

lieve this is the best method of producing crabapples in our area and we are going to stick with it.

MODERATOR ZONDAG: I'm sure there are many questions but because we are running late we will continue with the program and if there is time at the end of the program we will handle questions then. Our next speaker is Wayne Mezitt, who will tell us about his methods of grafting unusual shapes and forms.

GRAFTING TO OBTAIN UNUSUAL SHAPES AND FORMS

R. WAYNE MEZITT

Weston Nurseries, Inc.
Hopkinton, Mass. 01748

INTRODUCTION

The types of plants I graft are usually dwarf or weeping cultivars of the various species on which they are grafted as rootstocks. The unusual shapes and forms are the result of the subsequent growth of the grafted plant. Most of the plants are top-grafted, from 1 to 6 ft. high although some are grafted in tiers, using side grafts, depending upon the effect desired. Most propagators are familiar with simple top-grafting techniques. Those who have toured nurseries have undoubtedly seen *Cotoneaster* cultivars, *Acer palmatum* 'Dissectum,' and *Syringa velutina* (s. *palibiniana*) as well as other plants grafted on standard rootstocks. My report is an extension of these procedures, drawing from my experience over the past few years.

REASONS FOR GRAFTING

An important reason for top-grafting is to provide interesting and unusual plants for use in landscaping. Such plants become more important as the people who use plants become more sophisticated and look for something different. Also most of these are slow growing and require very little maintenance. Their relatively small size allows them to be planted in pots or tubs and moved whenever desired.

Another reason is to create "mature" specimens faster than by conventional techniques. A 5 or 6 yr old *Chamaecyparis obtusa* 'nana Gracilis' that is created by multi-grafting to a 3 ft tall understock would take 25 years or more to grow from a conventional graft or cuttings.

A third reason that is closely related to the previous one is seed formation. In some cases it is possible to cause a dwarf plant to produce seed by top grafting it. This is especially interesting in the case of witches brooms or dwarf plants that seed only when mature, because the progeny from the seed are often as unusual as the parent in growth characteristics. We have produced early seeding on cultivars of *Pinus strobus*, *Tsuga canadensis* and *Cornus florida*.

A fourth reason is one of necessity. Occasionally a uniform branching height or straight or interesting stem is necessary and grafting techniques provide the simplest method of accomplishing it with some plants.

PROCEDURES

Most of the understock we use is grown in the field until it reaches suitable size. In the fall of the year, we dig and wrap understock plants in plastic burlap (or pot them), then prune branches according to how they will be grafted, then store the plants in an area where they experience a normal winter until we are ready to graft. We usually graft in February so, depending on the species, we allow several days to several weeks in a warm house to start the understock growing. Standard grafting techniques are employed, but after-care is crucial because of the size and age of the understock. We try to maintain very high humidity and light intensity for every plant and, depending on the species, and cultivar, we wax or paint the graft union, or wrap it in sphagnum, then bury it in peat moss or shade it from the sun. The percentage success is largely dependent on the species and the condition of the understock and scion. The aftercare encompassing the next 2 weeks to 2 months determines the maximum or minimum survival percentage. For example, large *Picea* grafts are in the 25 to 50% success range, *Euonymus* in the 75 to 90% range, and *Pinus strobus* in the 90 to 100% range, according to our experience.

Depending on the species, the understock is cut back partially or wholly during the next 3 to 4 months. Most of the new plants are moved outdoors in June and planted in the field in July. There are some losses over the summer and winter depending on the species and individual plants. Partial losses of one or more grafts on each plant occur so we try to compensate by putting extra scions into the stock when we graft.

The plants are ready for landscape use in as little as 2 years in the case of *Syringa velutina* and *Cotoneaster adpressa* var. *praecox* or as much as 5 or more years in the case of very slow growing scions, such as *Pinus strobus* 'Nana' and *Tsuga canadensis* 'Hussii.'

CULTIVARS TRIED

We have tried many cultivars grafted on a large number of understock species with varying success. Table 1 lists the successful combinations we have tried. To be in this list the scions must have survived at least one winter outdoors. While some will never have good landscape applications, many are noteworthy and unique new forms.

