Hardy New Plants for Northern Gardens

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INTRODUCTION

It is a privilege to speak to you today about developing new plants for northern gardens. My talk today will cover plants hardy in Zone 4 and colder regions. Since so much of the stock grown in the Pacific Northwest and British Columbia is shipped to colder eastern zones it is important that you propagate hardy cultivars on hardy rootstocks. For over 30 years I have worked with these northern plant materials and those experiences have given me an appreciation for plant breeders who have made dramatic strides over the past 30 years. For example, there were only one or two large shade tree cultivars available for colder zones when I entered the field. Clonal propagation was very limited outside of flowering crabapples and possibly a few elms. Today there are 20 to 30 available shade trees for Zones 2 and 3. Now if we hear a complaint it is that we have too many cultivars for the limited market available.

As a plant breeder and nurserymen you first need to know that if you introduce an inordinate number of new plants, growers will simply back off until the selection is narrowed down. Could I suggest that coral bells and spireas are two crops in which breeders have named more plants than industry will accept?

Secondly, we need to give relative weighting to various factors that limit plants. Far too often flower color is rated most important and disease resistance less important. May I suggest that we give the following rank of importance to adaptation including: hardiness (highest), disease resistance, insect resistance, ease of propagation, foliage distinctiveness, flower distinctiveness (lowest)? We need to remember some plants that do not perform well in container production do well in the landscape and vice versa. Since all nursery plants generally end up in the landscape the performance in this location is paramount. For I.P.P.S. members the ultimate test is that an efficient propagation method can be developed. Overriding all these factors are such basic criteria as a hardy rootstock for a hardy cultivar. It makes little sense to breed a flowering crabapple for Zone 2 and then graft it onto a Zone 6 'Golden Delicious' seedling and ship it back to Zone 2.

Thirdly, every nursery grower and propagator should be on the look-out for variation that could lead to new plants. Many of our new plants have been found in seedling populations and cutting beds.

Promotion of new plants should go hand in hand with a program of education and publicity (Table 1). I suggest that each new plant should be accompanied with the following: A proper description and photo showing the salient features of the plant. Prior to publicity there should be sufficient stock to meet demands of growers. Promotion to growers and propagators should precede public promotion. Far too often the opposite takes place and both the grower and public are left wondering why we can't coordinate new plant introduction.

New plant introductions have given the nursery industry a strong sales boost. The key word has been "color", usually in foliage, occasionally in twigs and flowers. A second key characteristic has been plant form either in grafted standards or dwarf

stature. The importance of the above criteria will be detailed in the following illustrations of popular nursery plants.

Table 1. Promotion of new plants.

1) Promotion to Growers

Photos, slides, CD images

Fact sheets — descriptions

Nursery magazines	New plant Issues	Advertisements

2) Promotion to garden centers

Nursery wholesale catalogues

Photos supplied

Sample plants distributed

Trade shows

3) Promotion to the Public

Merits of new plants — characteristic uses in landscape

Advertisements in gardening magazines and promotion with garden writers support

1) Dwarf, Colored Foliage. 'Gold Mound', 'Goldflame', 'Flaming Mound', and a host of other dwarf gold-leaved spireas have taken up to 10% of the shrub market demand.

Gold ninebarks such as 'Dart's Gold' outsell green ninebarks 50 to 1 in our region. The silver foliage plants such as *Cornus alba* 'Argento-Marginata have been a strong seller and I predict the new dwarf Ivory Halo™ dogwood will have a strong market position for the next decade.

Other examples include the dwarf 'Minuet' and 'Tango' weigelas which are becoming more popular. Purple-leaved sandcherry, developed over 75 years ago has never been more popular than it is today even though it shows some degree of winter kill in northern zones.

2) Top-grafted Pea Shrubs. The success of the top-grafted pea shrubs has been beyond anything I could have imagined. Two cultivars from the prairies continue to become more popular. 'Walker Weeping', a fine-leaved hybrid of *Lorbergi caragana* and the regular weeping *L. caragana* continue to become more popular. Globe caragana from Dr. F.L. Skinner's work of over 50 years ago has made a comeback as a grafted standard.

3) Hardy Roses. Hardy roses with recurrent bloom such as the Parkland roses from Morden and the Ottawa Explorer roses have defined a new standard for own-rooted hardy roses. Now the effort will go into disease resistance and an expanded range of flower colors.

4) Shade Trees. Those trees including the 'Patmore' ash from Manitoba, the 'Fallgold' black ash, and the introduced Manchurian ash have been the basis for a new class of quality shade trees. New flowering trees such as 'Ivory Silk' tree lilac and flowering crabapples have given northern areas valuable new plants.

