

2011 Final Report for Research Project #01-11
Development of New, Superior Cultivars of Landscape Plants
By the Landscape Plant Development Center

We continue to make excellent progress in our breeding efforts with ornamental pears, Hornbeam, Japanese maple, and Mountainash. Three pear selections (approximately 18 years old) have flowered heavily however have not produced seed. These show promise for sterility. One of these selections will be introduced in 2012. Five *Carpinus* selections (1 weeping, 2 columnar, 2 broad oval) have been identified for either advanced evaluation or introduction; each possess good summer foliage, attractive fall color and distinctive form. Budwood of these *Carpinus* is being collected and grafted in the January 2012. In addition, in early summer inferior individuals were removed from an F₁ block of *Carpinus* hybrids. F₂ seed resulting from open-pollination between the superior genotypes was collected and will be stratified and germinated. Four mountainash selections (2 simple leaf/upright crowns and 2 compound leaf oval crowns) are scheduled for advanced evaluation or introduction.

The shrub-breeding program has focused on several genera during 2011, including Barberry, Ceanothus, Physocarpus, Viburnum and Weigela. There are several selections within each genera ready to be multiplied and either placed into advanced evaluation at nurseries or introduced. Approximately 9 nurseries have requested a mix of these plants for immediate testing. A previously identified *Physocarpus opulifolius* selection has been successfully propagated via micropropagation. This clone is dwarf and maintains a very tight habit with no pruning. Paperwork is being prepared for introduction.

The Contreras lab at Oregon State University developed over 60 tetraploid barberries seedlings resulting from seed collected from *Berberis thunbergii* 'Rose Glow'. Most of the seedlings recovered were purple-foliaged; however, green and variegated forms have been observed. These tetraploid seedlings will be used to backcross to diploid genotypes to develop sterile triploids.

The following plants have been evaluated for pre-introduction phase buildup of propagation stock. A brief description of some of those plants follows:

Cornus sericea accession 20040301. Compact form of redosier dogwood resulted from treating seedlings of open pollinated Cardinal Dogwood with EMS, a chemical mutagen. After seven years in the landscape, the original plant is now approximately 6' high and much wider. We are continuing improvement efforts. To further improve this plant we will conduct another round of EMS treatment to develop more compact forms. Seed set was limited this fall, however we will monitor this plant and collect seeds in 2012.

Pyrus accession 19990137 Pyrus calleryana 'Chanticleer' x P. eleagnifolia. This selection has a very symmetrical columnar habit and has tested quite resistant to fireblight. Foliage is silvery green in color and has ½ inch diameter fruit. Plant is quite showy in flower. Plant has performed well in North Carolina, Iowa and Washington and Oregon following seven years in the field. Plants are currently in advanced evaluation.

Pyrus accession 20050310 Pyrus [(betulifolia x calleryana) x betulifolia]. This selection has a dense, round headed plant form. Foliage is silvery green in color. The plant appears to be sterile as it has never fruited even though it has flowered heavily and there are many other plants nearby for pollination. This is one of the 4 pears being evaluated for sterility.

Sorbus accession 20020163 Pom 35 was selected from an open pollinated hybrid population from a plant selected from a cross between *Sorbus aucuparia* and *Sorbaronia brilliantissima*. It is a small stature tree with attractive green foliage and a dense growth habit. It also has exhibited superior salt tolerance at the Minnesota Research Station and will be multiplied in the 2012 season.

Sorbus accession 19990078 Pom 27 MN 920379 20000031. This plant was selected from a population of plants grown from open pollinated *Sorbus amurensis*. It has a more typical Mountainash growth habit and is a vigorous grower. It has a very nice fall color.

Viburnum accession 19990034 Vib. 32. This selection has a compact plant habit growing to 5-6' after eight years in the field. Foliage is dark green and very glossy. The plant was selected from a population resulting from a cross of a selected plant from an open pollinated population from *Viburnum 'Allegheny'* with a selected plant from an open pollinated population from *Viburnum burejaeticum*. There are two other sibling selections from this population that have dark foliage smaller leaves and compact growth. These siblings also show promise and will be multiplied in 2012 and distributed for evaluation.

Carpinus accession 20010059. This plant has a weeping habit. The original plant sprawls along the ground. It could be grafted high on a standard and allowed to develop the weeping habit. This plant is already in advanced evaluation and it slated for introduction.

Selection and Evaluation of Promising Hybrids

In addition to the plants described above, we have many other promising selections under evaluation in the following genera: *Carpinus*, *Ceanothus*, *Clematis*, *Cornus*, *Diervilla*, *Forsythia*, *Physocarpus*, *Pyrus*, *Sorbus*, *Spiraea*, *Viburnum* and *Weigela*. These are growing at either the Minnesota or Oregon Research Stations.

Some of the more promising of these include a pear selection that has very glossy, dark green foliage and a very compact growth habit. This and others of our dwarf pears are being considered for dwarf rootstock development. A very compact selection of *Forsythia* resulting from treatment with EMS, a chemical mutagen, is showing good flower bud development and cold hardiness. It has good flower bud formation in Minnesota this fall and will be monitored in spring for flower characteristics. We have a few promising selections of *Ceanothus americanus* with differing growth habits and prolific flowering. Propagation to increase numbers and advance evaluation is being scheduled for all of these plants. In addition, seeds were collected from *Diervilla*, *Physocarpus*, *Sorbus*, *Spiraea*, and *Cephalanthus* for stratification and germination in early 2012.