlodge (BRS), Alberta, in 1932; tested as Barrhead No. 1 and as B.E.F. 3501; reselected 1950; introduced by BRS in 1956. Vigorous shrub; height to 2.5-5 m; habit initially upright to upright-spreading; spread to 5 m; low suckering near crown; crown expands more slowly than ‘Smoky’; crown long-lived, 70+ years. Fruit average 11.4 mm in diameter; obovate to nearly spherical; purple-black with bloom; 9-13 per cluster, clusters long; ripening fairly even; flavour excellent, full, tangy, fairly sweet; fleshy and firm; pH 4.0; soluble solids 21.1°Brix; 5.0% seeds by weight; fruit susceptible to cracking from excessive moisture. Previously described as being nearly as productive as ‘Smoky’, but productivity poor at Saskatoon, SK in recent cultivar trials. The full-flavour standard against which other cultivars are judged. Hardy to zone 2. Possible susceptibility to woolly elm aphid. Partial resistance to *Entomosporium* leaf and berry spot. Currently being evaluated in a comprehensive cultivar trial (Darrow, 1975; Facciola, 1990; Harris, 1976; Hilton, 1982; McConkey, 1979; Miller and Stushnoff, 1971; St-Pierre, 1997a, b; Stushnoff, 1990; Wallace and Graham, 1976).

‘Regent’—Species uncertain, recent genetic fingerprinting suggest a hybrid of *A. stolonifera* with *A. alnifolia*. Originated near Regent, North Dakota (46°N); selected by J. Candrian, Regent, North Dakota; intro-

duced by the Farmer Seed & Nursery Co., Faribault, Minnesota in 1977. Semi-dwarf shrub; height to 1.5-2 m; habit initially upright; spread to 1.2-2 m; moderate to high suckering. Leaves in shades of yellow to red in fall. Flowers white. Fruit good-sized, up to 13 mm in diameter; ovoid to nearly spherical; purple-black with bloom; 7-11 per cluster, cluster loose and open; flavour somewhat plum-like, mild, sweet and somewhat bland; few and small seeds. Precociously fruitful; fruit abundant. Hardy to zone 3. Possible resistance to *Entomosporium* leaf and berry spot and saskatoon-juniper rust. Selected for both fruit production and as an ornamental (Facciola, 1990; Hilton, 1982; McConkey, 1979; St-Pierre, 1997b; Stushnoff, 1990; Wallace and Graham, 1976; Weir 1996).

‘Smoky’—*A. alnifolia* Nutt. Originated near Beaverlodge, Alberta in the area of the Smoky River drainage basin (55°N); discovered by W.D. Albright on his farm (now the Beaverlodge Research Station); transplanted ca. 1918; selected by he and Dr. W.T. Macoun in the late 1920s; tested as Selection no. 9 (1928), and B.E.F. 3502 (1935), reselected 1950; introduced in 1956 by J.A. Wallace, Agriculture Canada, Beaverlodge, Alberta. Shrub; height to 2-4.5 m; habit initially upright to arching-spreading; spread to 6 m; moderate to high suckering near crown; crown expands indefinitely; crown long-lived, 70+ years. Fruit large, average 12.3 mm in diameter; spherical; purple-black with bloom; 7-11 per cluster; ripening uneven; flavour good, mild, very sweet, fleshy; pH 4.2; Soluble solids 15.4°Brix; many large seeds, 3.6% seeds by weight. Most productive commercial cultivar so far; marketable yields up to 7.5 kg/plant; highly productive at Saskatoon, SK; biennial bearing to some extent. Hardy to zone 2. Highly susceptible to *Entomosporium* leaf and berry spot. The cultivar that enabled commercial production to start on the prairies; in 1990 it occupied about 85% of the hectareage in Canada. Currently being evaluated in a comprehensive cultivar trial (Darrow, 1975; Facciola, 1990; Hilton, 1982; McConkey, 1979; Miller and Stushnoff, 1971; St-Pierre, 1997b; Stushnoff, 1990; Wallace and Graham, 1976).

‘Sturgeon’—*A. alnifolia* Nutt. Originated on the east shore of Sturgeon Lake near Valleyview, Alberta (55°N); wild plant selected by J.A. Wallace, Beaverlodge Experimental Station; introduced by the Beaverlodge Experimental Station in 1971. Shrub; height to 3 m; tall, upright habit. Fruit large; clusters large; flavour full, good; texture meaty and full. Productive. These observations are of the native plant (Hilton, 1982; McConkey, 1979; St-Pierre, 1997a; Wallace and Graham, 1976).

