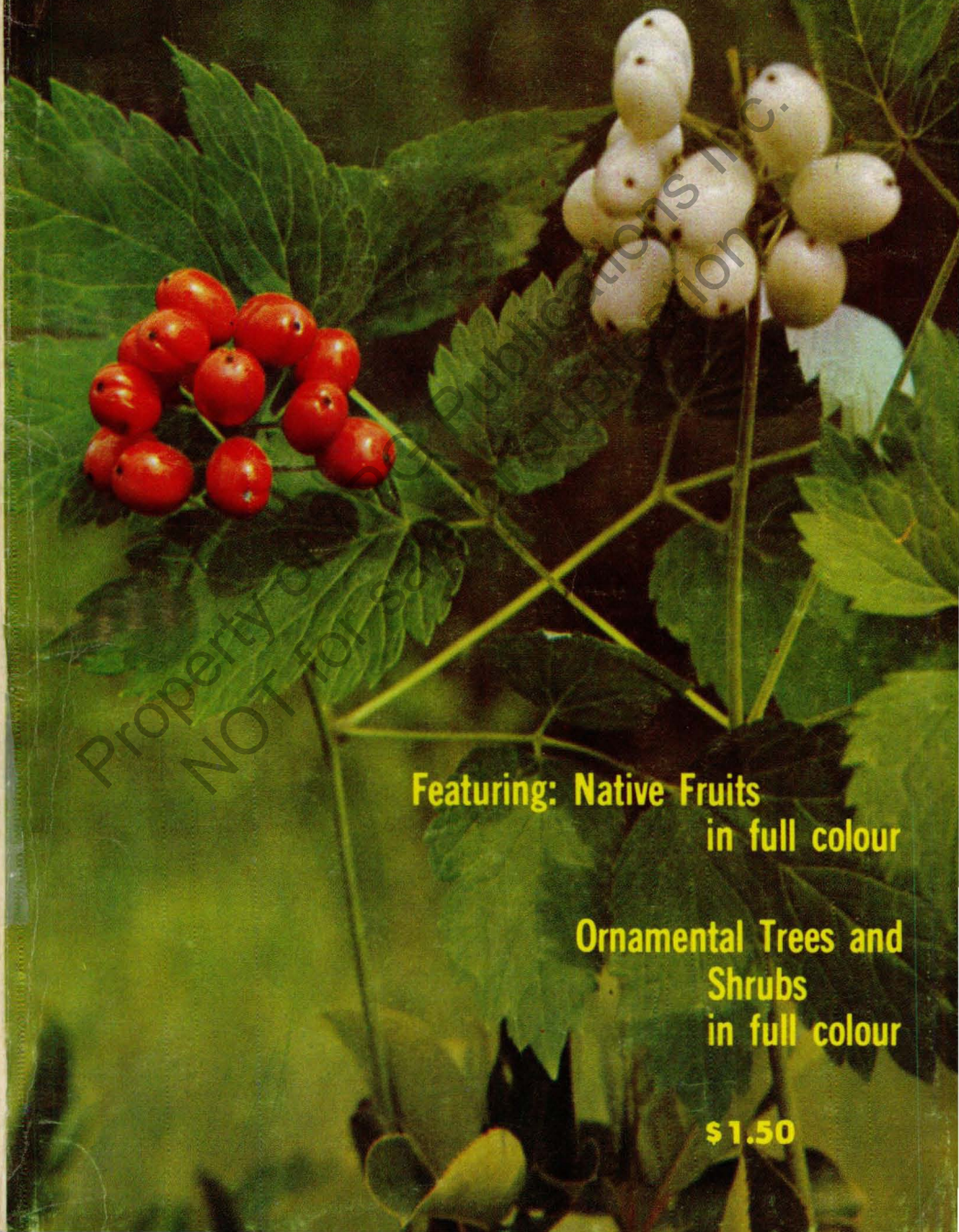
# THE 1972 PRAIRIE GARDEN

*Western Canada's Only Gardening Annual*





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THE PRAIRIE GARDEN . . . 1972

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*For Western Gardeners and Homeowners*




# The Prairie Garden

WESTERN CANADA'S ONLY GARDENING ANNUAL

*Published by*
WINNIPEG HORTICULTURAL SOCIETY
**A non-profit publication dedicated to the advancement of Horticulture in our Northern Great Plains area.**

Winnipeg, Manitoba — 29th Annual Edition, February, 1972

## The Prairie Garden 1972

again made possible by the pertinent horticultural information contributed by western horticulturists, — both professional and amateur as part of their service to prairie gardening, to whom we wish to express our sincere thanks. We also gratefully acknowledge the support of our advertisers.

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**Cover Picture:** Baneberry, See Page 33.

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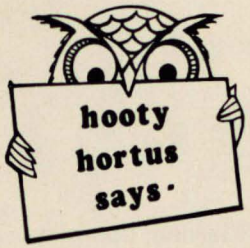



*Meet our new feature writer. Our feathery friend of last year got away. We trust that this feature will continue to be of interest and benefit to you.*



# Information Please

We suggest that you supplement your Prairie Garden Library with free horticultural bulletins from your federal, provincial government or university.

Write and ask for Lists of Publications available.

In Alberta – Publications Office, Room 803, Agriculture Building, Edmonton, Alberta.

In Saskatchewan – Publications, Extension Division, University of Saskatchewan, Saskatoon, Saskatchewan.

In Manitoba – Publications Branch, 713 Norquay Building, Winnipeg, Manitoba R3C 0P4.

For Canada – Canada Department of Agriculture, Government of Canada, Ottawa, Ontario.

There are two four page quarterlies, containing gardening information and horticultural society news available at a price of .50¢ per year, two years $1.00.

The Gardener's Bulletin – Extension Division, University of Saskatchewan, Saskatoon, Saskatchewan.

The Alberta Horticulturist – Alberta Horticultural Association, Box 1083, Lacombe, Alberta.

There are also a number of recent books, dealing in a practical and concise way with prairie horticulture, now available. The Prairie Gardener by H.F. Harp, the CBC "prairie gardener", at a price of $8.95 per copy from bookstores or from M.G. Hurtig Ltd., 10411 Jasper Ave., Edmonton; Better Ways to Successful Gardening in Western Canada, referred to at the beginning of this publication; and the Canadian Gardener's Handbook available at bookstores under the Universal Best-Seller Label at $1.00.





# Charles Young

Charles Young receiving the Cooper Memorial Trophy as "Gardener of the Year" in 1966.

We do honor to Charles Young of Calgary. Charles, who passed away early last spring was a truly great gardener in heart and soul. As a horticulturist he received many honors, one of the most outstanding of which is "The Gardener of the Year Trophy" in August of 1966. This trophy is awarded annually by The Albertan and the Calgary Garden Club, not only for one's own horticultural achievements but also for meritorious work in helping others in their gardening pursuits. Charles was truly such a man. He cared about horticulture and he cared about people, giving himself in the kind of help and friendship that is rare. He will be sadly missed.

Mr. Young, in collaboration with his wife, was garden columnist for The Albertan for many years. He also wrote a column for the Lethbridge Herald and contributed articles to gardening periodicals.

It is truly hard to extol his works without including his wife Isabelle for they were partners, not only in their gardening activities but in all aspects of life. Their home garden is one of the beauty spots of Calgary. She contributed to his garden columns and was closely allied with him in writing and compiling one of the few outstanding and practical gardening books, not only for Alberta gardeners but for the whole West in "Better Ways to Successful Gardening in Western Canada". This book is not only a fitting memorial to Charles Young but the exemplification of a truly great man and wife team.

Mrs. Isabelle Young is still active in horticultural works in Calgary and is continuing the gardening columns, in which she previously assisted her husband, while just last summer she was awarded the same honor given her husband in 1966, by being chosen the recipient of "The Gardener of the Year Trophy" for 1971.

Editors Note: Better Ways to Successful Gardening in Western Canada by Isabelle R. Young and Charles Young is available from The Albertan, 830-10 Ave. S.W., Calgary, Alberta at a price of $3.95 each plus .30¢ for mailing.

(A Follow-up to "The First Phase of a Dream" on Page 50 of the 1971 Prairie Garden)

# A Dream Come True

P. J. PETERS

Spring has come to Manitoba. The snow on the five acres of strawberries on the Chubey strawberry farm at Rosa (known as the Rosa Berry Farm) has melted. A side delivery rake moves the straw from the strawberry rows into the aisles between. The plants have come through the winter without any apparent winter injury.

The warm sun and drying winds spur on the growth of plants. Kelthane is sprayed to kill the cyclamen mites that overwintered. Growth is fast. By the beginning of June the strawberry blossoms begin to open. Malathion is applied to control the tarnished plant bug. These bugs may cause catfacing or hard-sided berries. The irrigation system is readied to control frost, should it come.

But frost does not come. All systems are go. The fields are weeded and cared for. But then trouble looms. The berries are beginning to form. The Fruit Specialist receives an SOS from the Chubey boys. The field that looked beautiful a week ago is in trouble. The strawberry leaves are contorted. They are turning a bright yellow. Could it be disease? The pathologist says, "not likely". Could it be spray damage? The weed specialist does not think so. The soil specialists are called in. Soil and strawberry leaves are analyzed. The verdict is a lack of nitrogen and sulfur. Fertilizer containing both is applied. The color returns but some yield will be lost because of the setback to the plants. It is rationalized that lighter soils will need more fertilizer applied more frequently. Irrigation tends to leach nutrients from these lighter soils.

The Chubeys are busy. Business cards, with name, address and phone number on one and a road map on the other side are printed. Signs are painted. The selling booth is prepared. All must be in readiness. Stakes divide the field for directing pickers to the right row.

Then comes the first picking day, early in July. The story of the Rosa Berry Farm has spread. There are more pickers than can be accommodated. The berries are big, they are shiny, bright red and juicy. They are clean. Happy pickers line up at the booth to have their berries weighed and to pay 30¢ a lb. for them.

Picking is announced for three times a week. Pickers come early so as not to be out of luck. By noon the field is picked clean. Those lucky enough to pick their 20, 30, 50 or 100 lbs. contentedly sip a soft drink they are able to buy at the booth. The Chubey men and women happily drink theirs.



Winnipeg Free Press

In three weeks or a little more the picking season is over. The Chubeys evaluate the performance. Redcoat is the variety they like best. Guardsman did not yield as well. In future they'll grow Redcoat. They have, in fact, planted another five acres already! Next year they will have 10 acres in bearing. They made money this year but would have made more if enough fertilizer had been used. The dream they had two years ago – it came true.

But now there is no time for dreaming. Next year's dream can only come true if the old field is properly renovated and the new and old fields properly fertilized. More fertilizer should mean greater fulfillment of next year's dream.

# Snow Mold on Lawns

J. DREW SMITH

"Snow moulds" are diseases caused by several different fungi which attack turf grasses at low temperatures, often under a snow cover. The disease may be severe, and sometimes the damaged turf takes a long time to recover. They are particularly prevalent in regions with long, snowy winters, although there is a broad climatic pattern to the distribution of the various kinds of snow mould. Even so we cannot be sure that the same disease will be prevalent in a particular area every year.

A survey made of 913 domestic front lawns in Saskatoon (about a 4% sample) in late April 1969 showed that only 12% were free from snow mould while 14% had more than half their area affected by the disease. In late April and early May, 1971, 1,200 home lawns in seven cities and towns in Saskatchewan were surveyed for these diseases. Only 9% of the lawns in Swift Current and Regina were free from snow mould, Saskatoon and Maple Creek had 16%, Moose Jaw and Prince Albert 31%, and in Rosetown 35% were without diseases. In Swift Current 11% of the lawns surveyed had half their area or more damaged by snow mould.

A snow mould caused by *Fusarium nivale* was very common on lawns of Kentucky bluegrass and creeping red fescue in Saskatoon in 1971. According to Dr. J.B. Lebeau of Lethbridge Research Station (in Canadian Plant Disease Survey 1969) Fusarium snow mould may cause much damage to turf grasses in southern Alberta. In Saskatoon we often find this kind on areas of turf receiving some warmth from underground pipes or close to basements. The low temperature basidiomycete (L.T.B.) snow mould is often more prevalent in colder regions or in colder winters than that due to *F. nivale.* These two snow moulds can sometimes be distinguished by the colour and the appearance of the mould on the diseased patches of grass. *F. nivale* produces a pink mycelium, hence the name "pink snow mould" (or Fusarium patch disease). The LTB fungus produces a white fluffy mould growth. The gray crust which is often found on patches of turf after snow melt is usually caused by a harmless fungus. Some golf and bowling greens in Prince Albert, Saskatoon and Swift Current were badly damaged last spring by another fungus which has not been found in this province before. The disease was Sclerotina snow mould caused by *Sclerotinia borealis* which is usually found further north in Alaska, Sweden, Norway, Finland and Russia. However, Dr. H. Vaartnou of the Alberta Department of Agriculture (Plant Disease Reporter 1970) found it recently on turf grasses in the Peace River region of Alberta. It can be recognized in spring by the presence of black fungal resting structures, about the size of mouse droppings, in the crowns of the diseased plants. It is probable that snow mould of grasses in Saskatchewan is also caused by other fungi and by *Typhula* species but the latter are probably different from those in eastern Canada and the northeastern United States.

It will be realized from the foregoing that we cannot successfully use the same measures for snow mould control as advocated for eastern Canada or the Pacific North-West where the climate and causes of disease are different. There are sufficient differences even within the province to make specific recommendations difficult to give. However, at Saskatoon, for the last few years, we have been developing turf grasses for lawns, particularly in the central prairies and have been testing promising fungicides both on special test areas and on domestic lawns. To be effective, fungicides for snow mould control must be applied in late fall, before snow fall. Application may be repeated during mid-season thaws and at snow melt. Test results show that mercury fungicides are the only ones at present which are effective against all types of snow mould. Although the use of these materials for other purposes is restricted, at the time of writing, mercury fungicides may still be used on lawn turf. Because of the poisonous nature of mercury compounds, we are trying to find substitutes. In the Saskatoon tests mercuric and mercurous chlorides (Caloclor), phenyl mercuric acetate (PMAS), chloroneb (Tersan SP), benomyl (Benlate), and carboxin (Vitavax) gave fair to excellent control of snow mould depending on the kind. Thiram (Tersan 75) gave poor control.

Often it is possible to obtain good control of snow mould without applying fungicides. Some of the more important points are outlined below: –

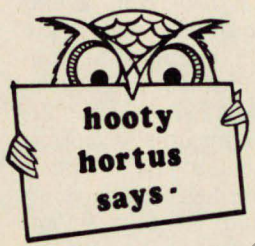
1. The grass species and varieties used in the turf influence susceptibility. As a general rule the finer grass species, bents *(Agrostis* spp.), red, chewings and sheeps fescue *(Festuca* spp.) are more susceptible than Kentucky bluegrass *(Poa pratensis).* However the Merion variety of the latter is quite susceptible. It is doubtful whether it is worthwhile using the readily available bent varieties in domestic lawns in our climate, for even in the most skilfully managed golf course and bowling greens these grasses have a limited life and are usually replaced by annual bluegrass *(Poa annua).* The coarser, less attractive, but snow mould resistant smooth

bromegrass, crested wheatgrass and meadow fescue are suitable for rough lawns only.