Table 1. Successful graft combinations

UNDERSTOCK	SCION
<i>Abies fraseri</i>	<i>Abies koreana</i> 'Prostrate Beauty' (Prostrata, <i>A. lasiocarpa</i> 'Compacta,' <i>A. procera</i> (<i>A. nobilis</i>) 'Glauca', <i>A. pinsapo</i> 'Glauca'
<i>Acer palmatum</i>	<i>Acer japonicum</i> 'Aconitifolium,' <i>A. j.</i> 'Filicifolius' ('Aconitifolium'), <i>A. palmatum</i> 'Dissectum,' <i>A. p.</i> 'Ornatum' ('Dissectum Atropurpureum'), <i>A. p.</i> 'Crimson Queen', <i>A. p.</i> 'Sangokaku,' <i>A. p.</i> 'Crispum' ('Shishigashura')
<i>A. saccharum</i>	<i>Acer saccharum</i> 'Globosum'
<i>Betula papyrifera</i> <i>B. (Verrucosa (B.) pendula,</i> <i>B. alba)</i>	<i>Betula verrulosa</i> , 'purpurea,' <i>B. V.</i> 'Tristic,' <i>B. V.</i> 'Youngii'
<i>Caragana arborescens</i>	<i>Caragana arborescens</i> 'Pendula,' <i>C. A.</i> 'Lorbergii'
<i>Cornus alba</i> 'Siberica'	<i>Cornus alba</i> 'Argenteomarginata,' <i>C. A.</i> 'Gouchaultii,' <i>C. A. ba</i> 'Kesselringii,' <i>C. a.</i> 'Spaethii'
<i>Cornus sanguinea</i>	
<i>C. florida</i>	<i>Cornus florida</i> 'Hohman's Golden,' <i>C. f.</i> 'Pendula,' <i>C. F.</i> 'Welchii'
<i>Crataegus phaenopyrum</i>	<i>Cotoneaster adpressa</i> var. <i>praecos</i> , <i>C.</i> 'Lowfast,' <i>Crataegus monogyna</i> 'Compacta,' <i>Chaenomeles</i> 'Cameo'
<i>Euonymus europaeus</i>	<i>Euonymus fortunei</i> 'Gracilis' ('Argenteomarginatus'), <i>E. f.</i> 'Andy,' <i>E. f.</i> 'Kewensis,' <i>E. F.</i> 'Longwood,' <i>E. F.</i> 'Vegetus'
<i>Fagus sylvatica</i>	<i>Fagus sylvatica</i> 'Purpurea Pendula,' <i>F. s.</i> 'Tortuosa'
<i>Forsythia</i> (in variety)	<i>Forsythia viridissima</i> 'Bronxensis'
<i>Ginkgo biloba</i>	<i>Ginkgo biloba</i> (male, in variety), <i>G. b.</i> 'Pendula'
<i>Juniperus virginiana</i>	<i>Juniperus chinensis</i> var. <i>sargentii</i> , <i>J. communis</i> 'Hornibrookii', <i>J. horizontalis</i> 'Bar Harbor', <i>J. h.</i> 'Blue Mat,' <i>J. h.</i> 'Wiltonii,' <i>J. procumbens</i> 'Nana,' <i>J. squamata</i> 'Prostrata,' <i>J. virginiana</i> 'Globosa,' <i>J. v.</i> 'Pendula'
<i>Laburnum x watereri</i> <i>Vossii</i>	<i>Laburnum alpinum</i> 'Pendulum'
<i>Larix Leptolepis</i>	<i>Larix x pendula</i> , <i>Larix gmelinii</i>
<i>Ligustrum amurense</i> <i>L. ibolium</i>	<i>Ligustrum vulgare</i> 'Iodense,' <i>Syringa velutina</i> (<i>S. palibiniana</i>)
<i>Malus sargentii</i>	<i>Malus</i> 'Barbara Ann,' <i>M.</i> 'Edna Mullins,' <i>M.</i> 'Red Jade', <i>M.</i> 'Van Eseltine', <i>M.</i> 'Winter Gold', <i>M. zumi</i> var. <i>calocarpa</i> , <i>Chaenomeles japonica</i> (<i>C. lagenaria</i>) 'Appleblossom'