SPECIFIC PLANT GROUPS

Fraxinus. Ashes remain the most important shade trees in Zone 4 and colder zones. The cultivar picture is not totally clear, but these are my perceptions. 'Patmore' ash, introduced over 20 years ago, continues to be the #1 ash in North America. It has glossy green foliage, seedless habit, and straight trunks with pleasing branching. 'Summit ash' (Minnesota) and 'Prairie Spire' from North Dakota both do well. 'Bergeson' ash has very rapid growth that may cause poor branching and very wide spacing between limbs. 'Fallgold' ash has given growers another species and added a tree with distinct foliage and fall color. Manchurian ash from Asia is one of the most unique ashes we grow and the 'Mancana' seedless form is certainly a marked improvement over the species. Hybrids between black ash and 'Mancana' are just now becoming known. This cross made in 1969 shows the time it can take to develop a new tree. 'Northern Treasure' and 'Northern Gem', from this cross, will make a major impact as shade trees. Finally, a word about white ash, *F. americana,* which has not been considered hardy in northern zones. A population of seedlings grown from northern Minnesota and Ontario sources gave one seedling with extreme hardiness and dark green foliage. We have introduced this as 'Northern Blaze', an improved form compared to the 'Autumn Blaze' introduced from Morden in 1982.

Acer. Even though sugar maple is the national emblem for Canada there are no named cultivars for northern zones. From a group of selected trees we have identified one promising selection. Now we are seeking an acceptable propagation procedure that will retain maximum hardiness.

Tilia. Linden introductions from Manchuria have given the basis for two new distinctive lindens. 'Harvest Gold' is a Mongolian linden type with exfoliating bark, small leaflets, upright oval crown and superb fall color. 'Golden Cascade' is a related plant more akin to little leaf linden. It has a cascading crown excellent fall color and disease-free foliage.

Ulmus. Most of us have lived to see the decline of the splendid elms which had been the predominant boulevard tree in all northern zones. I have been interested for over 30 years in a disease-tolerant tree from Asia that has withstood cold winters down to -42C. The Asiatic elm, *U. japonica* has a form approaching American elm. A colleague of mine has introduced the new 'Discovery' elm which reproduces well in tissue culture. This elm is resistant to aphids and produces very little seed, so it should become popular.

Populus. While not an important plant to residential areas, poplars remain a choice for large lots and shelterbelts. Swedish columnar aspen (*Populus tremula* 'Erecta') has become a popular tree particularly in Alberta. 'Tower', a silver-leaved form, propagates more readily and grows somewhat faster.

NEW SHRUBS, FRUITS, AND PERENNIALS

'Blizzard' mock orange, a native *Philadelphus lewisii,* has clear white flowers and prolific bloom even when sheared. Zone 2 hardiness sets this plant apart from other mock oranges. Introduced by John Wallace of Beaverlodge Nursery, it was named by the Morden Research Station.

'Miniglobe' honeysuckle, is an excellent dwarf, green-foliaged plant and an improvement over the older cultivars.

Potentilla fruticosa cultivars (shrubby potentillas) continue to be an important summer-flowering shrub for northern gardens. Research at the University of Manitoba has resulted in several new forms and colors. The double-flowered 'Yellow Bird' and 'Snowbird' and the outstanding new pink semidouble flowered 'Pink Beauty' are noteworthy. The new low-growing plant form seen in 'Yellow Gem' from University of British Columbia Botanical Garden is a breakthrough in breeding as it makes the potentilla into an effective low groundcover. Watch for new potentilla cultivars that will extend this growth form with new flower colors.

Fall-bearing raspberries have been recently introduced from the Morden Research Center. These primocaine types make fall bearing a reality in Zones 3 and 4. 'Red River' and 'Double Delight' fruit about the end of August and give abundant yield. 'Double Delight' is more vigorous and upstanding with larger fruit.

Heuchera (coral bells). Although there have been many introductions recently, very few have been developed for northern zones. 'Northern Fire' and 'Ruby Mist' are two Zone 2 types with good green foliage and red flowers. 'Chocolate Ruffles' has performed fairly well in northern zones, but I have found many of the other foliage variants have been weaker plants.

Monarda (bee balm). New work from Morden has produced a dwarf form suitable for bedding plantings. 'Petite Delight' and 'Petite Wonder' deserve your attention.

Lilium (lilies). Recent work at the Morden Research Station is the basis for new colorful lily hybrids for northern zones. These hybrids between trumpet lilies and tender oriental lilies will be important for the northern plains states and Canada.

In conclusion, some major plant breeding opportunities remain and I will list a few:

1) Black-spot and mildew-resistant cultivars in roses are a pressing need.

2) Black knot resistance in purple leaf cherry such as 'Schubert' and 'Canada Red'.

3) Birch borer resistance in birch of several species.

These and many more problems will need new technologies to solve them. Ornamental plants do not have the value associated with crops such as wheat, canola, or potatoes. These economic crops are receiving genetic engineering attention and we now see Round-up-resistant canola, potatoes with insect resistance for potato beetle, and genetically engineered corn. Hopefully these procedures applied to major ornamental crops will solve the most important breeding problems. The future is bright and for the present we can grow the many fine new plants that are available.