2. Adequate soil fertility should be maintained during the active growing season. If necessary, have a test on a soil sample done at the Soil Testing Laboratory, at the University, Saskatoon (for a fee). Avoid over-fertilizing, especially with a fertilizer high in nitrogen in late summer, because this will encourage a sappy, susceptible, unseasonable growth. Turf should be adequately watered, but not overwatered, before freeze-up. (Personally, I like to see the lawn brown off a little before the permanent snow cover arrives.)
3. Keep on trimming the lawn with the mower until there is little appreciable growth. Certainly the grasses should not be allowed to become long, matted or covered with tree leaves which produce a smothering effect and appear to encourage snow mould.
4. Try to maintain an even cover of snow with snow fences. Snow mould is often worse under drifts but on the other hand bare turf areas may suffer desiccation damage which can be as bad as snow mould.
5. Encourage as rapid snow melting in spring as is possible by spreading snow. In Washington and Utah a very light application of fine furnace ashes to deep snow cover when the sun gets strong has been shown to encourage rapid snow melt and reduce snow mould.

There is no experimental evidence about the beneficial or deleterious effects of raking out snow mould patches. If you wish to reduce the risk of spreading infection spray the patches with a turf fungicide a few days before raking. Operations such as coring (aerating), regular or vertical mowing, and scarifying may also spread the diseases but the improvement in turf vigor resulting from these operations must be weighed against this risk.

Finally, if it is necessary to use fungicides then carefully read the manufacturer's instructions on the container and follow them for the safety of yourself and others.




*You must add the new Brandon Heuchera to your herbaceous perennial border. It is a new hardy race of heuchera, a cross between a native species and the well known varieties of garden heucheras and developed by Mr. Henry Marshall, at Brandon Experimental Farm. The flowers are elegant panicles of pink or red and are maintained over a long period. The leaves are dark green and attractive all through the season. The seed pods too are colorful and can be used effectively in winter bouquets. It is certainly one of the outstanding new perennials for the prairies.*





Mrs. Skinner presenting cheque to Mr. John Wilder.

# Skinner Memorial Library

## Dedication on August 13th, 1971.

The Skinner Library Fund drive culminated with the dedication of this Library in the Plant Science Building of the University of Manitoba on August 13th, 1971.

Mr. Stan Gugin, President of the Manitoba Horticultural Association, the sponsoring body for the Skinner Memorial project, presented the cheque for $5,152.45 to Mr. Fred Weir, Manitoba Provincial Horticulturalist and Chairman of the drive. Mr. Weir thanked all the organizations and individuals in Manitoba, Canada, United States and Britain for their generous support.

The late Dr. Frank Skinner, after whom the Library is named, was an internationally known plant breeder from Dropmore, Manitoba. It was entirely fitting, therefore, that his widow, Mrs. Helen Skinner, participated in the ceremony by presenting the cheque to Mr. Frank Wilder, chief librarian. In her remarks she thanked the many people whose efforts had made the library possible. In honoring her husband's lifetime of dedication to horticulture, she said, they were providing a source of help and inspiration to horticulturalists both now and in the future.

The Skinner Memorial Library will be expanded each year by the purchase of suitable reference books with the interest released from the monies deposited in the Skinner Memorial Fund.

Donations of reference books and publications of historical value will be welcomed by the Library. However in order to utilize library space to the best advantage, acceptance of such books will have to be conditional on their value for historical or reference purposes.

# Junior Gardeners

MRS. R. McLAUGHLIN

The Indian Head Horticultural Society, now in its 45th year, has a flourishing junior section which averages about 100 children's gardens every year. This junior section had its beginning in 1942 when children were encouraged to grow and exhibit produce in a junior section at the annual shows.

In 1953 the society decided to supply the seeds free for the children, buying in bulk and packaging the seeds in coin envelopes. After two or three years it was deemed wiser to collect a nominal fee for the seeds (about one-half the cost), and this has been the policy ever since.

The children are judged in three groups: primary (grades 1 and 2), intermediate (grades 3, 4 and 5), and senior (grades 6, 7 and 8). There is a further grouping into A and B divisions as follows: All gardens on the town water-line are in A division; all those off the water-line are in B division. The latter are mainly rural, although some B gardens have contrived their own watering systems from the farm dugout.

Primary gardens contain three vegetables – beans, beets, carrots, and three flowers – calendula, zinnia and bachelor button. Intermediate gardens add potatoes and sweet sultan to make four vegetables and four flowers, and seniors add corn and cosmos for a grand total of 10 kinds. Included with the seeds is an instruction sheet which shows that rows must be ten feet long and about 18 inches apart, which makes primary gardens about ten feet square and the others correspondingly longer.

Knotty problems at the beginning were: how many seeds to order, and how much to put in each packet. At first we got the children to register early in the spring in order to have a general idea of how much to order. This led to later ordering for a fair number of young gardeners who became enthusiastic when the seed packets appeared on the scene. Now that the project has settled into a pattern, we regularly package seeds for 60 primary gardens, 40 intermediates, and 20 seniors. Left-over seed is held for one year only.

Adjusting the amount of seed per packet resulted in the junior gardens' convener devoting many hours of prime spring-cleaning time to "sowing" beans, bachelor buttons, etc. on a ten-foot stretch of kitchen counter. We have now worked out the following approximate table:

| | |
|---|---|
| Bachelor Buttons | 1 oz. for 36 packets |
| Calendula | 1 oz. for 36 packets |
| Zinnia | 1 oz. for 40 packets |
| Sweet sultan | 1 oz. for 30 packets |
| Cosmos | 1 oz. for 20 packets |
| Beets | 1 oz. for 20 packets |
| Corn | 4 oz. for about 20 packets |
| Carrots | 1 oz. for about 20 packets |
| Beans | 1 lb. for 40 packets |
| Potatoes | 5 eyes for 1 packet |

To portion the seed evenly it helps to quarter it first, in glasses filled to the same level.

Labelling packets (before filling, of course) was a tedious chore until a grade six teacher took it over as a class activity. We also found that grade six girls, carefully supervised, are as efficient as adults at packaging seeds. Also it is good publicity among the youngsters.

We have found that there will always be one empty packet, or one mislabeled packet, or one missing packet. Also, we have found that there will always be someone to say that the parents did the weeding, or so-and-so's B garden got more water than the A gardens in town, or somebody showed his parents' garden stuff. But there will always be a fresh crop of junior gardeners, every spring, learning the primal joy of gardening. We have a second generation growing up in the tradition here at Indian Head now.

The keys to success in this project seem to have been, first, a systematic distribution of seeds done through the sympathetic co-operation of elementary school teachers; second, a thorough inspection of all the gardens by qualified persons; and third, a prominent junior section at the annual garden show, with lots of classes.

There are first, second, and third prizes for primary, intermediate, and senior gardens in both A and B divisions. This puts 18 children's gardens on the prize list, as well as prizes for the most successful exhibitor in each age group. In addition, so that even the humblest beginner will receive recognition, there is a ten-cent prize for every worthy entry in the children's section that did not otherwise get a prize.

# Twenty Questions & Answers

F. P. PITURA

The following are twenty questions and answers, I feel, are quite important for people with vegetable gardens, house plants and lawns.

1 What is the case for fall plowing versus spring plowing?

Fall plowing is preferred to spring plowing. In the fall, the soil is loosened up by plowing allowing frost to penetrate deeper resulting in a much more improved tilth for spring work. Also some injurious insects are brought to the surface by fall plowing and the harsh winter weather does away with them. Spring plowing should be done only in the case of the garden soil being quite sandy in texture.

2 What is the difference between organic and inorganic fertilizer?

The former is made from animal or vegetable sources such as bone or vegetable sources such as bone or blood meal; the latter from mineral or synthetic substances such as phosphate rock, nitrate salts, or potash salts.

3 What is the difference between "fertilizer", "manure", and "plant food".

In a general sense, any material added to the soil which will aid plant growth is a fertilizer. As more commonly used, the term "fertilizer" refers to manufactured products in dry form sold in bags; "manure" refers to such animal products as cow, horse or sheep manure. "Plant food" is synonymous with fertilizer and is the term now usually used by manufacturers for their chemical fertilizers.

4 What is meant by the term "complete fertilizer".

A complete fertilizer is one that contains all three of the major nutrients required by plants in large amounts. These major nutrients are nitrogen, phosphorous and potassium. An example of this is the fertilizer 5-10-5.

5 What is the meaning of the three numbers which appear on every package of complete fertilizer?

There are generally three numbers separated by dashes. The first number is percentage of Nitrogen, an element that is necessary for the growth of the plants, especially the development of leaves and stems. The second number is percentage of Phosphorus, which helps to develop good root systems and also contributes to flowering and fruit production. The third number is Potassium, which helps to strengthen the plant. All three of these elements are essential for good growth.

6 What is a starter or transplanting solution?

This consists of a small amount of a high analysis completely soluble fertilizer that is dissolved in water. A teacupful is poured directly on roots of plants when they are transplanted or a teacupful is poured directly on the seed for every three feet of row. An ounce of 19-28-14 or 1.5 ounces of 10-20-10 in a gallon of water makes a starter solution. See instructions on the package for further use.

7 Can a successful garden be made using only complete fertilizers and peatmoss or humus without manure?

The answer is definitely "yes". A successful garden can be had by planting and turning under cover crops yearly, maintaining compost heaps to be used in the garden when rotted, and adding complete fertilizer when preparing ground at planting time, and as side dressings during plant growth.

8 If both are available, which do you recommend, manure or fertilizer?

Use both: manure when preparing ground and when planting many crops; complete fertilizers just before planting and as a side dressing during growth of plants.

9 Which is the best time to fertilize a vegetable garden, fall or spring?

The best time to fertilize a vegetable garden is in the spring at time of planting. This insures the greatest use of the fertilizer applied by the plants.

10 What is meant by acid soil?

An acid soil is a soil which has a chemical reaction of an acid nature. This means that the pH is below 7. Acid soils can range in pH from 3.0 to 6.9. Generally speaking, Manitoba soils are not found to be acid.

11 What is the meaning of pH?

pH is simply a means by which acidity can be measured. If the pH is below 7, the soil is acid and if it is above the soil is basic. Most Manitoba soils are basic in nature. In technical terms pH is the measure of the hydrogen ion concentration in the soil of which all acids are made of.

12 Do vegetables prefer acid or alkaline soil?

Most garden vegetables prefer a pH of between 6.5 to 7.5. In other words, they prefer a near neutral soil.

13 What is the best way to maintain garden fertility?

One of the most important factors in keeping up the fertility of a garden soil is by keeping the humus content up. This can be done by using manure or compost and by growing green crops whenever possible to be turned under to decay. After the soil is producing well, the practise outlined above, plus moderate yearly applications of a complete fertilizer should maintain the soil.

14 Is is desirable to have the soil tested for a vegetable garden? If so, what is the cost?

If the garden is relatively new or very old, in order to start building up the garden from a fertility standpoint, the soil should be tested to determine to what degree the garden needs the additions of (a) humus (b) fertilizers. The cost of taking such a sample is $6.00. Samples should be dried naturally and sent to the Provincial Soil Testing Laboratory, Soil Science Department, University of Manitoba, Winnipeg, Manitoba.

15 How often should I cultivate my vegetable garden?

The garden should be cultivated after each rain or sprinkling when the soil becomes crusty i.e. dry enough not to pick up on the shoes. This should be continued throughout the growing period of the vegetables.

16 What is organic gardening?

Organic gardening simply means that no chemical fertilizer is used as a source of plant food. Usually, manure or compost is used in organic gardening.

17 How should house plants be fertilized?

Generally speaking flowering plants require more nutrients than foliage ones, at least up to the time the buds show color. For slow growing plants, occasional light top dustings of complete fertilizer are good. Plant tablets, or one of the "complete" fertilizers especially prepared for house plants are excellent providing the directions are closely followed. Do not assume that because a little is good for a plant, a lot will be better. Certain items are not suitable fertilizers, namely ashes, tea, coffee or castor oil.

18 When should repotting be done?

The best time for repotting house plants is in the spring. All the plants can be taken outdoors for this task adding to the convenience. Roots should be examined first to see if the plant requires repotting. When repotting make sure drain hole at bottom of pot cannot become plugged and if no hole, add a layer of stone to the bottom to ensure drainage. The soil is kept 1/2 inch below the upper rim of the pot as this area receives the water.

19 What makes a good standard potting soil?

A good standard potting mixture for house plants is:

2 parts garden soil
1 part leafmold or peat moss
1 part sharp sand
1 pint complete fertilizer
2 quarts well rotted cow manure

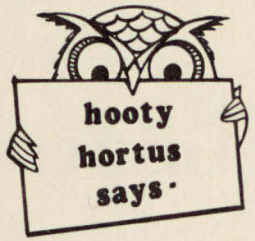
This procedure to be used in mixing up a bushel of potting soil.

20 What fertilizer is best for an established lawn?

Nitrogen is the nutrient needed most by established lawns. It should be applied at four times throughout the year if adequate moisture is present throughout the year. The lawn should be fertilized during May, June, August, and September. Lawns fertilized as above require 3-5 pounds of nitrogen per 1,000 square feet. Lawns that are not receiving water regularly should be fertilized with nitrogen twice a year, in early spring and in September.

Phosphorous should be applied each spring at the rate of one pound per 1,000 square feet along with either the two time or four time a year nitrogen application.






*Don't overlook that Hardy Rose. The hybrid teas and related classes may be the queens of our garden but the Hardy Rose, after years of selective breeding now has much to offer. Generally these new "hardy roses" are crosses between "tender roses" and hardy species such as our common rose of the open prairies (R. arkansana). Right now we have close to a dozen selections of real merit with more to come. The Canada Research Station at Morden Manitoba have over a hundred crosses on test right now.*

*I, however, have three favorites, both for quality of bush and bloom. They are the pride of my garden. Here they are:*

*Therese Bugnet — an outstanding hardy upright shrub with dark red bark, growing to six feet. Its flowers are double pink, blooming profusely around the end of June with lesser but continued bloom into late summer.*

*Assiniboine — (Donald Prior x R. arkansana, F1) is a real breakthrough. It is an excellent ornamental shrub growing to about three and a half feet in height. Flowers have about 15 red petals and a yellow open centre. It blooms freely over a long season beginning in July. Tips of branches may winterkill but established plants flower freely, even when cut to the ground in winter.*

*Cuthbert Grant — (Crimson Glory x (Donald Prior x R. arkansana, F1). It is a vigorous plant to three feet in height, with large clean foliage. Flowers are large, semi-double, crimson and borne from July to October. It may winterkill back but regrowth is rapid from the lower stems so that flowers are still produced from July to October.*

# More Questions & Answers

BRENDAN CASEMENT

During two years as the Extension Assistant in Horticulture at the University of Alberta there were many questions which required answers over the telephone. The following questions are a sample of what has been asked by Edmonton gardeners.

You still recommend Phosphorus as a fertilizer even though we have heard a lot about it being a major pollution factor. Why?