<i>Morus alba</i> var. <i>tatarica</i>	<i>Morus alba</i> 'Pendula'
<i>Picea abies</i> <i>P. glauca</i> <i>P. pungens</i>	<i>Picea abies</i> 'Maxwellii' <i>P. a.</i> 'Pendula', <i>P. glauca</i> (dwarf), <i>P. pungens</i> 'Koster' ('Glaucia Compacta'), <i>P. p.</i> 'Globosa', <i>P. p.</i> 'Montgomery', <i>P. p.</i> 'Glaucia Pendula'
<i>Pinus resinosa</i>	<i>Pinus densiflora</i> 'Prostrata', <i>P. d.</i> 'Umbraculifera', <i>P. mugo</i> var. <i>mughus</i> , <i>P. resinosa</i> (dwarf)
<i>P. strobus</i>	<i>Pinus strobus</i> 'Nana', (<i>Pis</i> 'Radiata' or 'Umbraculifera'), <i>P. s.</i> 'Pendula', <i>P. s.</i> (witches broom, in variety), <i>P. s.</i> 'Globosa' (?), <i>P. parviflora</i> 'Glaucia'
<i>P. sylvestris</i>	<i>Pinus sylvestris</i> 'Repens' (?), <i>P. thunbergiana</i> (dwarf)
<i>Prunus tomentosa</i>	Apricot (in variety), cherry (in variety), nectarine (in variety), peach (in variety), plum (in variety)
<i>P. serrula</i> <i>P. serrulata</i> 'Kwanzan'	<i>Prunus</i> x 'Hally Jolivette', <i>P. subhirtella</i> var. <i>pendula</i> , <i>P. yedoensis</i> 'Yoshino Schidarki' (Shidare-yoshino?)
<i>Pseudotsuga menziesii</i>	<i>Pseudotsuga menziesii</i> 'Pendula'
<i>Rhododendron carolinianum</i>	<i>Rhododendron</i> 'Balta', <i>R.</i> 'Laurie', rhododendrons in variety
<i>Rhododendron obtusum</i> var. <i>kaempferi</i>	<i>Rhododendron Kiuanum</i> , <i>R. yedoense</i> var. <i>poukhanenses</i> , azaleas in variety
<i>Salix caprea</i>	<i>Salix caprea</i> 'Pendula'
<i>Sophora japonica</i>	<i>Sophora japonica</i> 'Pendula'
<i>Sorbus aucuparia</i>	(contorted), <i>Sorbus aucuparia</i>
<i>Syringa japonica</i>	<i>Ligustrum</i> <i>Syringa vetulina</i> ,
<i>Taxodium distichum</i>	'Pendula' <i>Taxodium distichum</i>
<i>Taxus cuspidata</i> <i>T. x media</i> 'Hicksii'	<i>Taxus baccata</i> 'Fowle' <i>Taxus b.</i> 'Repandens', <i>T. b.</i> 'Silver Green', <i>T. B.</i> 'Washingtonii', <i>T. cuspidata</i> 'Nana', <i>T. c.</i> (los spreading), <i>T. x media</i> 'Nigra'
<i>Thuja occidentalis</i> 'Douglasii Pyramidalis' <i>T. occidentalis</i> 'Nigra'	<i>Thuja occidentalis</i> 'Pumila', <i>T. o.</i> 'Hetz' Midget', <i>T. o.</i> 'Rhendiana', <i>Chamaecyparis lawsoniana</i> 'Minima Glauca', <i>C. obtusa</i> 'Nana Gracilis' ('Nana Compacta'), <i>C. o.</i> 'Crippsii', <i>C. o.</i> 'Filicoides', <i>C. o.</i> 'Gracilis Minima' (= 'Minima'?), <i>C. o. C. o.</i> 'Lycopodioides', <i>C. o.</i> 'Ericoides', <i>C. pisifera</i> 'Filifera Auera,
<i>Tsuga canadensis</i>	<i>Tsuga canadensis</i> (dwarf in variety) <i>T. c.</i> 'Hussii', <i>T. c.</i> 'Pendula', <i>T. c.</i> 'Prostrata' ('Cole's Prostrate'), <i>T. c.</i> (witches broom in variety)
<i>Viburnum opulus</i> 'Roseum'	<i>Viburnum carlesii</i> 'Compactum'

MODERATOR ZONDAG: Some of the plant shapes and forms Wayne showed in his slides are those which landscape architects are frequently looking for. I'm sure his paper will encourage some of us to try grafting to produce some of these unusual forms.

Our next speaker is Dick Wolff who will be discussing successes and failures in grafting Japanese maples.