

Minnesota Nurserymen's newsletter

Prepared by
UNIVERSITY OF MINNESOTA
Institute of Agriculture
• Agricultural Extension Service
• Horticulture Department

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• Minnesota State Horticultural Society



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GROWING AZALEAS FROM SEED

Michael Zins

Since the early 1950's the University of Minnesota Department of Horticultural Science has been involved in work with deciduous azaleas. Most of this research takes place at the Landscape Arboretum. Our strain of the mollis azalea has been introduced to the nursery trade. Each year more nurseries are starting to propagate, grow, and sell these azaleas. Starting them from seed is relatively simple and they grow surprisingly fast. Due to the increase in requests for seed and growing instructions, our method of propagation is described here. With a bit of adaptation, our method should be applicable to the commercial nursery. We aim to produce from seed, plants large enough to go to the field the same year. This minimizes handling and storage problems.

The azalea seed is collected in October. It is stored in sealed containers in the freezer until planting time. Stratification is unnecessary. We find it necessary to sow the seed in early January to have plants large enough to be transplanted to the field or lathhouse.

The growing medium used is pure peat moss because of its acidity. (Azaleas grow best in a medium with a pH of 4.5 to 6.0.) The peat is moistened before the flats are filled. It is then lightly tamped to form a uniform, smooth surface. The azalea seed is then thinly broadcast over the surface and covered with a thin layer of milled sphagnum. This layer is just thick enough to cover the seed. The seed flats should be carefully watered, using a fine mist. The flats then should be covered with glass or plastic to retain the moisture. It is usually unnecessary to water the seedlings until they have germinated.

As soon as the first seedlings emerge, the covering should be removed. Be certain they are not allowed to dry.

To gain maximum growth, the seedlings are grown under lights. This extended photoperiod keeps the plants actively growing. The lights used are regular 150-watt light bulbs with re-

flectors placed about 3 feet apart on a 3-foot wide bench. The lights are about 2 feet above the plants. (A fluorescent lighting system would be more economical.) Time control clocks turn the lights on at 5 p.m. and off at 2 a.m. extending the day length 9 hours. As the natural day length increases, the artificial daylight can be decreased proportionately. The lights are used from the time the seedlings emerge until they are moved outside after the last frost.

When the first set of leaves appears, they are ready to be transplanted. The seedlings can be pricked out of the seed flat. Smaller seedlings should not be planted among the more vigorous ones as they are likely to be stunted from the competition of vigorous plants. They are transplanted into a medium consisting of equal parts of fine, sharp sand and peat moss. This allows for adequate drainage and moisture retention. Thoroughly water the newly transplanted azaleas and place them under lights.

When the growth is actively resumed, azaleas can be fertilized using a foliar feeding of 1 ounce of a liquid evergreen and azalea fertilizer in 1 gallon of water. This application should be adequate for 3 or 4 weeks. Thereafter, they can be fertilized at 2-week intervals. To avoid injury to the seedlings from the fertilizer, the medium should be moist when the fertilizer is applied.

Watering is one of the most critical tasks related to growing azaleas from seed. A constant overabundance of moisture could result in root rot or fungus disease attacking the plants. Often mosses and liverworts grow on the surface of the medium that is too wet. Better growth is obtained if they are kept on the dry side: the medium should be kept moist, not wet.

The lush plants tend to bend when the foliage is wetted during watering. This results in crooked plants. Careful watering and pinching will help avoid this problem. It is wise to pinch all the plants to encourage branching. This would be necessary to get salable plants.

Insect and disease problems have been minimal. Aphids give us some trouble. These are

easily controlled with malathion. Whiteflies are common on azaleas. These, too, can be controlled with malathion. Spraying every 10 days until the infestation has subsided will alleviate the problem. Watch the underside of the leaves for spider mites. These can be controlled by spraying with Kelthane at weekly intervals until they are controlled. Damping off can be a problem attacking young seedlings. Excessive water and slow drainage also increase the occurrence of damping off. Root rot, if present, is usually caused by one of the parasitic fungi, Phytophthora. A well-drained medium will usually prevent this situation.

To harden plants move them out-of-doors after frost danger has passed. Place the flats in a semishady area with wind protection. After at least a week of hardening, transplant to the lathhouse or field. It is essential that these plants receive a thorough watering.

Plants will continue to grow as long as there is adequate moisture. Leggy plants can be pinched in the field if need be.

Salable plants with flower buds should be obtainable from seed in 2 or 3 years.