‘Success’—Species uncertain, recent genetic fingerprinting studies suggest a hybrid of *A. stolonifera* with *A. alnifolia*. Originated in Pennsylvania in the Appalachian mountains (ca. 41°N); selected before 1868 as seedlings of wild plants; acquired 1873 by H.E. Van Deman, Kansas; introduced by him in 1878. Van Deman sold more than 10,000 plants by 1888. Shrub; height to 1.8-2.4 m; habit initially upright to upright-spreading; spread to 1.2-2 m; low to moderate suckering near crown. Leaves orange to red in fall. Fruit 10.8 mm in diameter; obovate to nearly spherical; purple-black with bloom; 7-11 per cluster, clusters loose; ripens slowly; fruit held firmly; flavour good but mild, somewhat apple-like, quite sweet; pH 4.1; soluble solids 14.8°Brix; seeds large, 4.7% seeds by weight. Poor productivity at Saskatoon, SK. Hardy to zone 3. Superior resistance to *Entomosporium* leaf and berry spot; susceptible to powdery mildew. In one study it made the best fruit leather of 9 cultivars. Also attractive as an ornamental, having glossy, green foliage, turning an attractive red in the fall. The oldest surviving cultivar. Currently being evaluated in a comprehensive cultivar trial (Cubberley and Hasselkus, 1987; Darrow, 1975; Facciola, 1990; Harris, 1976; Hilton, 1982; McConkey, 1979; St-Pierre, 1997a,b; Weir 1996).

‘Thiessen’—*A. alnifolia* Nutt. Originated west of Hepburn, Saskatchewan (52°N), near the North Saskatchewan River; wild plant discovered in 1906 by Maria (Loewen) Thiessen and transplanted to her parent’s farm near Debenham; years later seedlings of these plants were established at her farm near Langham, Saskatchewan; obtained from this farm and introduced by G. Krahn, Lakeshore Tree Farms, Saskatoon, Saskatchewan in 1976. Large shrub; height to 4.2-5 m; habit initially upright but tends to sprawl from an early age, eventually becoming a large bush; spread to 6 m; low suckering near crown; crown expands indefinitely; crown long-lived, 70+ years. Flowers a few days earlier than other cultivars. Fruit very large, average 14.0 mm in diameter; nearly spherical; purple-black with bloom; 6-12 per cluster, clusters fairly loose; ripening uneven; flavour excellent, fresh and juicy, good quality; pH 3.8; soluble solids 14.2°Brix; 2.9% seeds by weight. Moderately productive at Saskatoon, SK. Hardy to zone 2. Partial resistance to powdery mildew; moderately susceptible to *Entomosporium* leaf and berry spot. It is much favoured for U-pick orchards. It had the second largest commercial hectareage in Canada in 1993. Winner of the Canadian Society for Horticultural Science Outstanding Cultivar Award in 1994. Cur-

rently being evaluated in a comprehensive cultivar trial (Facciola, 1990; Hilton, 1982; McConkey, 1979; St-Pierre, 1997b; Stushnoff, 1990).

‘Thiessen RS’—*A. alnifolia* Nutt. A seedling selection of ‘Thiessen’ chosen for its reduced suckering habit, otherwise similar to ‘Thiessen’. Untested (Prairie Plant Systems, Saskatoon, SK, pers. comm.).

‘Timm’—*A. alnifolia* Nutt. Introduced by the Plant Material Center, Bismark, North Dakota (47°N). Medium-sized tree. Leaves yellow, red and maroon in fall. Flowers white; clusters large and showy. Fruit large; blueberry-shaped; ripen early; flavour full and very sweet. Produces fruit in the second year (Facciola, 1990).

CONCLUSIONS AND GROWER BENEFITS

An updated International Registry of the genus *Amelanchier*, consisting of 32 ornamental cultivars and 25 cultivars grown for fruit was created on the basis of published information, unpublished research data, and observations made by originators or their successors. A report of *Amelanchier* germplasm at 32 locations across Canada and throughout the central and northern United States, indicated that various *Amelanchier* species and cultivars are widely distributed. A total of 25 different species, subspecies or varieties, 8 different hybrids, and 42 different cultivars are contained at these locations. This study comprises the most recent, comprehensive and quantitatively characterized list of *Amelanchier* cultivars to date. This information will be beneficial to the nursery industry in terms of cultivar characterization, the exchange of plant material, and the development and distribution of new *Amelanchier* cultivars.

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