Phosphorus is usually limiting on the prairie soils, and is a major plant nutrient. Pollution experts have shown that Phosphorus becomes fixed in the soil and does not move out.

How much lime should I use on my garden?

You should not use any unless a soil analysis has suggested it. Our prairie soils usually have a high $_{p}$H *(alkaline) and lime would make it even more alkaline. Yellowing of young leaves is often associated with alkaline soils and can sometimes be corrected with an application of a soluble iron compound. The incorporation of well rotted manure also helps.

How do you sterilize soil in the garden? Geraniums have been grown in the same bed for many years – now when they are planted they do very poorly or die.

This cannot be done satisfactorily unless chemicals are used – for instance formaldehyde or chloropicrin. Beds must be free of plants before chemicals are applied. Careful – these chemicals are very toxic and should only be applied by experienced and licensed applicators.

Why do you use scientific names for horticultural plants? Many of us do not know what they mean and they sound so clumsy.

Common names can change from one area to another. However, there is only one scientific name per plant, and some people all over the world know the plant by that name. e.g. *Agropyron repens* is commonly called Couchgrass but is also known as scutch, twitches, quacker, witch grass, etc. Fortunately there are some plants which are commonly known by their scientific name eg. salvia, petunia and nasturtium.

What is the best way of controlling weeds in the vegetable garden?

The hoe is still the best way. Black plastic mulches can be used with care.

My tree is dying, what can be done about it?

This sort of question is unfortunately not unusual. Often there is no indication of the type of tree, how it looks or anything. We usually have to dig really hard for clues. All we can suggest is be more specific in your description.

There are worms in my currants, what can be done about them, or what should have been done?

The currant fruit fly (adult female) lays its eggs in the young developing fruit. Eggs hatch in a week and as the maggots develop they eat the surrounding tissue.

Spray 'Methoxychlor' (2 pounds of 50% wettable powder in 100 gallons of water) or about 2 teaspoonsful of the wettable powder in one gallon of water. Two applications are needed – first, when 80% of the flowers have withered and fallen, and second, ten days after the first spray. Spray bushes thoroughly.

How can we get rid of those slimy little dark green slugs that are rasping away on the upper surfaces of the plums and cotoneaster?

These are commonly known as pear slugs* and usually attack in early August. The insecticide Malathion, used according to directions, is effective, but you may have to use a second application if there is a re-infestation.

I would like some of the more uncommon wild flowers in my garden. Can I go and dig them out of their natural surroundings and plant them in my garden?

Since a lot of our wild flowers are disappearing we would not advise it. These plants grow naturally in ecologically diverse areas and it is rather difficult to duplicate the conditions in your garden to give the plant any chance of success.

* See the Prairie Garden 1969, page 84 the $_{p}$H Factor.

* See the Prairie Garden 1968, page 44.

It is much better to leave them in their natural environment for future generations to enjoy.

What flowers would you suggest for window boxes?

Begonias, geraniums, fuchsia, ageratum, petunias, dwarf marigolds, pansies, vinca, sedum, balsam, portulaca and lobelia. On the north side of a building tuberous begonia, fuchsia and lobelia with some foliage plants.

We have a balcony on our apartment, can you suggest some vegetables we can grow in planters?

Lettuce, parsley, radish, bush beans, onions from sets, short carrots in boxes 8 to 12 inches deep or tomatoes in deeper containers, staked and sheltered from the wind.

We would like to have a bed of tulips. How would we manage them?

Tulips should be planted 6 inches deep in the fall. After they have finished flowering in the spring cut off the flower heads and over plant the bed with annual flowers such as marigolds or petunias for a good summer display. Once the foliage of the tulips has started turning brown it can be removed.

My double flowering plum used to be so nice but now it has small white/pink flowers. Has it gone wild?

Double flowering plum is grafted onto other root stocks – usually Nankin cherry. Your plant has sprouted from below the graft and the root stock has taken over. Probably the weaker branches have been removed which were those of the double flowering plum. If there is any of the double flowering plum left, you can gradually remove the branches from below the graft and so rejuvenate it. If not, you will have the not so undesirable Nanking Cherry.

How can dogs be kept away from plants?

If they are yours, they can be trained. Otherwise low wire fencing or curved guards may be placed around shrubs and borders. Spraying proprietary preparations sold by garden supply dealers is sometimes effective but repeated applications are necessary, especially after rain.

Is there anything that we can put on a tree stump to make it rot quicker?

Holes can be drilled in the stump and then filled with saltpeter and then plugged. To kill the stump a hormone type weedkiller can be used first to help prevent suckering.

What is the best way of removing suckers?

Remove the sucker from its point of origin on the root. If it is only cut off at ground level more suckers will develop from the stump.

We do not know anything about gardening and have just purchased a new home. How can we get some good background information?

If you have the time and there are home gardening courses available by all means take one. These courses may be given by the universities, colleges, schools or gardening clubs in your area. You can also join a gardening club and attend meetings. Pamphlets on most aspects of horticulture are available from horticultural branches of the provincial government or the universities, and most bookstores carry, or will order, gardening books.



A Garden and Field Pest

# The Pea Aphid

A. M. HARPER

Sweet peas and garden peas in western Canada may be severely damaged by the pea aphid. This insect, which also feeds on alfalfa, sweet clover, trefoil, vetch, broad beans, and several varieties of clover, is found on the prairies wherever peas and forage legumes are grown.

## Damage

The aphids infest mainly the growing tips of plants. Both the adults and the young suck juice from leaves, petioles, stems, and flower buds. Infested plants may become stunted and their yield and quality reduced.

## Description and Life History

The adult pea aphid is soft-bodied and ranges in color from light to dark green. It is about 3/8 long and 1/16 inch wide. The nymph is smaller but otherwise resembles the adult.

The pea aphid usually overwinters as an egg on leaves and stems of alfalfa and clover. In spring when the plant resumes growth a small, light-green, wingless female hatches from each egg. These aphids, which can reproduce without mating, feed on the growing plants and give birth to other female young.

Many aphids of the second and third generations become winged and migrate to sweet peas, garden peas, and other acceptable host plants. Here they feed and produce wingless females, which in turn give rise to other generations of both winged and wingless females.

The aphids develop from birth to maturity in 5 to 50 days depending on the weather. All pea aphids are female throughout the spring and summer. A summer-form female can produce from 50 to 150 young during her lifetime. Whenever an alfalfa crop is cut or is very dry during spring or summer, the winged aphids leave in search of new plants on which to live; thus the aphids may move into garden patches throughout the summer.

When peas are harvested and the plants become dry in late summer the aphids move to other hosts. In late September or October winged males and egg-laying females are produced. These mate and the females lay eggs. The eggs, which are deposited on alfalfa leaves and stems, are yellow when first laid but soon turn green and then shiny black. The pea aphid eggs are able to survive the low winter temperatures that kill other forms of the aphid.

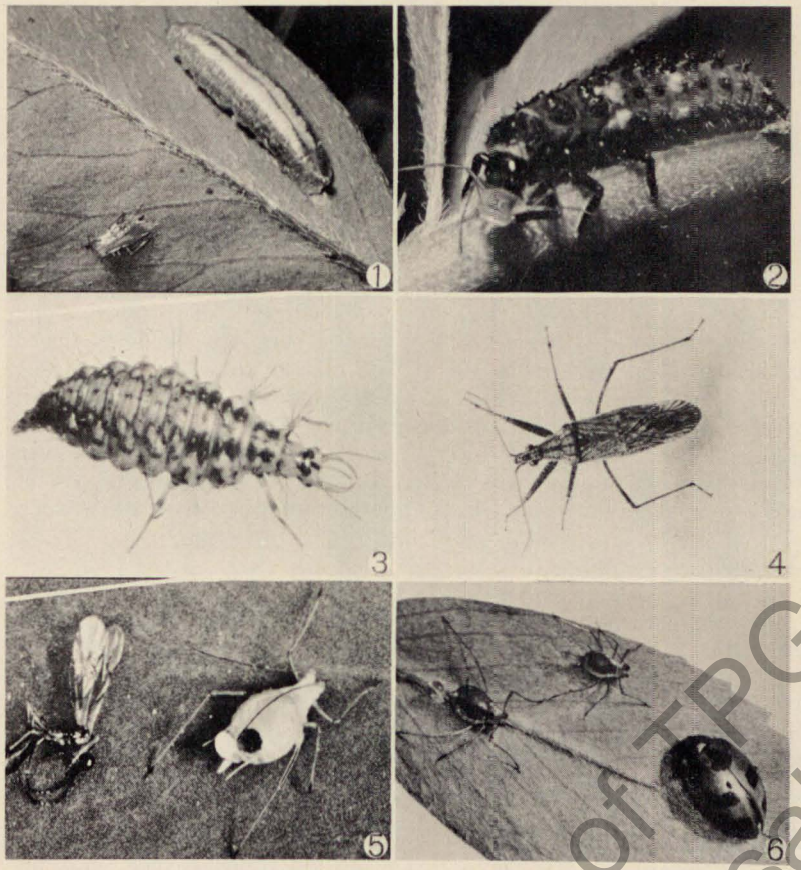


Figure 1. A predatory syrphid fly larva and a pea aphid.

Figure 2. Larva of a ladybird beetle eating a pea aphid.

Figure 3. The predatory larva of a green lacewing.

Figure 4. An aphid predator — the nabid bug.

Figure 5. A parisitized pea aphid and the adult parasite.

Figure 6. An adult ladybird beetle about to attack pea aphids.

## Natural Controls

Predators and parasites attack the pea aphid and help to keep it under control. Usually they become abundant only when the aphid is abundant. The predators are mainly nabid bugs, adults and larvae of ladybird beetles, and larvae of lacewings and syrphid flies. The parasites are the larvae of tiny wasp-like insects that live in the aphids and kill them. A fungus disease may sometimes eliminate infestations of aphids in warm, moist weather. When aphids are unusually abundant spiders may also destroy them.

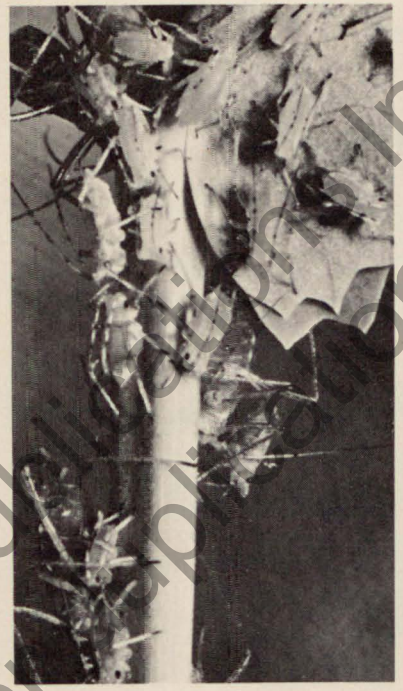
Weather, soil, and moisture conditions that are favorable for rapid growth of peas greatly reduce the possibility of aphid damage. Aphid infestations may be retarded by cold weather. Heavy rains or washing thoroughly with water can dislodge and kill aphids. A few varieties of peas are not severely damaged by aphids.

## Chemical Control

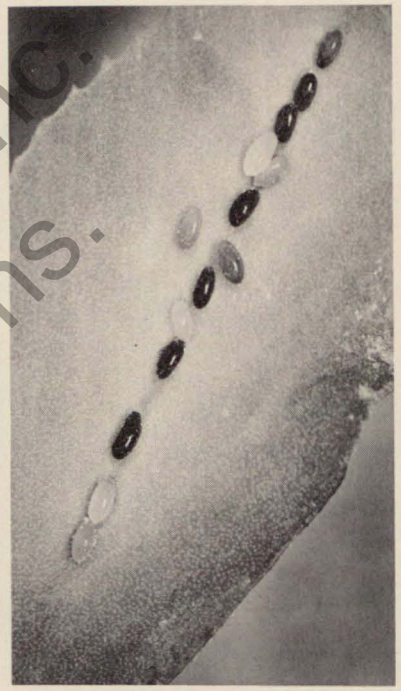
Insecticides for control of the pea aphid should only be applied when plants show signs of damage. Most healthy plants can withstand a small infestation of this insect without showing any damage. If aphids are completely eliminated by insecticides, the surviving predators and parasites are left without food, so they move elsewhere. Other beneficial insects also may be damaged by the sprays.

If use of an insecticide does become necessary, malathion, derris, or dimethoate will give satisfactory control. Follow closely all the directions and cautions listed on the insecticide label.





Severe pea aphid infestation on pea plant.



Eggs of the pea aphid on alfalfa leaf.

# Indian Gardening

Dr. W. R. LESLIE

As heirs to a richly favored heritage, it is seemly that prairie gardeners pay tribute to our predecessors for their greatly important plant gifts, and for the thoughtful care given the property.

Readers may consider this article as a supplement to "Ancient Prairie Gardens", in The PRAIRIE GARDEN, 1970, and "Horticulture Among the Indians of the Northern Great Plains" in the book "Horticulture on the Northern Great Plains", A.S.H.S. Great Plains Region, 1962.

The plan here is to record some further background facts of prairie Indian culture to the end that we realize the remarkable achievements of early Redmen. Most of the information is gleaned from personal contact with, and writings of, two talented and devoted researchers, – Dr. Melvin R. Gilmore, U.S. Bureau of American Ethnology; and Dr. George F. Will, Oscar H. Will & Co., Bismarck, North Dakota. They have passed on after bequeathing a treasury of useful and deeply interesting facts in their writings.

The young Indian closely observed the world about him and while still in his teens was intimately versed in the sciences of geology, zoology, and botany in its several branches particularly taxonomy and pollination. Their successes in culture showed that they understood just what conditions of soil, moisture, and climate must be chosen as location for each of a long assortment of plants. That they were applied scientists is evidenced in the list of varieties of crop plants they had bred up and perfected from native plants through hundreds of years. The remains of dwellings in Dakota at the time glaciers were receding and Lake Agassiz was at its fullest proves the northern prairies have been inhabited for many centuries. Remains of a village have been found at a depth of 15 feet in excavating at one site. Pottery making and cultivation of crops have been practised throughout the ages.

Dr. Will, after stating that remains of Indian villages in the upper Missouri river basin amounted to many thousands, writes "It would seem, therefore, that the red agricultural population of our State must at one time have been considerably greater than the white population is today. Perhaps when we have taken to heart the lessons of ecology, conservation and adaptation which our predecessors undoubtedly learned in a harder way through the centuries, we too shall be able to live with the same peace, happiness and contentment which they had before white

Photos courtesy of: State Historical Society of North Dakota.



Indian hoes.

contacts destroyed a good culture."

The Mandans, a northern tribe, grew 13 varieties of corn-flour, flint and sweet corn. They had 6 different varieties of beans including one, the Great Northern, which became a most important field white bean. They raised half a dozen different types of squashes and pumpkins, several varieties of sunflowers, and a tobacco of their own species.