RESEARCH COMMITTEE
REPORT--II

The day before the last Minnesota Nurserymen's Newsletter went to print the final manuscript mysteriously disappeared. The issue was then prepared from rough penciled notes. There was no opportunity to proof the copy before it was printed. This resulted in numerous errors as the secretaries were unfamiliar with the Latin names. For this reason, we are reprinting it. Please accept our apologies.

ORNAMENTAL AND FLOWERING TREES

- Acer ginnala--Amur Maple (tree form)
- Carpinus caroliniana--Blue Beech
- Cornus alternifolia--Pagoda Dogwood
- Crataegus crusgalli--Cockspur Hawthorn
- Elaeagnus angustifolia--Russianolive
- Malus hybrids, Flame Flowering Crabapple
- Radiant Flowering Crabapple
- Red Splendor Flowering Crabapple
- Sundog Flowering Crabapple
- Strathmore Flowering Crabapple
- Van Guard Flowering Crabapple
- zumi callocarpa - Redbud Flowering Crabapple
- Ostrya virginiana--Ironwood
- Prunus virginiana 'Shubert'--Shubert Chokecherry
- Sorbus alnifolia--Densehead Mountain Ash
- Sorbus aucuparia--European Mountain Ash
- Sorbus decora--Showy Mountain Ash
- Syringa japonica amurensis--Japanese Tree Lilac

SHRUB ROSES

- Rosa rugosa vars.--Grootendorst Rose
- Rosa 'Prairie Dawn'--Prairie Dawn Rose
- Rosa 'Lillian Gibson'--Lillian Gibson Rose

GROUND COVERS

- Aegopodium podagraria--Bishops Weed
- Arctostaphylos uvi-ursi--Bearberry
- Convallaria majalis--Lily-of-the-Valley
- Euonymus coloratus--Purple Leaf Winter Creeper
- Euonymus fortunei--Winter Creeper
- Forsythia var.--Arnold's Dwarf Forsythia
- Lotus corniculatus--Birdsfoot Trefoil
- Pachistima canbyi--Pachistima
- Pachysandra terminalis--Japanese Spurge
- Phlox borealis--Arctic Phlox
- Polygonum reynowtria--Dwarf Polygonum
- Potentilla tridentata--Wineleaf Potentilla
- Spiraea japonica--Alpine Japanese Spirea
- Coronilla varia--Crownvetch
- Coronilla varia var.--Golden Crownvetch
- Thymus sp.--Perennial Thyme
- Veronica ruprestis--Creeping Speedwell

VINES

- Aristolochia durior--Common Dutchman's Pipe
- Campsis radicans--Common Trumpet Creeper
- Celastrus loeseneri--Chinese Bittersweet
- Celastrus scandens--American Bittersweet
- Clematis (many cultivars)
- Clematis paniculata--Sweet Autumn Clematis
- Clematis tangutica--Golden Clematis
- Lonicera x Dropmoreana var.--Scarlet Trumper Honeysuckle
- Parthenocissus quinquefolia 'Engelmannii'--Engelmann Ivy
- Parthnocissus tricuspidata--Boston Ivy (also dwarf strain)
- Vitus var.--Beta Grape

DWARF SHRUBS

- Acer ginnala 'Durand Dwarf'--Durand Dwarf Amur Maple
- Berberis thunbergi var.--Crimson Pygmy Barberry
- Buxus microphylla koreana--Korean Littleleaf Boxwood
- Ceanothus americana--New Jersey Tea
- Cornus stolonifera var.--Kelsey's Dwarf Dogwood
- Deutzia lemoine 'Compacta'--Dwarf Deutzia
- Diervilla lonicera--Dwarf Bushhoneysuckle
- Euonymus nanus turkestanicus--Dwarf Turkestan Euonymus
- Lonicera xylosteum nanum--Dwarf European Fly Honeysuckle
- Magnolia stellata 'Waterlily'--Waterlily Magnolia
- Philadelphus virginialis var.--Dwarf Snowflake Mockorange
- Potentilla fruticosa vars.--Forrest Potentilla
- Gold Drop Potentilla
- Jackman Potentilla
- Katherine Dykes Potentilla
- Tangerine Potentilla
- Rhododendron 'Mollis'--Mollis Azalea
- Ribes alpinum--Alpine Currant
- Spiraea bumalda 'Froebel'--Froebel Spirea
- Symphoricarpus albus laevigatus--Snowberry
- Symphoricarpus orbiculatus--Indian Currant or Coral Berry
- Viburnum opulus 'Compactum'--Compact European Cranberry

Viburnum opulus nanum--Dwarf European Cranberry
Viburnum trilobata 'Compacta'--Compact American
Highbush Cranberry

NEW UNIVERSITY INTRODUCTIONS FOR '69

SPARKLER FLOWERING CRABAPPLE

This new flowering crab is tailored to the design needs of many modern homes. Its horizontal, spreading form complements the low ground hugging forms of much modern architecture. Its incorporation into the surroundings of this type of home and office building will contribute strongly to a sense of unity needed so much in modern landscape design.

