

## DECIDUOUS WOODY PLANTS FOR THE FLORIST TRADE

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Winter 1988

This title is rather broad, at the same time quite narrow. This paper is confined to deciduous woody plants, partly because it is this group that has the greatest potential for growing in northerly areas. The evergreen needled conifers already account for substantial sales as cut trees and cut greens. There are few broadleaved evergreen species that will tolerate our frigid winters. A few that do tolerate them grow so slowly commercial production would be prohibitively expensive. Another reason for not including broadleaved evergreens is the authors lack of experience with them. Commercial experience even with the deciduous plants is limited.

The word Plants was used in the title as the florist trade includes most plant parts; leaves, stems, flowers, fruits, and other appendages.

It is my intent to include the limited cultural information that is available on this group of plants, and provide some of my own ideas on the culture on some of these plants. Thirdly, ideas for new crops that have potential for the market will be covered.

The first cover group of crops are now in the trade. It should be realized a large percentage of some of these materials are collected from the wild, rather than cultivated.

The pussy willows are probably the most common field grown woody plants in the trade. Their use is nation wide, and are used for an extended period from winter into the spring. I found Minnesota grown pussy willows in florist shops in San Diego, California. It is about as far away as one could ship in the continental U.S. Some of the pussy willows used locally and shipped are wild collected.

The two species most commonly grown are Salix caprea going by several common names - florist's willow, pussy willow and goat willow, and S. discolor - pussy willow or large pussy willow.

S. caprea - this European shrub grows to 25 feet tall and is hardy to zone 5. (The zone rating is based on the U.S.D.A. hardiness map for the U.S.)

S. discolor - this North American native is a small tree or large shrub growing to 20 feet tall and hardy to zone 2.

S. irrorata - the blue stem willow is a native from Colorado to Texas and the Southwest. It is hardy to zone 5. This is quite accurate since it occasionally suffers from slight injury in zone 4 and more extensively in zone 3. This may not be a problem since they are likely to be cut prior to the cold weather that would cause injury to the plants.

Other species, such as S. humulis, the prairie willow or small pussy willow, native to zone 4, may have potential. There are other species with large catkins, but their production along the stem is sporadic. Growing pussy willows is a balancing act. Cultural manipulations require a balance of vegetative growth for stems of suitable length and reproductive growth for the production of ample catkins. It is my opinion that cutting them part way back 18-36 inches would produce many stems of medium length. Severe pruning that would probably result in the production 8-10 foot stems. Periodic cutting them back to a couple inches for renewal might be necessary. Pussy willows should be grown in cultivated fields. Old plants in sod culture at the Arboretum have not been productive.

Other willows in the trade are not grown for their catkins but for their interesting stems. Salix matsudana 'Tortuosa' - the corkscrew or dragon's claw willow is the most common. This grows to 25 feet tall and is hardy to zone 5, which accounts for its occasional winter injury here. Soil culture would help minimize winter injury. Early fall cutting would also reduce winter injury. A couple of newer, but similar willows are S. 'Scarlet Curles' (S. x blanda 'Niobe' x S. matsudana 'Tortuosa'). It is probably hardier than the corkscrew willow because of its parentage. It has golden branches and scarlet stems. The colors are good but not bright. It is under royalty. Another similar one is S. 'Golden Curles' It grows to 30 feet tall and hardy to zone 5.

S. sachalinensis 'Sekko' - the Japanese fantail willow grows to 30 feet tall and is hardy to zone 4. It is grown for its fasciated stems used for arrangements. The percentage of fantail stems is small when compared to the normal stems.

There are willows with straight colorful stems, without showy catkins that might have potential. I am not aware of any of this type available in the trade at the present time. A couple examples are S. alba 'Chermesina' the red stemmed white willow that normally grows as a 75 foot tree and hardy to zone 2. Another might be S. spp. 'Flame', a selection from the Bergeson Nursery of Fertile, Minnesota. It grows to 20 feet tall, is hardy to zone 3 and has red-orange twigs.

I would suggest that this group of willows be grown in clean cultivated fields and annually be cut to three feet from the ground. This should result in branches of a saleable length.

These should be compared to selections of Cornus sericea, the red twig dogwood, for desired color and stem length.

Bittersweet - Celastrus - There are 31 species of which most are deciduous climbing vines. They are polygamous (with both unisexual and bisexual flowers either on the same plant or on separate plants of the same species). They are native to North and South America, Oceania, E. Asia and Madagascar. Flowers and fruits are either axillary or terminal. The fleshy arils are yellow, orange, vermilion or crimson when mature and have yellow to orange caps.