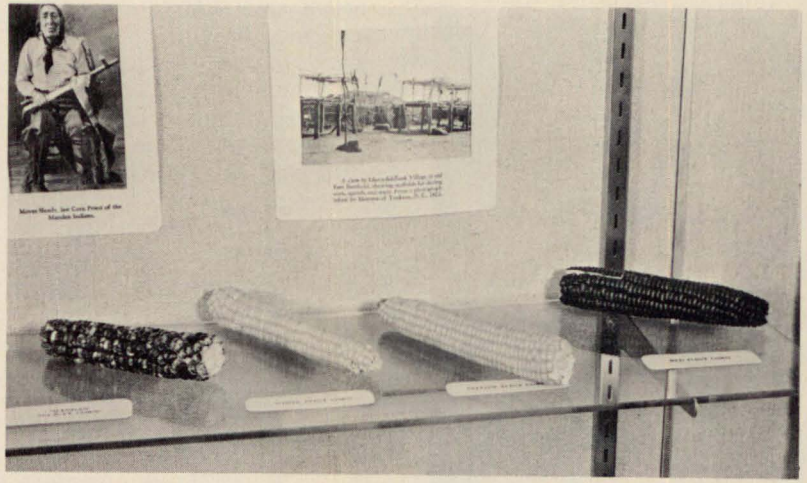
"All of these varieties have been adapted through cultivating and selection to drought, heat and short seasons, and have furnished Mandan's white successors with many valuable varieties for growing and for breeding with later sorts. The legacy of these acclimated cultivated crops has in itself been of untold value to present day agriculture." . . . .

"I truly believe that an Indian in almost any region could find sufficient natural food where most of us would starve".

Some of the important items taken from the wild:

– Indian turnip, or tipsin *(Psorlea esculenta)* was source of starchy food. – Wild rice *(Zizania aquatica)* was harvested and stored. – Indian potato *(Glycine apios)*, ground beans *(Falcata comosa)*, Jerusalem artichoke *(Helianthus tuberosus)* a sunflower of which the roots were eaten raw or cooked by boiling or roasting, found as far north as Riding Mountain in Manitoba; arrowleaf *(Sagittaria latifolia)* the tubers of which were boiled or roasted; yellow lotus *(Nelumbo lutea)* tubers were peeled, cut up and cooked with meat or hominy, giving a distinctive flavor; spring lily *(Erythronium mesochoreum)* bulbs were eaten with relish in early springtime; wild onions *(Allium mutabile)* were used raw, fried and to flavor cooked dishes and valued for their vitamin content; were most prominent of the plants gathered in wild state for their roots, tubers, or bulbs.

– Young shoots were taken from bulrush *(Scirpus validus)*; milkweed *(Asclepias syriaca)*; and cattail *(Typha latifolia)*. Sioux took the tender white part of the stem of bulrush and ate it in raw state. Cattail roots and stem were sliced lengthwise and boiled. In late spring the young shoots were cooked like squash. This plant of the marsh was available as source of food at all times. In winter the base of the plant could be dug out of the frozen mud, thawed and cooked. Milkweed was exceptional in that it is used for food at three stages of its growth – the young sprouts in early season were used as asparagus;



Indian Corn display in Bismarck, N.D. Museum.

the clusters of flower buds were cooked; and the young fruits while firm and green were cooked.

– Fruiting bodies used came from bracket fungi *(Polystictus versicolor)*, taken from trees and prepared by boiling; corn smut *(Ustilago mayis)*, the spore-bearing bodies were gathered while white and firm and boiled; morel *(Morchella esculenta)*, are tasty fungi; puffball *(Lycoperdon gemmatum)*, are roasted while white and firm; elm cap *(Pleurotus ulmarius)*, is tasty while young and tender; ground cherry *(Physalis heterophylla)*, fruits valued for sauce.

– Wild fruits are extensive. Notable are saskatoon, plum, pincherry, chokecherry, sandcherry, blueberry, cranberry, pembina or "highbush cranberry", raspberry, blackberry, strawberry, currants in several species, including Clove currant; gooseberry, buffaloberry, nannyberry, elderberry, wild grape; hackberry *(Celtis occidentalis)* the berries being pounded and used to spice meat dishes; hazel, eaten raw, with honey, and to give added body to soup; bur oak, the acorns were parched and ground, sometimes treated with lye to remove bitterness; jacob's ladder *(Smilax herbacea)*, fruits were eaten to some extent; hawthorn was eaten as an emergent food but not when supplies were ample; rose hips, likewise, were eaten to tide over a period of scarcity.

– Smoking materials came from the inner bark of redosier dogwood and wild rose; from leaves of bearberry, and of tobacco, and of smooth elder when colored red in autumn.

– Plants used for scents were sweetgrass, columbine seeds, juniper sprigs, wild anise or agastache, wormwood, wild sage, meadowrue, and a number of other plants.

– Dyes were made from sumac, seed head of giant ragweed, bloodroot, strawberry blite, dodder, lichens, walnuts, anemone roots, the blossoms of pine, and various



berries.

– The sap of boxelder ("Manitoba Maple") was concentrated into sugar; that of the wild grape was collected for a beverage.

– Medicines came from a wide variety of plants. For easing pain and to draw infection from wounds the fleshy leaves of pricklypear cactus were split and applied; and leaves of roundleaf plantain were applied to the irritated part.

Three items, from among many available interesting features of these earliest inhabitants, are:

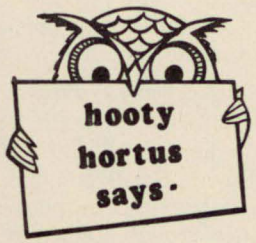
– The annual SUNFLOWER *(Helianthus annuus)* was cultivated in several varieties by the Mandans in North Dakota. Not only were the seeds used as meal but they were boiled to produce oil.

– Indian corn was the most important crop. Aside from the kernels, the corn silks were gathered, and, after being dried in the sun were stored away for use as food. To this end the dried silks were ground with parched kernels.

Where grown in the sheltered bottomlands the Indians considered 100 yards sufficient distance to prevent mixing of varieties through cross pollination. Prudently, they always kept a two-year seed supply on hand.

– Ground beans *(Falcata comosa)* are unusual plants. The small beans growing in pods borne on the stalks were of little consequence but the large subterranean beans were prized for their agreeable taste and nutrient worth. Voles, those furry mice-like creatures, entered the picture prominently by digging the beans and piling them in caches. Women visited the piles and took a goodly part of the crop. However, they carried a sack of corn with them and left an equal amount of kernels in pay for the beans removed.

How fortunate it was that "The Indians approached and used Nature with reverence"!




*Operation "bedding out" should be carefully planned before planting.*

*First, you should know how tall a plant grows and how far it is likely to spread so you can have a good idea of where to place it in your flower bed or border and how much room you should give it. Experience is the best teacher but fortunately in buying annuals the novice can usually check the color and height of each variety from the label in the flat. A little early scanning of seed catalogues and Government bulletins will also help your planning.*

*Another operation that will also aid you in your spring planting is digging your beds or borders in the fall. When you dig deep in the fall it sweetens the soil and mellows it and it is ready for planting, with the exception of a little leveling. When you dig in the spring you lose moisture, and if the soil is on the heavy side it turns up lumpy and makes your job of planting much more difficult.*

Small flowering shade trees for the Prairies.

# For Shade and Bloom

GARRY G. McCULLOUGH

1. Hawthorn – *Crataegus crus-galli et al.*

Height 15' – Spread 10'.

Habit of growth: Small spiny tree or shrub; glossy leaves. Fruit a bright red which hangs late. Covered with white blossoms in mid-June.

2. Russian Olive – *Eleagnus Angustifola.*

Height 20 ' – Spread 15'.

Habit of growth: Informal habit; silver foliage, wide tolerance of soil and moisture requirements. Flowers in June, yellow inside, silvery outside.

3. Apples & Crabapples – *Malus baccata & M. sylvestris.*

Height 15' – Spread 12'.

Habit of growth: Upright, spreading, having good natural form, but relatively short-lived in Alberta (25 years). Flowers white to deep pink to bright red appear soon after leaf emergence.

4. Amur Cherry – *Prunus maackii.*

Height 20' – Spread 15'.

Habit of growth: Small, upright flowering tree, sometimes rounded. Produces white blossoms in dense, pubescent racemes at the same time as leaves; bright brownish-yellow bark, sometimes peeling; highly attractive, but not all that common.

5. MayDay – *Prunus padus commutata.*

Height 30' – Spread 25'.

Habit of growth: Outstanding lawn tree for home grounds. Vigorous and hardy spreading tree; cluster of white, highly fragrant flowers in late May. Often grown in clump, or multi-stem forms.

6. Pincherry – *Prunus pennsylvanica.*

Height 15' – Spread 10'.

Habit of growth: Small native flowering tree with white blossoms produced quite freely around June 1. Red-brown cherry-like bark; glossy foliage. Small bright red fruit, can be used for jelly. Tree is open which makes it appear fine textured.

7. Schubert Chokecherry – *Prunus virginiana* 'Schubert'

Height 15' – Spread 10'.

Habit of growth: Small, columnar tree with large, deep purplish-green leaves; new growth is green in contrast; very hardy; small purple fruit. Flowers produced in long, drooping racemes at the ends of branches, quite similar to flowers on May Day.

8. Ussurian Pear – *Pyrus ussuriensis.*

Height 20' – Spread 15'.

Habit of growth: Neat upright growing tree with pyramidal crown; glossy foliage; slow growth. Flowers large, white and showy; one of the earliest to bloom.

9. Silver Buffaloberry *Sheperdia argentea.*

Height 20' – Spread 15'.

Habit of growth: Drought resistant; native to the west, somewhat bushy with thorny branches. Bark silvery when young, flaky and brown with age. Fruit produced in dense clusters, scarlet to orange. Effective when used in contrast with green foliage masses.

10. Japanese Tree Lilac – *Syringa amurensis Japonica.*

Height 20' – Spread 15'.

Habit of growth: A short trunked tree with rounded head; attractive foliage. Creamy white flowers in abundance; not fragrant like most species. An unusual and distinctive specimen.

11. Mountain Ash – *Sorbus americana and S. aucuparia.*

Height 25' – Spread 18'.

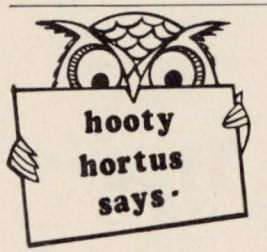
Habit of growth: Trees valued for their dark green foliage; their showy-white clusters of flowers and attractive scarlet fruit. Bark varies from orange-brown to dark brown, and usually smooth and lenticullar.

12. Showy Mountain Ash – *Sorbus decora.*

Height 15' – Spread 10'.

Habit of growth: Small tree with conspicuous, thin gray papery bark. New twigs smooth, grey-brown. Flower clusters large and showy; large orange-red fruit.






*Flower Cutting Tips. Cut garden flowers at the right stage of development. For instance gladioli, when first bud opens fully; peonies, as outer petals unfold; iris, when first and second bloom are the size of an egg; roses when buds are on the verge of unfolding the outer petals; poppies, the night before they open; most other flowers just before reaching full bloom.*

*Cut garden flowers in the cool of the evening or in the early morning. Take a pail of warm water into the garden. As you cut your flowers, trim all foliage from the lower half of the flower stems and immerse them in water, and hold in as cool a place as possible for at least four hours.*

# Aspects of a Shade Tree

GARRY G. McCULLOUGH

Trees are used in landscaping for a number of reasons. These include decorating boulevards, providing screens or windbreaks, serving as lawn specimens, decorating patios, increasing property values, and for sentimental reasons. One of the main reasons why ornamental trees are planted on home properties, however, is to obtain shade.

The term "shade tree" not only means types of trees one can sit underneath, but also includes species that persons can sit behind in order to obtain the desired shade.

To choose an annual flower, or small shrub that is not well adapted to a particular location does result in disappointment for a homeowner, but if its performance or location proves not up to expectation, no serious harm has been done. However, selecting and locating a shade tree without proper information or thought with regard to its ultimate size, character and location can become a more serious error.

The basic principle behind locating a shade tree is to first determine what time of day you would like to have shade, and exactly where you would like to have it. For example, the accompanying diagram illustrates the placement of a tree for the working man who arrives home in the late afternoon, and wishes to partake of some leisure activity on his patio, such as barbecuing, reading, playing with the children etc. Step out on your patio at the time of day when you would appreciate shade most, and walk directly towards the sun two to four paces (Approximately six to twelve feet). This is where your shade tree should be located, in a spot where it is going to serve you and the family for the next 25 to 50 years.

By the same token, if you wish to provide shade in a certain room of the house at a particular time of day, such as the baby's room during the afternoon nap period, or the kitchen window during mid-afternoon, the same method for locating the tree may be used.

The problem of selecting a species of shade tree presents a slightly more difficult situation.

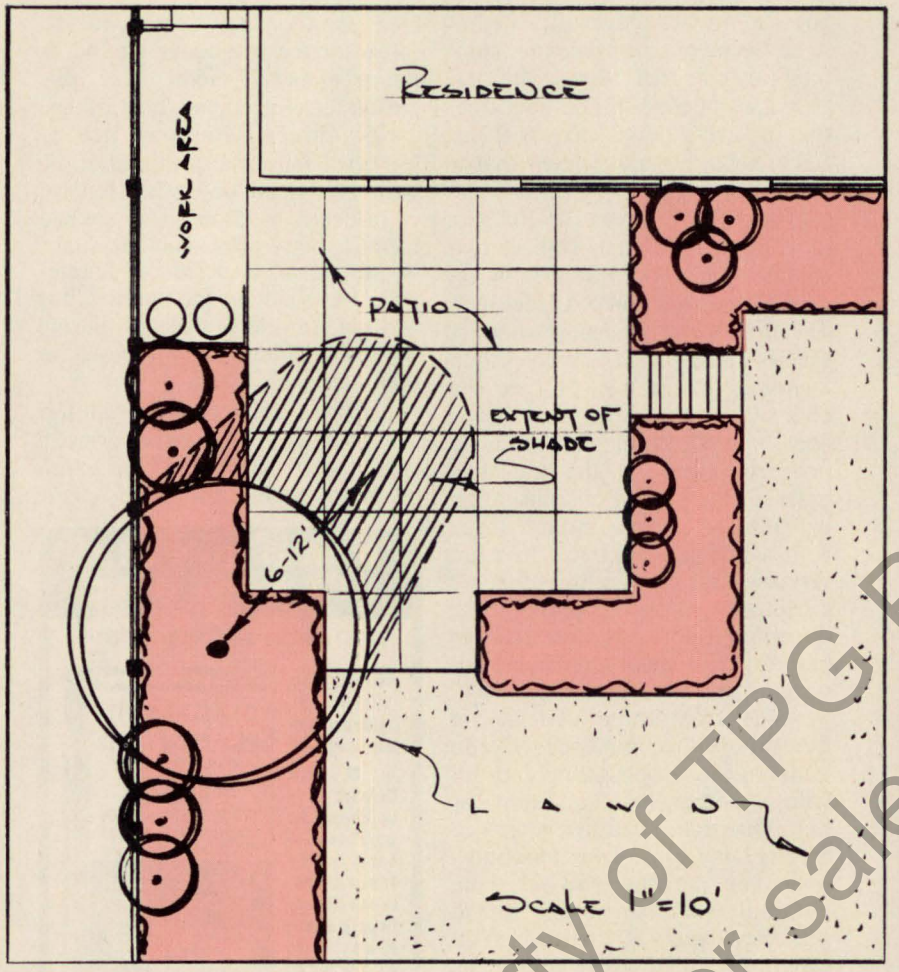
The trend in Western Canada today is from large rural properties and rambling homes, to restricted urban lots and smaller houses. Consequently there is a decided need to change one's tree style selections as well. The maples, elms, and ashes did not have to look compatible with a city lot, or fight freeway or pavement encroachment. They belonged on the large rural property. Shade trees today should be smaller and able to stand city life.