The horizontal form of 'Sparkler' completes a set of three distinct forms of flowering crabs introduced by the University of Minnesota. Previously introduced members of this set are the upright growing 'Vanguard' and the very popular 'Radiant' which has an intermediate rounded form. 'Sparkler' is a sister seedling of these varieties, coming from the breeding efforts of the late Dr. L. E. Longley. This selection, previously numbered 11AB, has been tested at the Horticulture Research Center and Arboretum, Excelsior, as well as at other stations throughout the state and country.

The foliage opens with a reddish cast, but changes gradually to a dark green. The very bright rose-pink flowers are born in great profusion in mid-May. The young plants produce flowers and fruits at an early age, often the first year in the landscape. The fruits are small, dark red, providing a good fall landscape feature as well as food for the birds.

Meeting a long standing need in plant form, and providing a brilliant spring display, the variety 'Sparkler' should become a distinguished member of the valuable collection of hardy ornamental plants introduced by the University of Minnesota.

There is a descriptive sheet in color available on 'Sparkler.' It has both a close up of the flower and the entire tree. Placing this sheet in the public's eye should help increase sales.

YELLOW GLOW CHRYSANTHEMUM

Yellow Glow (62-121-17) is an abundant, attractive, 2½ to 2 ¾-inch, rich yellow, decorative, fully double flower with deeper coloring in the center. Plants begin blooming on or about September 1 in the Twin Cities area and remain attractive until killing frost. The stiff, upright stems are well clothed with dark green foliage. Mature plants grown in full sun average 20 inches high and 24 inches wide. This variety makes an excellent cut flower. Yellow Glow originated from a cross of the Minnesota variety Goldstrike and Crowning Glory.

ROYAL POMP CHRYSANTHEMUM

Royal Pomp (63-299-18) has 1½ to 2-inch, rich, bright purple pompon blooms. The flowers, borne on relatively long and stiff stems, are durable and long-lasting, and have a spicy fragrance. Foliage is rich, dark green, and somewhat glossy. Royal Pomp is excellent for flower arranging. Plants bloom on or about September 1 in the Twin Cities area and are attractive until killing frost. Parents of this variety are Judy and Chocolate Drop. Both varieties make satisfactory spring-flowering, 3-inch pot plants and should be available at most garden centers. After blooms fade, plants should be cut back to 3 or 4 inches above the ground and planted in the garden for fall flowering.

Miscellaneous Report 82 describes these mums and has color photos.

WOODY PLANTS THAT ATTRACT BIRDS

Mervin C. Eisel

Ornithologists estimate that an acre of land in the eastern United States can support an average of four birds. Bird enthusiasts, however, are able to attract many more birds than nature itself could support. One of the most effective ways to attract birds is to plant trees and shrubs that will provide food and suitable habitat.

FOUR ESSENTIALS FOR BIRDS

A continuous supply of food is essential for all birds. You will note that the season when birds use the plants for food is indicated on a list that follows. Those that retain their fruits into the winter are especially important since food is scarce. Plants producing fruits and seed during the summer serve as a supplement to a bird's insect diet. Those retaining their fruits into the winter often contribute color and interest to the otherwise drab winter landscape.

Water must be available. A birdbath, a small pool or fountain will fulfill this need. If possible the water should be shallow at least along the edge of the container.

Birds must have protective cover. This will help them escape from cats, dogs, and natural predators. It gives them protection from weather, the summer sun, rain and hail, and cold winter winds. Dense evergreens effectively supply this protection. When landscaping especially to attract birds, plants are spaced much closer together than normal. A thicket type planting is ideal. Allow the branches to grow close to the ground. This dense vegetative growth will also provide desirable nesting sites.

Birdhouses and feeders help attract birds to the landscape. Birdhouses should be protected from cats and squirrels. Should you desire to feed the birds during the winter, the practice should be continued throughout the entire winter as birds become dependent on this food source. Temporary supplementary feeding after deep

snows and ice storms may save many birds.

This should be used with Extension Bulletins #267, "Woody Plants for Minnesota," and #258, "Evergreens." These bulletins will give the cultural requirements of the following list of plants.