Despite the large number of species and diversity, only Celastrus scandens is economically important in the florist trade. Much of what is sold is collected from the wild. I believe some states prohibit roadside collecting.

Plants will be most productive in full sun, on well drained soils. Trellising is essential. A simple post trellis with two or three wires should be adequate. More wires or woven wires would make harvest difficult as the vines would be tenaciously intertwined in wire and the rest of the vine. The two or three wire system will allow for the harvest of some rather large branches that will command a premium price. To formulate harvesting it should not be more than 7 feet tall. Plants should be vegetatively propagated to assure a high percentage of female plants and large fruits. By knowing the sex of the plants, planting will include only an adequate number of males to assure pollination, increasing the number of females to maximize production. Easiest propagation of selections is made from root cuttings taken in the fall. Females could be selected from a seedling population and the males discarded. This might be done in a nursery area and the desired plants moved to a permanent site. One reason for not growing them where they are to fruit is unless the undesired plants are killed with an herbicide they are likely to resprout from roots left in the soil resulting with many undesirable plants in the field.

Plants will probably perform best under clean cultivation, or a mulch and mowing regime to keep down weed competition.

Harvest is usually done prior to natural leaf drop. Sweating or some temporary storage system to cause leaf abscission is necessary as hand removal of leaves is too labor intensive. Shorter pieces are usually sold by the bunch and longer pieces are usually sold individually, price according to the quality and fruitfulness.

Deciduous hollies are an important florist crop in this country as well as Europe. Little has been written on this subject. A large portion of the information in this article was generously shared by conversations and a couple unpublished papers by Robert C. Simpson, Simpson Nursery Company, Vincennes, Indiana. One of the specialties of his nursery is the propagation of deciduous hollies. Many of the cultivars are from a list in an article by him, Propagating Deciduous Hollies, The International Plant Propagator's Combined Proceedings Vol. 30, 1980, pp 338-342.

Ilex decidua - Possum Haw is an American native occurring from Virginia to Florida and west to southern Illinois and Texas. It is hardy to zone 5, usually growing to 15-18 feet tall but occasionally reaching 35 feet. It is a deciduous species producing solitary fruits, of up to three in a cluster. Since these fruits are produced only on two year wood it is not a desirable florist material because new growth hides the fruit. I list the following cultivars as a reference even though not desirable as a florist crop, since many commercial lists do not indicate the species of the cultivar. The name in parenthesis behind the name indicates the name of the originator. These include; 'Byers Gold', (Byers) 'Cascade', which should probably be 'Red Cascade', 'Council Fire' (Hartline), 'Frasers Improved', 'Oklahoma', 'Pocahontas', 'Red Cascade', 'Sentury', (Simpson),

'Sundance' (Hartline), and 'Warrens Red' (Warren).

Ilex serrata - Japanese Winterberry. This plant is native of Japan, China and Korea. It is a deciduous shrub growing 4-10 feet tall, occasionally reaching 17 feet. It is reported hardy to zone 5. The 3/16 inch red fruits are borne solitary or a few in a cluster. Although fruit plants begin fruiting at a young age they don't fruit abundantly. This species is grown as a garden ornamental, but not as cut material. It has been used in developing hybrids with winterberry that are useful for cutting. These are listed later. The following are cultivars of this species: 'Bonfire', 'Leucocarpa' (Shiu-Ying Hu) and 'Xanthocarpa' (Shiu-Ying Hu).

Ilex verticillata - Winterberry or Black Alder is the important species for cut branches. This native species grows to 15 feet tall. This deciduous, dioecious shrub occurs naturally north to zone 3 in Minnesota and is native eastward from southern Canada to Florida. Stinson reports two distinct types. He reports the "New England type" as dwarf, or at least considerably slower growing. Plants tend to have multiple stems, a light brown bark, and smaller leaves. These dwarf type plants tend to bloom earlier than the other type. Because of their small size and slowness of growth their use is mainly for landscape plantings.

The second type he categorizes as the "Southern type". It is taller growing, has fewer stems and a dark bark. Plants often occur in bogs. This is the type that seems to be native in Minnesota. This is the type used in commercial florist production.

This species fruits on the current seasons growth. With the slow growth that often occurs in bogs, fruits are often produced to near the tips of the branches. The glossy red berries are 3/16 inch in diameter and are produced in dense clusters.