Whatever your personal preferences are for attractiveness; whether it be deciduous or evergreen, common or coloured foliage, berries, or masses of blossoms on your tree, the following points may be helpful in acquiring a specimen that is satisfactory to you.

There is a tendency on the part of western individuals to have two common misconceptions with regard to the selection of shade trees. The first is the tendency to select species connected with fond memories in another part of the country, such as Weeping Willows and some of the maples which do not grow well on the Canadian prairies. The second misconception is the desire to have 'instant' shade with a fast growing tree. There are very few fast growing trees that are acceptable in later years to a discerning public, as they tend to have brittle branches, rampant root systems, and are short lives.

Aside from those two general thoughts, it is recommended you do some further investigating and ask yourself other basic questions as well. Questions such as: What size exactly is my yard? Trees look small when you purchase and set them out, but what height and spread will they reach at maturity. You may not want to crowd your home environment in any way, but if two trees are placed on the average sized urban lot, they could very easily do so. What is the habit of growth? Prairie windbreaks require very low branching habits whereas shade trees require some living space underneath. Trees with vigorous root systems clog sewer and septic lines, heave pavement, and steal moisture and food beyond the normal dripline of the tree. Good tree root systems cover an area approximately equal to the spread of the tree above ground. Is the tree messy? Some trees have greater litter problems than others. Twigs, flowers, fruit, as well as leaves will fall at various times of the year. Is it worth your while to have extra debris to clean up, or are bad habits to be avoided? Is it deciduous or evergreen? A deciduous species will offer shade in the summer, but will let sunshine through during the cold winter. Both types have their place.

Lack of such planning all too often results in damage to, or overcrowding of the house, the patio, overhead wires, or other plant




materials; as well as dissatisfaction in the species selected, or its location, and often creates an expensive spraying and pruning program.

The most effective way of guaranteeing satisfaction, is to study carefully the trees you have in mind, then consult various reliable sources for more information. Your municipal and provincial governments distribute numerous brochures on such horticultural subjects for your convenience, and your local parks superintendent, agricultural representative, and nurseryman will only be too glad to assist you. Utilize their knowledge, make your selection, and grow a superior shade tree.



# Special Identification Section

Our purpose here is not only to acquaint and familiarize you with a number of native and cultivated plants growing on the prairies, but also, with the help of pictures to allow you to readily identify them.

## Cover Picture

Native

**Baneberry** – *Actaea rubra*

Beware of these berries. Although not considered lethal, they are poisonous to humans and especially to children.

An erect perennial herb 1 to 2 feet high with large compound leaves. Flowers are small, white, growing in dense raceme clusters at the end of the stems. Usually found in rich woodlands and in shady wooded ravines.

There are two common species, one with bright red, the other with white berries. Only on rare occasions will you find both berries on the same plant as in cover picture.

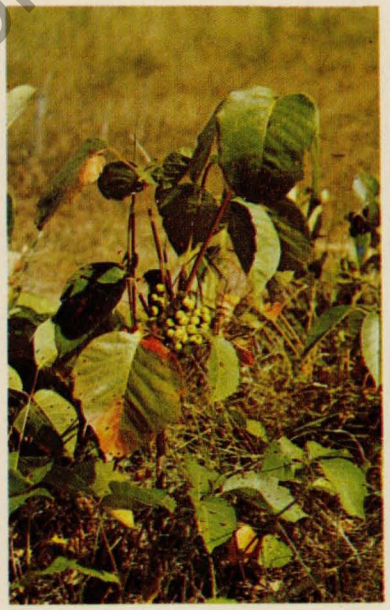


Photo by Lawrence Stuckey

Native

**Poison Ivy** – *Rhus Radicans*

Beware – Pollen, sap and exhalations from this plant affect susceptible persons and cause severe skin eruptions.

A single stemmed small erect shrub of from 4 to 12 inches high with a rather woody stem growing from a creeping rootstock. Leaves have 3 large bright green, strongly veined leaflets 1¼ to 4 inches long.

Flowers are whitish yellow, growing in dense panicles from axils of leaves. Berries are globose in shape, dull whitish in color and about ¼ inch in diameter. Widely found, usually in ravines and shady wooded lands.

## Plants used as food by local Indians.

We are grouping here a number of native plants, which have edible parts such as enlarged roots or tubes and fruits. Indians on the Canadian prairies depended on many of these for the vegetable part of their diet.

Dr. W.R. Leslie in his article on Indian Gardening, page 24, outlines the extensive use of native plants in the Indians' diet.

Native

**Wild or Nodding Onion** – *Allium cernuum.*

Part of Indian diet, growing from coarse necked bulbs, on a short rootstalk. Flower heads are usually rose-colored. Found across entire southern prairie region.

Photo by Lawrence Stuckey



Native

**Jerusalem Artichoke** – *Heleanthus tuberosus.*

A perennial 3 to 10 feet high, with edible tubers on roots. Cultivated by local Indians. Stems hairy and much branched. Ovate or oblong leaves 4 to 8 inches long, rough above and finely haired below, tapering at base to a stalk. Numerous heads, 2 to 3½ inches across, with a yellow disk and 12 to 20 yellow ray florets. Fairly common in moist areas.

Photo by Lawrence Stuckey

Photo by Lawrence Stuckey

Native

**Dakota Turnip or Indian Breadroot** – *Psorolea esculenta.*

Roots are edible, raw or cooked or dried and ground to meal. A very important source of food to natives and settlers before prairie agriculture. Fairly common in sheltered places on sandy banks. A low stout plant, 4 to 18 inches high, densely covered with loose, white hairs, growing from a large tuberous starchy root or cluster of roots. Leaves have 5 leaflets ¾ to 2 inches long. Flowers are light blue, in a dense oblong spike 1½ inches to 3 inches long.

Native

**High Bush Cranberry** – *Viburnum trilobum.*

Edible, fruit is very acid, excellent for jelly. Transplants easily and makes a very fine ornamental shrub. Fairly common in woodlands throughout heavier wooded parts. A shrub 3 to 12 feet high with smooth branches. Leaves are palmately veined, broad and 3-lobed, 2 to 4 inches across, the flower heads are in clusters. The outer blossoms on each cluster are from ½ to ¾ inches across with 5 large petals but neuter without fully formed styles or stamens. The inner blooms are smaller, creamy white and perfect. Fruit is a red berry, about 3/8 inch in diameter.

Photo by Lawrence Stuckey



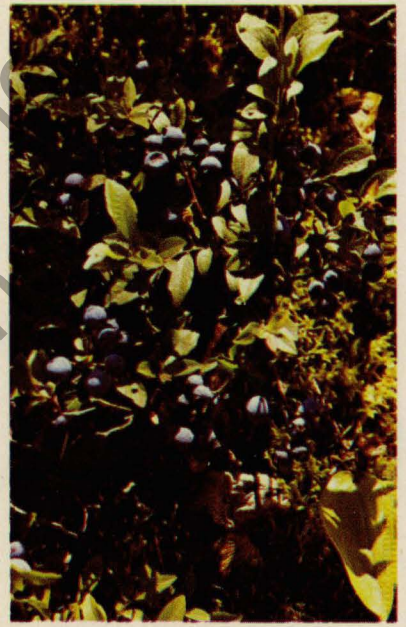


Photo by Lawrence Stuckey

Native

**Canada Blueberry** – *Vaccinium augustifolium.*

Edible. Found in moist pine and spruce woodlands. A shrub 12 to 24 inches high with elliptic leaves ¾ to 1½ inches long.

Fruit is a sweet-tasting blue berry about ¼ inch in diameter, covered with a whitish bloom. Flowers are greenish white, about ¼ inch long, in small clusters. There are two common species and integrating forms. This species has smooth upper surface of leaves, hairy below, while the other, *V. myrtilloides* has leaves that are densely finely-haired on both surfaces.

Photo by Lawrence Stuckey

Native

**Wild Black Currant** – *Ribes americanum.*

Edible. Fairly common in most areas over wide area. A shrub 3 to 6 feet high, with unarmed stems, and 3 to 5 lobed leaves of from 1 to 3 inches across, somewhat hairy and resinous, dotted below. Flowers are greenish white, borne in drooping racemes with a smooth tubular calyx 1/8 to 3/16 inch across.

Photo by Lawrence Stuckey

Native

**Red Currant** — *Ribes triste.*

Edible, but some closely related species unpalatable. Usually found in rich poplar woods. Not too common. A shrub about 3 feet 3 high, unarmed, leaves 3 to 5 lobed 2 to 4 inches across, paler on underside. Flowers are usually purplish. Fruit is a smooth red berry about ¼ inch across. This is very similar to the garden variety.

Photo by Lawrence Stuckey

Native

**Wild Strawberry** — *Fragaria virginiana.*

Edible. Common on low spots on prairie, open woodlands, and moist locations over a wide area. A low growing herb with coarsely toothed broadly ovate leaflets, quite similar in general appearance to our cultivated varieties. The white flowers are 5/8 to 3/4 inch across and appear fairly early in the season. The fruit is almost round, from 3/8 to 5/8 inch in diameter, with the seeds set in shallow pits.



Native

**Wild Red Raspberry** — *Rubus idaeus.*

Edible. Found in shady wooded places or burnt out woodlands and riverbanks over a wide area. Similar in general appearance to cultivated varieties. A bush 3 to 6 feet high with brownish bristly stems and pinnate leaves with 5 leaflets (fruiting branches with 3 leaflets). Leaves are ovate, dark green above, and white woolly beneath. Fruit is round, light red and about 3/8 inch across.

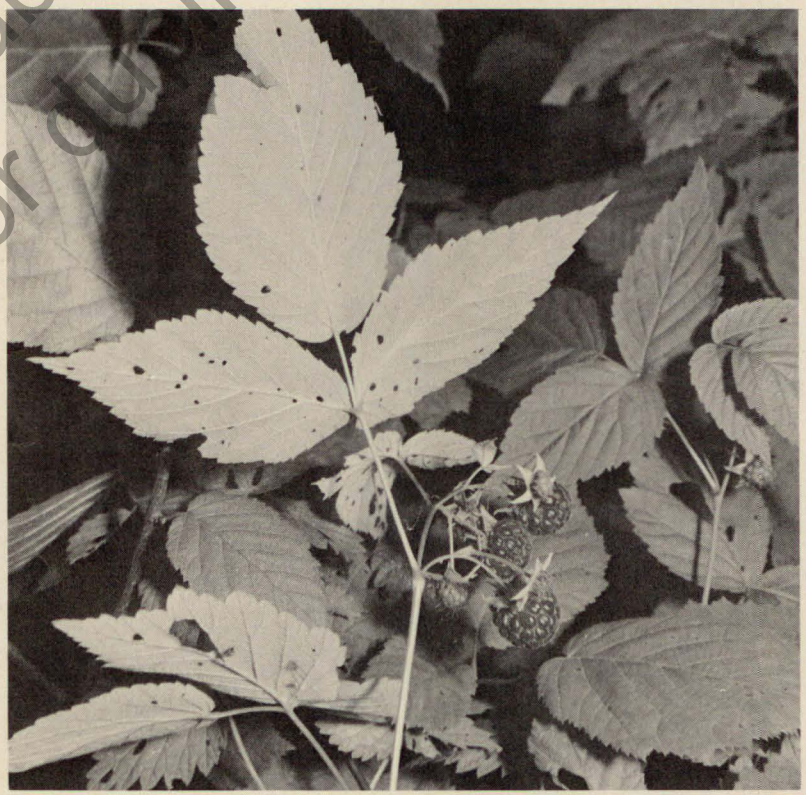


Photo by Lawrence Stuckey

Photo by Lawrence Stuckey

Native

**Pin Cherry** — *Prunus pensylvanica.*

A small flowering tree, with finely toothed leaves 3 to 7 inches long, general throughout the prairies, growing to a height of 20 feet. Fruit is small, bright red and used for jelly making. Flowers are white and produced quite freely in small peduncled corymbs. The bark is smooth, shiny, dark brown with lenticels (breathing pores) prominent.

See cultivar developed from this species, page 51.

Photo by Lawrence Stuckey

Native

**Wild Plum** — *Prunus americana.*

A tree 9 to 25 feet high, with more or less thorny branches. Leaves narrowly obovate, 1½ to 4 inches long with double teeth and a pointed apex. Flowers are white ¾ to 1 inch across, appearing before the leaves. Found in most woods and along river banks. Fruit is a red or yellow plum, almost round, ¾ to 1 inch long. There are a few selections of this wild plum such as Assiniboine and Robert that are of better size and quality.

When cooked they are very astringent. It is suggested that when pits and skins are removed much of this strong taste is eliminated.



Photo by Lawrence Stuckey

Native

**Western Chokecherry** (Black Fruited) — *Prunus viginiana.*

Wide spread throughout the prairies. Fruit is dark colored and decidedly astringent. Flowers are produced at end of the branches in long drooping racemes. A few selections are of value, notably the Schubert Chokecherry which has proven to be an excellent ornamental. This selection is a small columnar tree to 20 feet with the older leaves a deep purplish green, contrasting pleasantly with the green of the new growth.