SHRUBS 5 TO 8 FEET

<u>NAME</u>	<u>QUALITY*</u>	<u>SEASON⁺</u>	<u>REMARKS</u>
Korean Barberry (<i>Berberis koreana</i>)	vg	f, w	Long racemes of showy red fruits
Silky Dogwood (<i>Cornus amomum</i>)	vg	su, f	
Gray Dogwood (<i>Cornus racemosa</i>)	vg	su, f	
Redtwig Dogwood (<i>Cornus stolonifera</i>)	vg	su, f	Showy red bark
Hedge Cotoneaster lucida (<i>Cotoneaster lucida</i>)	vg	f, w	Black fruits, plants subject to scale insects
Winterberry or Blackalder (<i>Ilex verticillata</i>)	ex	f, w	Sexes on separate plants, moist acid soil, very showy fruits
Nanking Cherry (<i>Prunus tomentosa</i>)	vg	su	May not fruit each year
American Elder (<i>Sambucus canadensis</i>)	ex	late su	Black fruits
Scarlet Elder (<i>Sambucus pubens</i>)	vg	su	Red fruits
Arrowwood Viburnum (<i>Viburnum dentatum</i>)	vg	su, f	Black fruits
Wayfaringbush Viburnum (<i>Viburnum lantana</i>)	vg	late su, f	Fruits turn red then black when ripe
Nannyberry (<i>Viburnum lentago</i>)	vg	f, w	Clusters of black fruits
European Highbush Cranberry (<i>Viburnum opulus</i>)	g	f, w	Birds like American cranberry better
Sargent Highbush Cranberry (<i>Viburnum sargentii calvescens</i>)	vg	f, w	Good ornamental
American Highbush Cranberry (<i>Viburnum trilobum</i>)	vg	f, w	Apparently fruits must freeze and thaw several times before birds find them palatable

SHRUBS 3 TO 5 FEET

<u>NAME</u>	<u>QUALITY*</u>	<u>SEASON⁺</u>	<u>REMARKS</u>
Glossy Black Chokeberry (<i>Aronia melanocarpa elata</i>)	vg	f, w late su	Showy white flowers
Purplefruit Chokeberry (<i>Aronia prunifolia</i>)	g	su, f	Not as fruitful as one above
Japanese Barberry (<i>Berberis thunbergii</i>)	g	w, f	Sharp spines
Bayberry (<i>Myrica pensylvanica</i>)	vg	f, w	Holds leaves through winter
Currants and Gooseberries (<i>Ribes</i> spp.)	vg	su	Plants subject to mildew and leaf spot diseases

* Ex = excellent, vg = very good, g = good, f = fair.
+ F = fall, w = winter, sp = spring, su = summer.

SHRUBS 5 TO 8 FEET, Cont'd.

<u>NAME</u>	<u>QUALITY*</u>	<u>SEASON⁺</u>	<u>REMARKS</u>
Rugosa Roses and hybrids (<i>Rosa rugosa</i>)	g	f, w	Red-orange hips
Blackberry (<i>Rubus allegheniensis</i>)	ex	su	Form impenetrable thick; attracts many birds

SHRUBS LESS THAN 3 FEET

Cranberry Cotoneaster (<i>Cotoneaster apiculata</i>)	g	su, f	Not fully hardy
Snowberry (<i>Symphoricarpos albus laevigatus</i>)	g	f, w, sp	White fruits
Coralberry or Indian Currant (<i>Symphoricarpos orbiculatus</i>)	g	f, w, sp	Red fruits

VINES

Chinese Bittersweet (<i>Celastrus loesneri</i>)	f	f, w	Attracts a few birds, plant at least three plants
American Bittersweet (<i>Celastrus scandens</i>)	f	f, w	Attracts a few birds, plant at least three plants
Virginia Creeper (<i>Parthenocissus quincifolia</i>)	ex	f, w	Clusters of blue fruits and good fall color
Wild Grape (<i>Vitis</i> spp.)	ex	f, w	

PLANTS ESPECIALLY GOOD FOR COVER AND NESTING SITES

<u>NAME</u>	<u>SIZE</u>	<u>REMARKS</u>
White Fir (<i>Abies concolor</i>)	+50'	Blue-green foliage
Lilac Flowered Honeysuckle (<i>Lonicera syringantha</i>)	4-5'	Forms a very dense entanglement
White Spruce (<i>Picea glauca</i>)	+50'	
Black Hills Spruce (<i>Picea glauca densata</i>)	25-50'	Very dense
Austrian Pine (<i>Pinus nigra</i>)	25-50'	Dark green foliage
Douglas Fir (<i>Pseudotsuga mensiesii</i>)	25-50'	Protected sites only

TREES 50 FEET AND OVER

<u>NAME</u>	<u>QUALITY*</u>	<u>SEASON⁺</u>	<u>REMARKS</u>
Boxelder (<i>Acer negundo</i>)	g	f, w	Not recommended for landscape plantings
Hackberry (<i>Celtis occidentalis</i>)	vg	f, w	
Green Ash (<i>Fraxinus pennsylvanica lanceolata</i>)	f	f, w	Seeds

* See footnote on page 4.