Jenkins Florists in Maryland have commercially grown about two tons annually of winterberry for the florist trade for fifty years. They grow only two cultivars, Christmas Gem and Maryland Beauty. Plants are spaced at 20 x 20 feet to allow for tractor mowing. He harvests some branches from each plant annually. Branches are cut 15-18 inches long and are marketed in one pound bunches. Much of his production goes to the Washington, D.C. area.

Phil Mott of Michigan grows winterberry as one of his three major crops. He produces about twenty-five ton annually. His plants are spaced at 4 x 10 foot spacing. Some of his production is on low peat land and has spring frost kill of the flower buds of the early blooming types about one out of five years. He normally irrigates plantings that are on upland as well as in peat areas. He totally harvests his plants, but then must wait three years for the plants to recover before he can harvest another crop. He harvests from mid-October to mid-November. He stores the cut branches to induce leaf drop; hand removal is too costly. Ethylene gas would cause leaf drop, but cause the fruit to ripen and soften. Branches are cut to about 20 inches and packed in ten pound boxes. He ships from coast to coast.

Cut branches should not be placed in water. Fruits should adhere better

if branches are cut before the fruits reach maturity.

One normally associates red holly berries with the Christmas season. With the color range of fruits available in this species there should be an opportunity to capitalize on the yellow and orange fruited selections for the Halloween and Thanksgiving markets.

I am listing all the cultivars that I can find reference to, even though some are not useful for the florist trade since many commercial lists do not include a plant description.

Information on many of the cultivars is sketchy. Possibly the registration lists of the American Holly Society would provide additional information.

'Afterglow' (Simpson). Plants grow 3-6 feet tall, although plants 25 years old reach a height of 8-10 feet. This is an earlier bloomer, producing large orange-red berries that turn an orange color.

'Aurantiaca' (Gulf Stream Nursery) This grows to 6 feet tall, blooms early, and produces berries that are first red but turn golden orange as they mature.

'Bright Horizon' Registered Trademark (Hill). This cultivar produces large red berries in tight clusters.

'Cacapon' (Neal). Plants grow to 5 feet tall, bloom early, are heavy fruiting and produce medium sized red-orange berries.

'Christmas Berry'. Name only may or may not be legitimate - maybe a common name applied to this species.

'Christmas Gem' (Jenkins) Selection made specifically for florist production.

'Chrysocarpa'. Yellow fruited.

'Earlibright' (Hill).

'Fairfax' (Neal).

'Jackson' (Neal). Male.

'Maryland Beauty' (Jenkins). Selection made for the florist trade.

'Ralph Lincoln'. Name only.

'Red Sprite' (Sicbaldi). Sometimes listed as 'Macrocarpa' and 'Nana'. It grows 2-4 feet tall, broader than tall and slow growing. The abundant fruits are 1/2" in diameter.

'Shaver' (Neal). Grow 3-6 feet tall as an upright plant. The abundant fruits are orange-red, and the largest after Red Sprite.

'Sunset' (Simpson). It grows 6-8 feet on broad plants producing an abundance of large red fruits.

'Xanthocarpa'. Origin unknown - yellow fruited.

'Winter Red' (Simpson - Pl.P. 29912). Grows 8-10 feet tall and starts producing at an early age. It blooms early for the 'Southern type', but later than the "Northern dwarf types". The large red fruits retain their color long after turning black, sometimes holding the red color until spring.

Ilex serrata x I. verticillata. Apparently these hybrids resemble I. serrata more than I. verticillata, even when backcrossed to I. verticillata. Fruits color early, are small and abundant (but tend to darken sooner). These are mainly used for landscape purposes.

'Apollo' (U.S. National Arboretum). A male to pollinate Sparkleberry.

'Autumn Glow' (Orton).

'Bonfire' (Simpson). Grows to 14 feet tall, abundant fruiting, with non-fading fruits. Fruits tend to be produced 2-3 in a cluster.

'Christmas Cheer' (Gulf Stream Nursery). Probably of hybrid origin. Plants are vigorous upright becoming broader with age. They are very fruitful.

'Harvest Red' (Orton). Plants are vigorous, reaching a medium height. The 1/4 inch fruits are a non-fading bright red.

'Raritan Chief' (Orton). Male to be planted with Harvest Red.

'Sparkle Berry' (U.S. National Arboretum). The vigorous upright plants grow to 10 feet tall. They are heavy fruiting. The medium sized fruits are a glossy red, and long lasting.