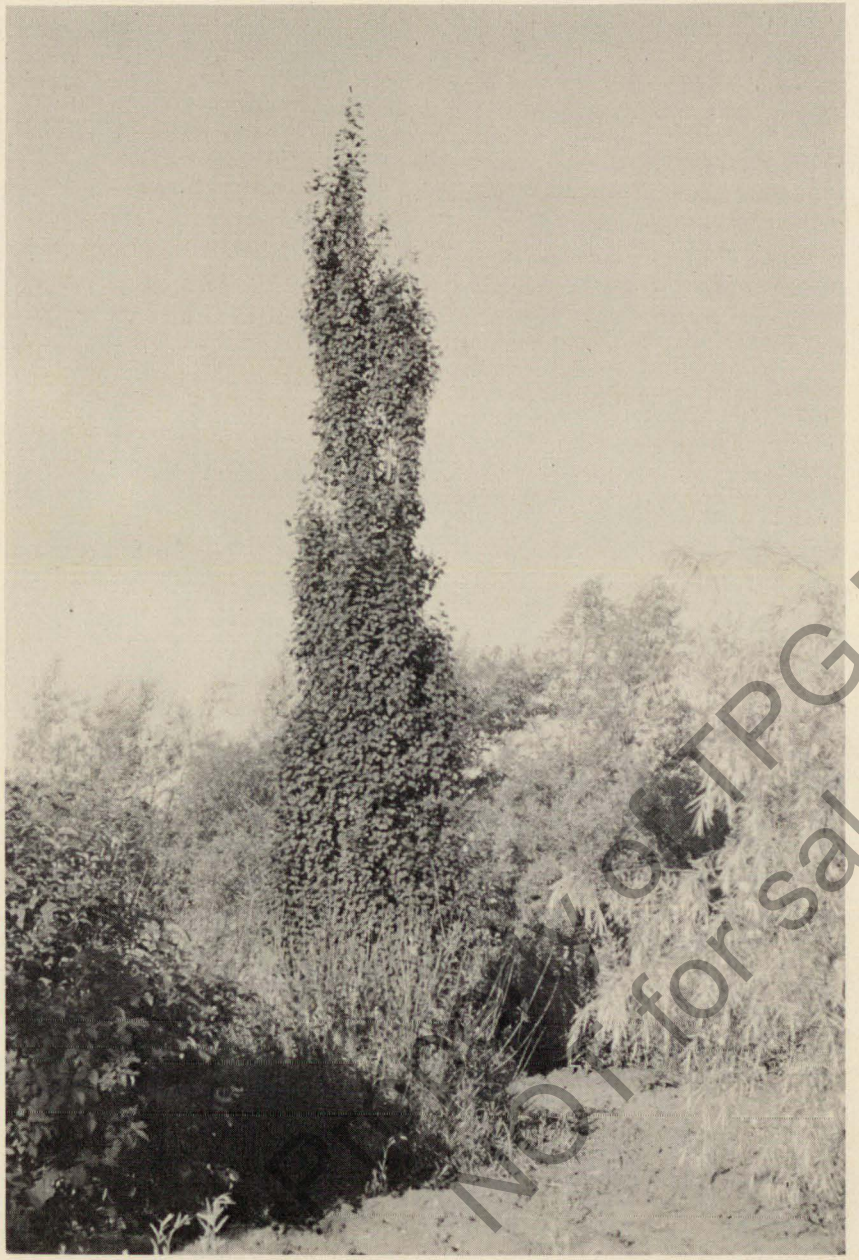
Photo by Lawrence Stuckey

Native

**Silver Buffaloberry** — *Shepherdia argentea.*

Found around sloughs and in coulees throughout southern areas. Fruit rounded and almost ¼ inch across, orange colored and unpalatable in raw state, but used extensively by natives, and by pioneers in jam.

Method of harvest: After hard frost, blankets were spread on ground and bushes beaten with stick. A thorny shrub 4 to 15 feet high with whitish branches. Leaves are oblong, 1 to 2 inches long and densely silver — scurfy on both sides.





## Cultivars And Varieties.

Do you know the difference between Cultivar and Variety? Variety is used to distinguish botanical variations occurring naturally within a species. Cultivar refers to variety changes directly attributed to cross-breeding of botanical varieties by man. See Cultivar or Variety, Prairie Garden 1969, page 115.

Indigenous to Europe

**European Columnar Aspen** – *Populus tremula erecta.*

This is a selection of the European Aspen made by the late Dr. Frank Skinner, for its excellent columnar form and attractive dark green foliage. This picture shows the original selection. This tree has also been extensively treated at the Canada Research Station at Morden, Manitoba, and has now been added to the recommended trees for Manitoba. It is considered superior to the older varieties, Griffin and Theves.

Indigenous to Europe

**Dropmore May Day Tree** – *Prunus padres commitata.*

A selection of the European Bird Cherry made by the late Dr. Frank Skinner. It is an outstanding lawntree growing to 30 feet; also often grown in clumps. It is extremely vigorous and fully hardy. Blossoms are white, fragrant and hanging down in loose racemes. Blooms in late May after the leaves have come out. Fruit is black and of little value. Like all members of the Prunus family it has some susceptibility to "Black Knot" disease.

Native

**Nannyberry** – *Viburnum lentago.*

A tall upright shrub to 10 feet or more. Common in woodlands in south-eastern prairies. Fruit is a bluish black berry about ½ inch long. Edible. Flowers are creamy white, borne in clusters. Its glossy green leaves are ovate with sharp, small, marginal teeth, tapering to a point at apex. Its purplish-red fall color makes this shrub useful for landscaping.

Indigenous to Europe and Asia

**Common Seabuckthorn** – *Hippophae rhamnoides.*

A large shrub, a small tree; growing to a height of 15 feet. Some of its features are narrow silvery leaves, adaptability to prairie growing conditions and its orange fruit which often persist throughout the winter. As the sexes are separated, at least one male plant is needed for pollination.



Indigenous to South Dakota and Texas

**Buffalo currant** – *Ribes odoratum.*

A shrub to 6 feet with lustrous deep green leaves. The yellow flowers are highly fragrant with a corolla tube of ½ inch. The black berries are sweet and edible and can be used for domestic purposes. Grows well in sun or partial shade. An additional benefit is derived from its good fall color.

Indigenous to Europe

**Alpine currant** – *Ribes alpinum.*

This hardy shrub makes a dense hedge and is also a good border shrub for positions where a dense dark green subject is required. Flowers are rather small, greenish-yellow and borne in upright clusters. Leaves are normally 1 to 2 inches across and usually 3 lobed. A useful ornamental for both sun and shade.

Indigenous to Asia

**Cherry Prinsepia** — *Prinsepia sinensis.*

A hardy spiny shrub up to 10 feet in height, although normally much shorter with bright green leaves, inconspicuous yellow flowers and small reddish fruit. It makes a good thich hedge as well as a border shrub.

Native

**Downy Viburnum or Arrowwood** — *Viburnum rafinesquianum.*

A shrub growing to 12 feet high with sharply toothed leaves, oval or ovate, slightly cordate at base. Fairly common in Manitoba woodlands. Flowers are all perfect. Blooms freely in early summer. Fruits in large clusters, almost black and about ¼ inch long. It can be used in border plantings.



Native

**Hoary Willow** — *Salix candida.*

A hoary shrub up to 6 feet, easily distinguished from other species by the white woolly twigs and undersides of leaves. Common in bogs and marshlands over a wide area.

Indigenous to China

**Nanking Cherry** — *Prunus tomentosa.*

This member of the plums is valued both for its edible fruit and showy pink to white bloom. These features make it a good dual purpose shrub. The Nanking Cherry is quite hardy and matures at 6 to 8 ft.

Cultivar

**Potentilla or Shrubby cinquefoil** – *Potentilla fruticosa* 'Coronation Triumph'

A cultivated variety or cultivar much superior to the native one. It normally grows to 3 feet in height. This hardy shrub has small hairy leaves and buttercup-like flowers and blooms intermittently throughout the growing season. It likes a sunny and fairly dry location. It is excellent for foundation and border plantings.

Native Alaska to Oregon

**Pacific Mountain-ash** – *Sorbus sitchensis.*

This smaller member of the Mountain-ash family, growing to not more than 15 feet will fit into the average home grounds much more readily than its larger relatives, the American and European Mountain-ash. It is a welcome addition to our list of recommended trees and shrubs for the prairies.



Indigenous to Siberia, N. China.

**Siberian Dogwood** – *Cornus alba "Sibirica".*

An excellent ornamental shrub of about 6 feet, with brilliant red bark that is particularly startling in the winter landscape. Leaves larger than our native and more puckered. Flowering and fruiting habits very similar also, with the fruit possessing an attractive bluish tinge. It should be pruned regularly as the young branches have more intense coloring.

Native

**"Arnold Red" Honeysuckle** – *Lonicera tatarica* Arnold Red.

This selection of the common honeysuckle is a more compact and attractive shrub than others of its species. It is vigorous and adapts to a wide range of growing conditions. Leaves dark green above, lighter-blue-green beneath, medium in texture. Inclined to be "leggy" after some years. It is a very useful ornamental, particularly in larger plantings. The two-lipped dark red flowers are produced in abundance followed by dark red fruit which is quite attractive.

Indigenous to Siberia, N. China

**Variegated or Creamedge Dogwood** – *Cornus alba "Argenteo marginata".*

A very effective ornamental shrub growing from 5 to 6 feet. Because of its creamy white variegation it combines well with other plants. Twigs are greenish yellow. Flowers and fruit inconspicuous because of the leaves.

## Two native shrubs, not illustrated

These are two good native shrubs, that we missed in this section, giving place instead to their selective and higher breed relatives the Siberian and Creamedge Dogwood and the Potentilla cultivar 'Cornation Triumph'. We would like to bring them to your attention here.

Native

**Red-osier Dogwood** – *Cornus stolonifera.*

One of the best native shrubs for the home border. Grows well in sun or partial shades. Found in moist cool woods and along river valleys throughout the prairies. It grows from 3 to 6 feet high with bright reddish-colored twigs and opposite leaves. Leaves generally ovate with rounded base and pointed apex, 1 to 3 inches long, paler beneath and with a few short appressed hairs. The small white flowers are borne in early June in flat-topped clusters from one to two inches across, and produce globular white fruit about ¼ inch in diameter. Old shoots should be removed from time to time as the new growth possesses the most desirable reddish bark.

Native

**Potentilla or Shrubby Cinquefoil** – *Potentilla fruticosa.*

A good small shrub from 12 inches to 4 feet high, with many branches coming from branching rootstocks. Leaves pennate, leatherly with 5 to 7 leaflets ½ to 1 inch long, linear oblong and pointed. Flowers are yellow 5/8 to 1 inch across; much like a buttercup. It is highly drought resistant and blooms almost continuously from the middle of June until fall. It is found to a greater or lesser degree across the prairies. If taken for the home grounds plants should be selected, as it is a very variable species containing many varieties.



Cultivar

**Stockton Pin Cherry** – *Prunus pennsylvanica* 'Stockton'.

A cultivar developed from our native pincherry. Commonly grown as a small tree with red-brown bark and small white double flowers. It is an outstanding ornamental.

# My Shrub Rose Border

H. H. MARSHALL

Hardy shrub roses have a natural type of beauty that might be compared to an informal group of friends. They show to best advantage in an irregular informal setting. Also, like friends, they quickly lose any semblance of beauty if you attempt to force them into a mould of your choice. If you want straight rows of neat mounds, do not plant shrub roses.

Shrub roses grow best in a rich, loamy, well-drained soil in full sun but they will grow well in a wide range of conditions. They grow poorly in very dry sites and will not live if flooded for more than a few days. They are susceptible to chlorosis on very limey soils, particularly those related to *Rosa rugosa* which is distinguishable by a rough leaf surface. They differ markedly from the well-known hybrid teas and are therefore better used for a different purpose. They can be striking as a shrub for landscaping but a disappointment as cut flowers. Some will make a ground cover in a sunny location but not a multi-colored bed of roses. Some provide winter color in fruit or bark which none of the tender roses do.

Therese Buget

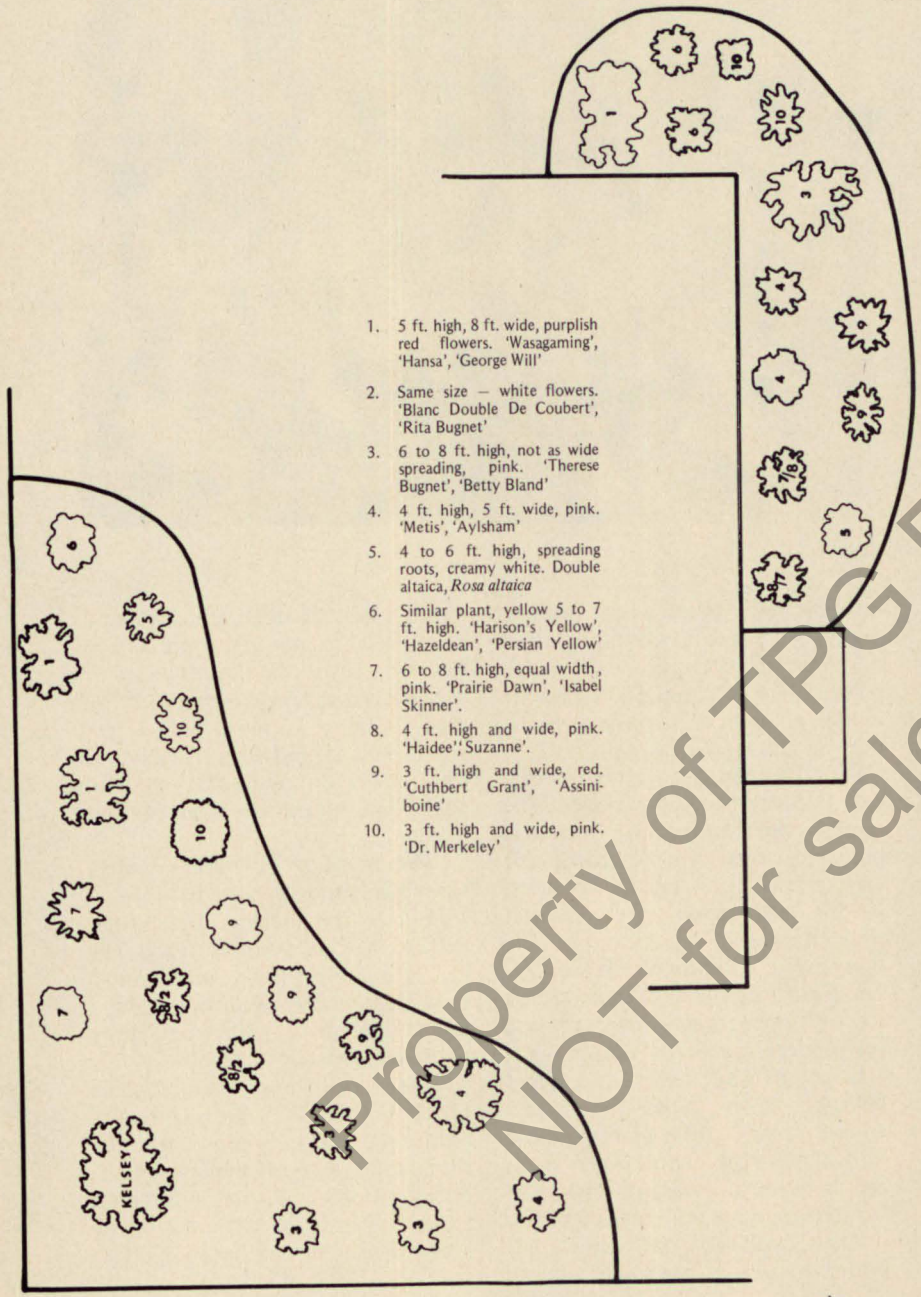
Cuthbert Grant

The two plans show how a shrub rose border might be arranged. The number refer to the list which was prepared from the catalogues of various nurseries on the prairies. At the back of one plan you will find **Kelsey.** This is a double flowering rosybloom crabapple. These plans will need to be modified to conform with your property and preferences. Hardy roses often reach a height of 7 feet, therefore, avoid planting taller types under low windows. Also avoid planting close to walks where their thorny arms can be very unpleasant. They can be used to block unnecessary paths.