+ See footnote on page 4.

TREES 25 TO 50 FEET

<u>NAME</u>	<u>QUALITY*</u>	<u>SEASON⁺</u>	<u>REMARKS</u>
Paper Birch (<i>Betula papyrifera</i>)	f	f	Seeds
Catalpa (<i>Catalpa speciosa</i>)		su	Hummingbirds
Russianolive (<i>Elaeagnus angustifolia</i>)	g	f, w	Seeds and fruits
Eastern Redcedar (<i>Juniperus virginiana</i>)	ex	f, w, sp	Plant away from apples and cedars
Morus	ex	su	Attracts many birds
Amur Corktree (<i>Phellodendron amurense</i>)	vg	f, w, sp	Many black fruits
Blackcherry (<i>Prunus serrotina</i>)	ex	s	Attracts many birds
Mountain Ash (<i>Sorbus</i> spp.)	vg	su, f, w	European Mountain Ash, one of the best of the Mountain Ash trees

TREES UNDER 25 FEET

Pagoda Dogwood (<i>Cornus alternifolia</i>)	g	su, f	Plant in semi-shade, horizon- tal branches, white flowers, good as tree or shrub
Cockspur Hawthorn (<i>Crataegus crusgalli</i>)	ex	f, w	Bright red fruits attractive in winter
Rocky Mountain Juniper (<i>Juniperus scopulorum</i> cultivars)	f, g	f, w	Some cultivars bear some fruit
Siberia Crabapple (<i>Malus Baccata</i>)	vg	f, w	Golden fruits
Red Splendor Flowering Crabapple (<i>Malus</i> 'Red Splendor')	ex	f, w, sp	Red showy fruits from fall to spring
Redbud Flowering Crabapple (<i>Malus zumi calocarpa</i>)	ex	f, w	Beautiful in bloom
Flowering Crabapples (<i>Malus</i> spp.)	g	f	Most contribute some food
Ironwood (<i>Ostrya virginiana</i>)	f	f, w	Seeds
Wild Plum (<i>Prunus americana</i>)	f	late su	
Mayday Tree (<i>Prunus padus</i>)	vg	su	Showy spring bloom

SHRUBS

Amur Maple (<i>Acer ginnala</i>)	g	f, w	Seeds
Juneberries or Serviceberries (<i>Amelanchier</i> spp.)	ex	su	Desirable ornamental, attracts many birds
Many Flowered Cotoneaster (<i>Cotoneaster - multiflora</i>)	vg	su, f	Bright red fruits
Eastern Wahoo (<i>Euonymus atropurpureus</i>)	f to g	s, w, sp	Showy fruits in winter
European Euonymus (<i>Euonymus europeaus</i>)	f	f, w	Fruits discolored by hard freeze
Ames Juniper (<i>Juniperus chinensis</i> 'Ames')	ex	f, w	Very fruitful, dense blue- green foliage

* See footnote on page 4.

+ See footnote on page 4.

SHRUBS, Cont'd.

<u>NAME</u>	<u>QUALITY*</u>	<u>SEASON⁺</u>	<u>REMARKS</u>
Honeysuckles (<i>Lonicera</i> spp.)	vg	su, f	Many species, most attract birds
Pincherry (<i>Prunus pensylvanica</i>)	vg	su	
Chokecherry (<i>Prunus virginiana</i>)	vg	su	
Buckthorn (<i>Rhamnus cathartica</i>)	vg	su, f, w	May be used as a small tree; common in wooded areas where it has escaped from cultivation
Shuberts Chokecherry (<i>Prunus virginiana</i> 'Shuberts')	vg	su	Summer foliage dark red
Smooth Sumac (<i>Rhus glabra</i>)	g	su, f, w	Good bank cover, sexes on separate plants
Staghorn Sumac (<i>Rhus typhina</i>)	vg	su, f, w	Good bank cover, sexes on separate plants
Buffaloberry (<i>Sheperdia argentea</i>)	vg	late su	Attractive silvery foliage, red, orange fruits, sexes on separate plants

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REVISED RESEARCH COMMITTEE REPORT--PART II

NEW UNIVERSITY INTRODUCTIONS FOR '69

M. C. Eisel
Editor