Forsythia is a shrub that is forced into bloom for the florist trade. It forces in a very short time. It is not commonly grown in Minnesota since most species and cultivars are not dependably hardy. There are a few that are hardy in zone 4, such as Northern Sun, Sunrise and Meadow Lark. There are other cultivars that may be better for the florist trade because of flower size, color and growth habit. The less hardy types can be grown in a cold climate since branches can be fall cut and stored in a root cellar or similar structure until they are forced.

Beyond this point I am going out even still further on the limb, as most of the rest of the material is not in the florist trade. Research will be needed to handle and grow these for the florist trade.

Abeliophyllum distichum - Abeliophyllum or white forsythia is a shrub that has potential. It is hardy in zones 3 and 4, and has flower buds hardier than forsythia. It is not as vigorous as forsythia. The small white flowers are borne in abundance and have a delicate, pleasant fragrance.

Birch (Betula papyrifera) are collected by the thousands for use in the florist trade. Quite often these are used as whole trees with silk leaves to create artificial trees for indoor use. They are collected when they are 8-10 feet tall which is often before their bark becomes white. These are then sandblasted to take off the dark outer bark exposing the white beneath. Birch branches are often used to create wreaths. There is a possibility of growing birch seedlings for these purposes. I have seen natural occurring birch seedlings by the thousands on newly exposed peat areas from seed of trees native in the area. They will grow well in partially shaded areas.

Clematis (Clematis spp.) I believe are sold in England. Herbaceous non-vining clematis such as Clematis recta and C. recta 'Grandiflora' can be used as filler flowers in bouquets, but I am promoting the large flowered vining types. I checked my English clematis books, but failed to find a reference to their use as a cut flower. Last summer I cut some to see how long they lasted. Many of them lasted for 7-10 days. They would have to be grown on fairly open trellising, possibly a woven wire with a 6 x 6 or 6 x 8 inch mesh. On finer mesh it is more difficult to remove the flowers. One would have to do some market surveys to determine colors that would be most appropriate. White, pale blue and pale (true) pinks would be popular. Imagine a bridal bouquet of white clematis and the attendants with bouquets of pale blue clematis. The evaluation of cultivars for lasting qualities, flower size and length of the production season will be necessary. They could probably be handled in orchid tubes for shipping and display.

Cornus serotina - The red twig dogwood might be useful, although their stems tend to be rather straight and rigid. Cutting plants to the ground would likely to result in very long stems. Cutting them at the 18-24" level might produce a more useful stem length. Seedlings have considerable variation in color. Selections could be made for specific colors. This color does change over the winter, usually darkening. These would probably have to be fall cut and stored dry. Storing in water will cause bud break and growth which might not be desirable. Cardinal is a recent University of Minnesota introduction that should be included in evaluations.

Euonymus alata - the Winged euonymus might be grown for its interesting stems with rich brown, corky ridges. One Chicago wholesale florist indicated his willingness to test market it if someone would bring him a semi load of it. It is a perennial favorite with Ikebana enthusiasts in this area. Growers will probably want to stay away from any of the dwarf forms as some are less hardy, and we need a growth rate fast enough to make it economically feasible. Small plants will have to be protected from rabbit damage. Euonymus atropurpurea - the Wahoo has the potential as a florist material because of its abundant attractive fruit. There is a possibility that forced branches of Witchhazel (Hamamelis virginiana) or (H. vernalis) might be useful. The first species lasted for a week indoors when it was cut in full bloom. After the flowers shriveled they adhered to the branches and dried but still held their bright yellow color and remained attractive.

There are numerous roses with attractive fruits or hips. These hips vary

considerably in size, form, and color. Some are as small as 3/16" in diameter to as large as a quarter. Some are red, others orange and black. Many are round or nearly round, while others are elongated. Many roses grown for their blooms have attractive hips, if large branches were cut it might severely reduce bloom the following year. There are species or selections that could be grown specifically for their hips to be cut in the fall. The Hanson's Hedge Rose is one that might be useful. I am especially fond of our native Rose blanda glabra, the smooth prairie rose, because it is nearly thornless and the abundant fruits hold their color and are retained through the winter. Because of its low 3 foot stature they should be collected in the fall prior to the accumulation of snow.

The lilacs - (Syringa spp.) might have some potential either as forced blooms or field cut. Lilacs can be temperamental as cut flowers since they wilt easily.

There are other deciduous woody plants that might have potential for the florist trade. These include; Sorbaria, Spiraea, Hydrangea, and Hypericum. Certainly there are more. It is going to take someone that has imagination to see some of these, someone who is willing to try something new, someone who will not give up if something is not an instant success.