It is probable that you would prefer to devote a smaller area to shrub roses. Reduce the area and number of plants in proportion to your needs to a minimum width of 6 feet. The spacing suggested is 5-6 feet for most varieties or 3-4 feet for groups 8 and 9 or for Hybrid Teas and Floribundas, if you wish to include some at the front of your border

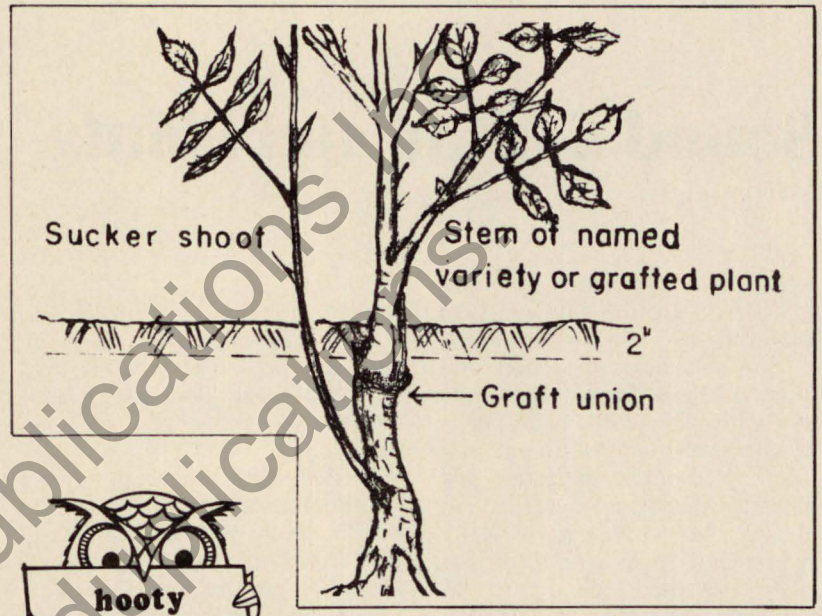
The planting will seem widely spaced at first. Resist the temptation to reduce the spacing. The border will be full in about 3 years. The spaces may be filled with annual flowers at first or with bulbs and a few tall perennial flowers on a more permanent basis.

The shrubs may require some pruning when they are planted to reduce the tops in proportion to the roots. Otherwise, in their first year, do not prune shrub roses and do not expect many flowers. Keep the area cultivated and insects under control.




1. 5 ft. high, 8 ft. wide, purplish red flowers. 'Wasagaming', 'Hansa', 'George Will'
2. Same size – white flowers. 'Blanc Double De Coubert', 'Rita Bugnet'
3. 6 to 8 ft. high, not as wide spreading, pink. 'Therese Bugnet', 'Betty Bland'
4. 4 ft. high, 5 ft. wide, pink. 'Metis', 'Aylsham'
5. 4 to 6 ft. high, spreading roots, creamy white. Double altaica, *Rosa altaica*
6. Similar plant, yellow 5 to 7 ft. high. 'Harison's Yellow', 'Hazeldean', 'Persian Yellow'
7. 6 to 8 ft. high, equal width, pink. 'Prairie Dawn', 'Isabel Skinner'.
8. 4 ft. high and wide, pink. 'Haidee', Suzanne'.
9. 3 ft. high and wide, red. 'Cuthbert Grant', 'Assiniboine'
10. 3 ft. high and wide, pink. 'Dr. Merkeley'









*About Suckers on Roses. As you probably know, all "tender" hybrid roses are grafted on hardier rootstocks. This graft or bud union is readily decernible as shown in the accompanying drawing.*

*Because of our rigorous climate the hybrid portion of the plant above the graft is much more inclined to succumb to our prairie winters than the hardier rootstock, or at least lose much of its vigor and take some time to come to life in the spring.*

*This condition encourages sucker growth below the graft. When this occurs you can detect such a sucker by the fact that it comes up from below the ground level as an arching rather willowy stem with hooked prickles and leaves of lighter color that are serrated, usually with seven leaflets. Such suckers will not bloom.*

*If these are the only shoots your rose sends up in the spring, your grafted rose is dead. Dig it out. However before you do this scrape away enough soil from around the main stem and check the graft union. If there are signs of growth above this union, leave it be. Now dig further and cut or pull off the suckers where they join the root stock. Lastly put the soil back, fertilize and water.*

*Suckers are also produced by certain rose species which we normally call hardy or bush roses. These are "own root" roses and this is the natural means of increase. With them the plan should be to control the area desired by digging out and discarding or replanting these surplus stems and roots.*

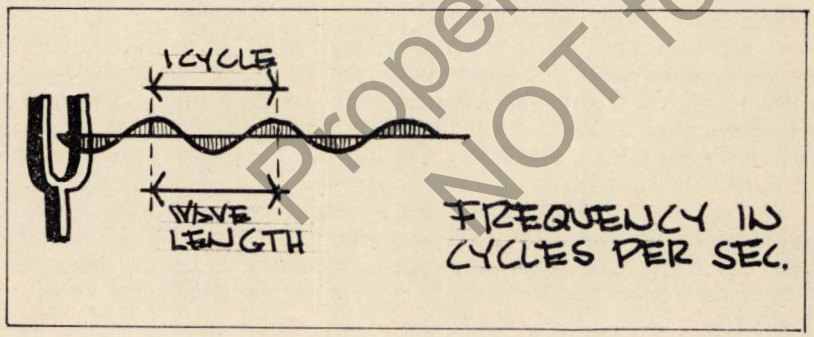
# Sound Control and Plants

O. HAMMER

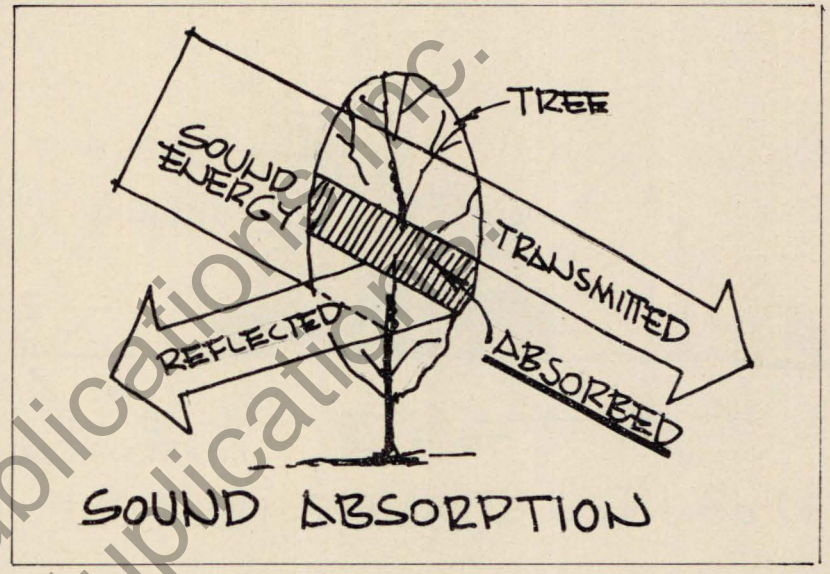
Modern civilization with its technology and crowding has created nearly unbearable sound pollution. Little is known about the possibilities inherent in living plants to effectively control sound pollution by absorbing, deflecting, and masking sounds. Sound is an integral and vital part of any environment. We have to distinguish between wanted sound such as music and unwanted sound registered as noise.

In order to understand how plants muffle noise, it is necessary to understand some basic facts. Sound has two essential components, frequency or pitch in cycles per second and loudness or sound intensity measured in decibels (dB). A low frequency sound (long wave length) will sound like a low rumble and a high frequency sound somewhat like a soprano running out of 'steam'. High frequency sounds are easily absorbed by plants, however, low frequency sounds (long wave length) are not as easily absorbed and scattered.

Decibel levels are measured on a logarithmic scale in which one is at the threshold of hearing and 120 at the threshold of feeling. Sounds above this level are not only deafening but will cause pain. Each interval of 10 decibels indicated a level of sound energy ten times higher than the previous one or twice as loud. Consequently a reduction in the sound level by 10 decibels results in a noise half as loud. The general dividing line between disturbing or not disturbing as perceived by the majority of homeowners is a traffic noise level of about 68 dB. Average street noise levels range in the seventies; a small reduction of the

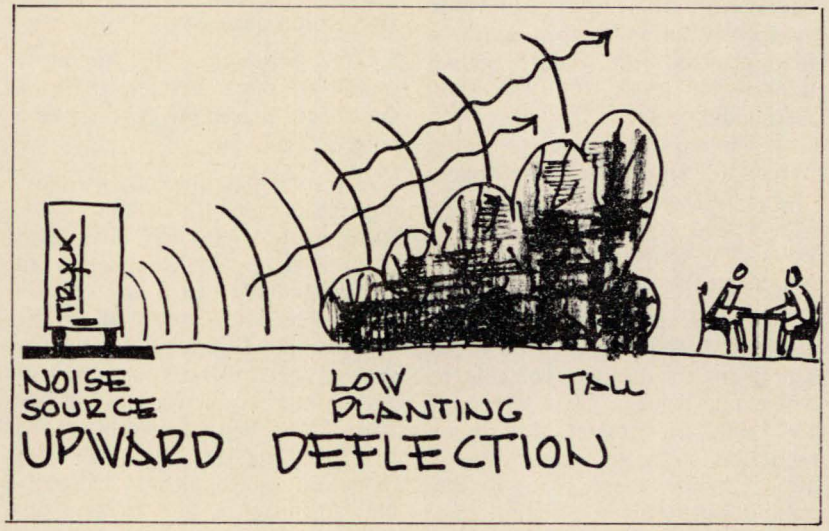


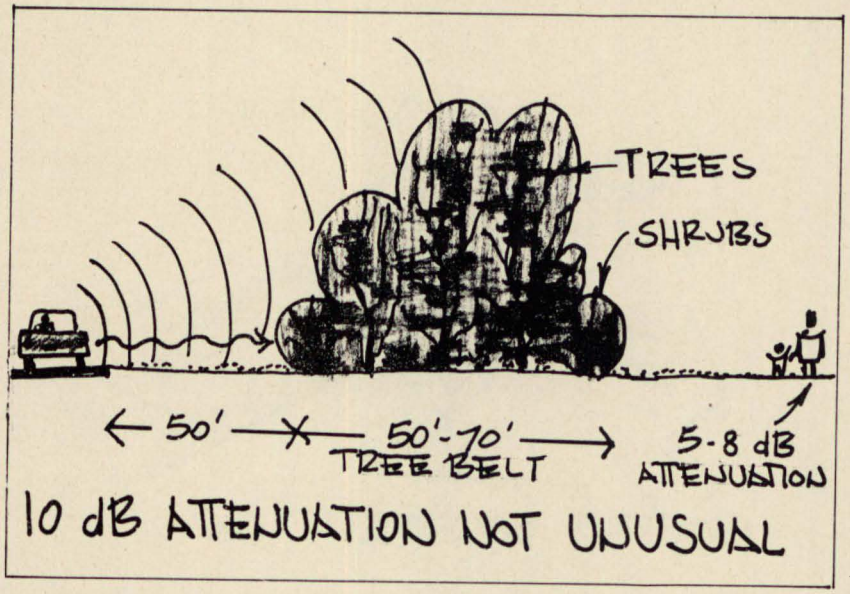



noise level in this critical range through plants will therefore often result in a nondisturbing sound.

Reduction of sound levels may be a result of distance, reflection and air or ground absorption. Soft, flexible materials absorb sound, whereas solid, hard surfaces reflect and amplify sound. Therefore freshly tilled soil, lawns and groundcover






will reduce noise and hard paved surfaces hardly diminish decibel levels.

Sound travels with flowing air, resulting in upwind quiet conditions and downwind noisy ones. Sound travels most efficiently in a uniform medium. Cool air trapped within a tree planting will reduce sound transmission levels from a warmer surrounding area.

A recently completed study "Trees and Shrubs for Noise Abatement" by David F. Van Haverbeke, U.S. Forest Service and David I. Cook, the University of Nebraska points out the following:

1. Plants effectively reduce sound levels if placed between the noise source and the receiver. The denser, wider, and higher a plant screen or tree belt, the greater the sound reduction, or better sound attenuation. Dense foliage close to the ground will result in a high attenuation. Older tree belts have a tendency to become hollow within and therefore less effective.

2. The highest sound attenuation occurs over the first 50 feet of width of a tree belt, thereafter attenuation decreases.

3. Tree belts close to the noise source are more effective than the same belt placed away from the noise source.

4. The readings obtained by playing taperecorded traffic noise (Cars, trucks, buses) through established tree belts generally showed an attenuation of 5 to 8 dB for a 50 to 70 feet wide tree belt. Under optimal conditions the readings showed a 10 dB attenuation – or half as loud. These readings indicate reductions solely attributable to the tree belts and are above the sound reduction which occurs naturally due to distance and ground absorption or better cancellation.

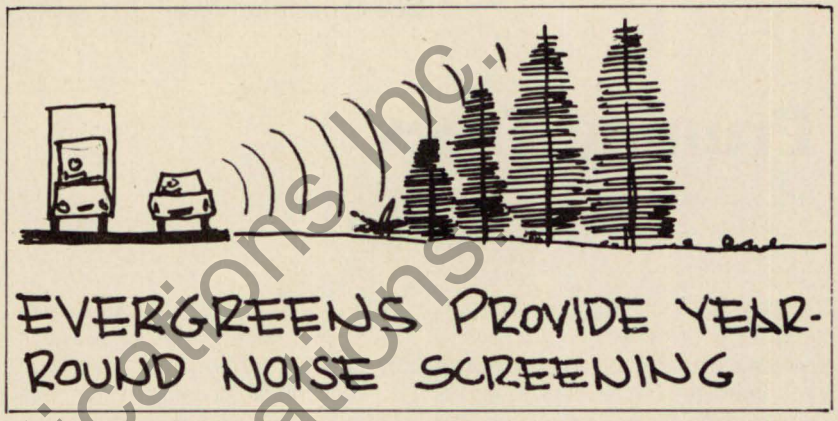
5. Where year round sound control is required, evergreens should replace deciduous plants. A tree without leaves is ineffective.

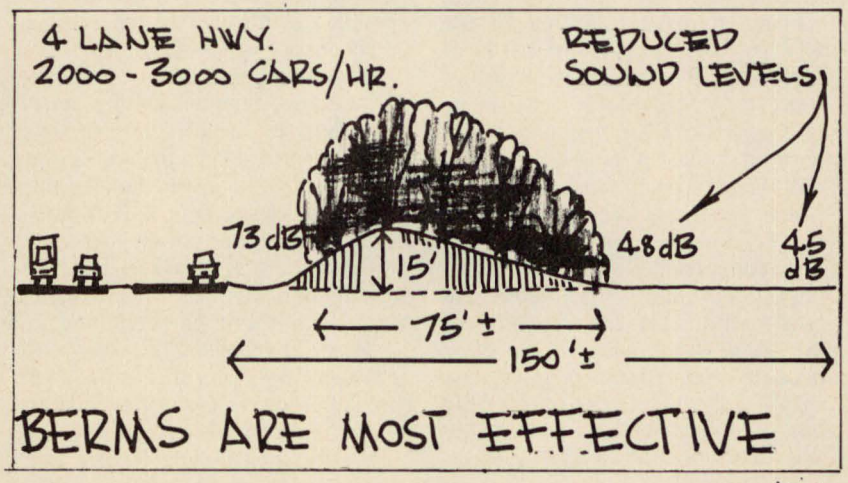
Plant sounds – rustling leaves, etc. – help disguise or conceal offensive noises. Berries, fruit and the concealing abilities of trees and shrubs attract noise-making birds and animals whose sounds also tend to mask other noise. The psychological effects of plants are well known.

Plants like all living things need time to grow and fill in, and therefore offer no instant noise control. Urban, restricted conditions suggest that plants be supplemented with screens, walls or earthen berms. Even if plantings cannot reduce noise to very low levels, – in most cases they will reduce noise to an acceptable level.

Reference: Research Bulletin 246 'Trees and Shrubs for Noise Abatement' may be obtained for 50 cents each through the Department of information, College of Agriculture, University of Nebraska, Lincoln 68503.





**Let's abolish boulevard hat racks.**

# Pruning Trees

DR. S. H. NELSON

The tourist industry on the prairies is good, but do we have to cater particularly to very tall Texans and build the hat racks right on the street. This is the impression one gets of the severely pruned boulevard trees in many western centers. Certainly, this treatment doesn't need any finesse, but instructions to cut back boulevard trees to a certain height can lead to embarrassing situations of all trunk and no branches. Frankly, there is no need for this type of pruning and it is hoped that home owners do not follow this example.

Much of the need for severe pruning arises from the improper selection of plant material for the location, but, on the other hand, we are somewhat limited in the selection of plants with sufficient hardiness. If the occasion arises, however, a deciduous tree can be severely reduced in height or width without creating large stubs that give rise to a proliferation of shoots which ruins the natural branching habit of the tree.

Frequently the excuses heard for improper pruning is that the meticulous methods are too expensive or not understood. Both are weak because meticulous pruning and shaping of shade trees is not only not necessary but also not usually advocated. Really all that is necessary is a few large cuts where they do most good. Since shade trees will be pruned infrequently compared to the annual pruning recommendations associated with fruit trees for good fruit production, a degree of overthinning can be tolerated and thus almost eliminates the need for the use of small hand pruners. Although it is difficult to depict pruning because pruning involves the three-dimensional effect on the entire tree and not just a particular branch, an attempt has been made to depict thinning in Figure 1. Essentially, branches serving the same area and those that are crossing over have been removed. These branches, if left, would eventually rub together causing abrasions and possible loss through partial girdling or secondary rot organisms. Much of this could have been accomplished by many, time-consuming, small cuts, but an examination of the specimen also shows that it can be accomplished in a very short time by only three saw cuts. If it appears to be overthinned, remember that the branching and rebranching of growth soon fills in these areas and the tree may not be pruned again for four or five years.

Where trees must be headed back to a lower level, they should not be stubbed to a fixed level as previously mentioned. Rather, an



Figure 1 — Sketch depicting a tree that has been thinned by making three selected cuts.


Figure 2 — Sketch depicting the reduction in height by making two selected cuts, but retaining growing points to preserve the general shape.

examination of the tree will show a number of natural branches ascending to the approximate desired height. Keeping these branches in mind, the offending portions of the tree can be removed just above where these branches originate. The selected branches are not pruned. Even though the cuts are sometimes made considerably below the specified level, the unpruned branching habit of the remaining branches retains the natural habit of the tree and the fact that all of the growing points are left on the unpruned branches, there is usually no problem of a proliferation of growth from the cut surfaces as occurs when stubs are left. Figure 2 depicts a reduction in height and only two cuts have been made. It may appear severe, but certainly less obnoxious than stubs and soon fills in with subsequent growth and branching of the unpruned branches. As far as work load and pruning time involved, most trees will need less time and number of pruning cuts than the "brush cut" pruning so often seen.

Similarly, if the tree has to be pruned in from the side, the selection of a secondary branch growing roughly in the direction of the offending portion can be made. Figure 3 depicts how this can be done using only one cut.

Although the heading back of the tops of trees is usually associated with power and telephone lines and the cutting back of side branches is usually to alleviate problems with driveway and sidewalk traffic, other needs of severe pruning should not be ignored. Anything that injures or disturbs the root system, such as sidewalk, driveway and foundation construction, as well as mov-

ing, will necessitate thinning and most porbably heading back of the top of the tree. With the roots injured, they cannot support the entire top growth and die-back will occur. It is much better to do selected pruning to reduce the top at the time than to wait and have to remove dying twigs and branches occurring at random, but not necessarily the least desirable ones.

By making relatively large cuts where they will achieve the greatest effect, it must be remembered that considerable weight is involved in the portion to be removed. In making the saw cut, quite often the wood breaks and causes long tears down the stem as the diminishing amount of wood can no longer support the weight of the portion to be removed. To avoid this, a cut on the underside should be made until the saw just starts to bind as shown in Figure 4. Then farther out a second cut is made downward until the branch breaks off, with the weight removed a smooth clean cut can be made at the trunk. Figure 5 depicts the method when heading back to a branch.

The exact degree of pruning will vary with circumstances, such as frequency of ability to prune, space limitations, type of tree and the purpose for which it is being grown. For example, shade trees with inconspicuous flowers will not usually need as severe pruning as flowering trees and among the flowering trees, those that produce flowers primarily on spurs do not need to be pruned as severely as those that initiate flowers on shoot growth produced the year before. In the latter, frequent pruning is necessary to encourage new wood production for flowering.

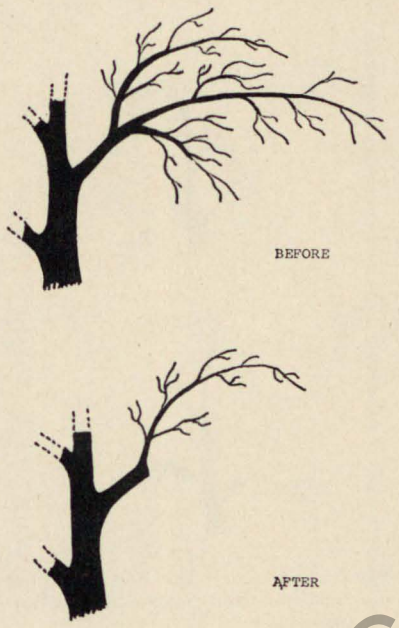



Figure 3 — Sketch depicting the reduction in width using a single cut.

Although fall pruning is advocated and practised by some, it is best to leave pruning until spring in the prairie region. For the most part, pruning is done while the trees are still dormant although trees prone to "bleeding" can be delayed until the buds have opened and the leaves are starting to unfurl. Pruning later in the growing season should be avoided as there is a possibility of throwing the tree into late growth which will not be hardened properly going into winter. The exception to spring pruning may involve broken and diseased wood which may be removed as soon as noticed.



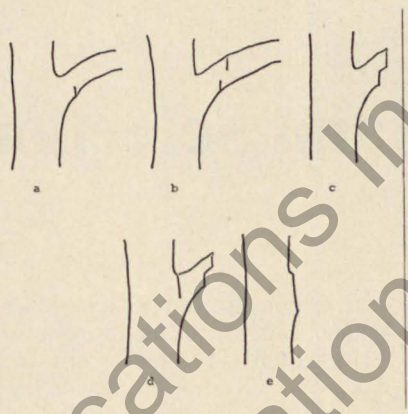



Figure 4 — Steps to follow when removing a large branch.

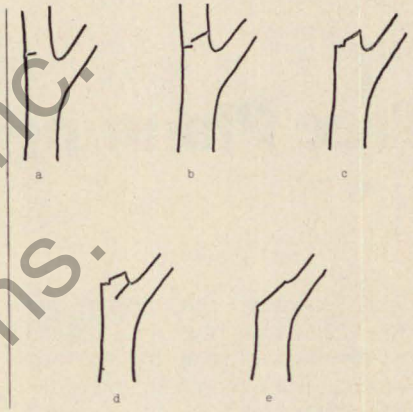



Figure 5 — Steps to follow when removing a branch back to a side branch.

Broken material, particularly, is nonfunctioning and no further upset in growth by its removal will occur. It is much better to make a smooth cut in sound wood so that proper healing can be initiated. With some diseases, the removal of infected areas may help control the spread, but this would depend upon local recommendations.

Worth repeating is the statement "Never leave a stub". All cuts should be made flush to the trunk or cut back to a lateral branch or bud. Large stubs usually produce an undesirable proliferation of growth, but if no growth is produced, as often happens on smaller stubs, the stubs do not develop winter hardiness and killing not only occurs in the stub but right back into the tree. With decay of this dead tissue a cavity eventually occurs which allows moisture into the heart wood where considerable further decay can occur.

Saw cuts are rather ragged and it is best to pare the bark area into the edge of the heart wood so that a smooth cut capable of a rapid start to healing is made. Further, all cuts one inch in diameter and greater should be protected with a tree wound compound. The most common types have an emulsified-asphalt base and these can be painted or sprayed on. Ordinary paint soaks in and does not afford the same protection as the paint and wood soon starts to check.

The article has been an attempt to outline the simple procedures of pruning deciduous trees although it has strayed badly from the concise message in the title. There are no great secrets to proper pruning and accordingly, there is no need for living hat racks for tall Texans. It's as simple as falling out of a tree — try it sometime.

# Tree Planning and Selection

F. J. WEIR

A generation ago, most of our towns and villages were started and were well planted up by our forefathers. These pioneers appreciated what trees could do, provide some control of snow drifting, provide shade, break the force of the wind, and add to the attractiveness of homes and streets.

In spite of great difficulties often in obtaining trees (there were very few tree nurseries growing different trees, and still fewer nurseries, on the prairies) most municipalities were well planned and well planted. Unfortunately, there was little choice of tree varieties, and no information available on the performance even of those species. Consequently, many areas were planted with Manitoba Maple, or Boxelder, and Cottonwood. Admittedly, these two species were found to be sufficiently hardy and fast growing, although both species had some disadvantages. The Boxelder is most attractive to aphids, which secrete a honey-dew substance, not the easiest thing to get off one's car. It is also carried down by rain, if a tree overshadows the house, spoiling the rainwater running into the cistern. The seeds are scattered quite promiscuously, and find their way into the vegetable and flower garden and eavethroughs. The branches are inclined to be brittle and so are susceptible to wind, ice and snow damage. One of the most objectionable features of the Cottonwood is that the female tree sheds cotton in the spring which clogs up window screens, etc.

Now the time is fast approaching when these trees are nearing, or already have, their optimum condition and age. Trees do not live forever. Our trees do not live as long as the Bristlecone pine which is the oldest species of living plant in the world. Some of these are considered to be 3,600 years old, having germinated 2,600 years before the birth of Christ. Generally speaking, our planting of trees have to be replaced every generation or less.

It is time that we gave some thought to renovating, removing, and replanting. This is where our Horticultural Societies can perform a needed service, and make the name of their Society remembered for years.

Many municipal councils do not have a Parks Board, and some not even a Parks or Tree Committee. Horticultural Societies, by making use of the talents of some of their members, can bridge this gap by providing technical advice to the municipality. Many societies are already doing this. However, society members should not sit back and wait to be asked but should volunteer their services and suggest projects which need to be undertaken. Societies could also assist financially where possible and help get the job done.

Today we are much more fortunate in having more tree species for selection and more nurseries to supply the trees. It would be a great mistake to attempt to remove all the existing trees in one, or even a few years. This is another reason for the prompt planning ahead for the restoration project, as it would be very unwise to denude the town's streets over the period of a few years. It must be remembered that after removal, it is wise to allow several years before the new trees are planted in order to allow the soil to be conditioned. Few municipalities will have the equipment necessary to remove large trees, and so the municipality should hire a tree specialist firm having the machinery and wherewithal to do this job.

Once the trees are removed, if the stumps remain, another year or so is necessary to get rid of the stumps. One of the best ways of getting rid of stumps is to bore holes, 5 or 6 in the average-sized tree, to a depth of 15 inches, fill these with saltpetre, plug the tops of the holes with wooden pegs and wait for spring. Then, a little gasoline or petroleum can be used to start a fire in each hole. The saltpetre meanwhile has been spending the winter travelling down to the tips of the roots. No oxygen is needed to keep the fires going, and only an empty shell will be left.

The whole renovation and planting project should be carefully planned in advance so that each year trees can be removed from certain blocks, and a certain amount of planting done on other streets already cleared. If some such plan is not evolved for communities soon, some municipalities are going to be faced with the realization that a 10-year project will have to be done in a much shorter time, with the result that the town is going to be without trees for a few years.

## Selection of Trees

There is a much greater selection of tree species today. It might be wise to use different species for different streets, or for several streets. Using a variety or number of species is good insurance in case a devastating disease or insect should become a problem.

Arborists, landscape men and nurserymen agree all over this continent that the American Elm is, without doubt, the most satisfactory boulevard tree, even in areas where Dutch Elm Disease has been a problem. Although, as far as we know, this dreaded disease has not appeared on the prairies, it would still be wise to use a variety of species.

**The Dropmore Elm,** or the Harbin strain of the Manchurian Elm makes a satisfactory boulevard tree, although it is not immune to this ravaging disease. It does have some, but not complete, resistance. This elm, incorrectly called by many a Chinese Elm, tends to become somewhat brittle when grown in areas where there is ample moisture, and so may suffer from heavy wind, snow or ice damage.

Two species of trees which perform satisfactorily are the **green and black ash.** In the Winnipeg area

the male forms of these trees are preferable as the seed portions of the female trees are often attacked by a gnat which causes the cluster of seeds to be deformed and remain on the branches in an unsightly condition all winter. Ash trees are rather late in leafing out in the spring and early in losing their foliage in the fall, but their foliage takes on attractive gold shades before dropping off.

Another tree grown for its attractive foliage and shade is the **Silver or Ontario soft Maple.** The Sugar Maple, so attractive in Eastern Canada and the United States, is not sufficiently hardy for our rigorous climate. Not even the hardiest strains selected from the most northerly part of the continent can be grown here.

**The European Paper Birch** makes a good boulevard tree if the lower branches are removed when young and the tree is pruned to a single stem. Multiple-stemmed trees, while very attractive for the home grounds if there is room for them, are not recommended for boulevard planting because of the danger of children playing around or behind them, and the possibility of them darting out in front of cars. For the same reason evergreens are not recommended, but also for the possibility of them holding snow.

**The American Basswood or Linden** is an attractive tree, native in the southern parts of the prairies along river banks or where ample moisture is available. This species could be used in the southern part of the province, but it would be wise to plan on irrigation in periods of drought.

Another tree which resembles the American Elm is the native **Hackaberry.** This species has been found growing native as far north in Manitoba as the southern part of Lake Manitoba. It does not grow as vigorously as the American Elm and suffers from damage from an insect which causes the formation of galls on the foliage in some years.

A few other, but smaller foliage-type, trees which can be used satisfactorily are **Ginalla (Amur) Maple,** grown for its beautiful golden or fiery red Fall coloring; **Sutherland Caragana,** an upright type with many stems, but not requiring pruning; and **Swedish Basswood,** which is rather slow-growing.

In the flowering-type of trees, many can be recommended. One of the tallest is the **Japanese tree lilac.** The flowers are in the form of creamy-white panicles in late June, and the seeds are retained and are most attractive during the winter time. It forms several stems but, if lower branches are removed when young, it is highly satisfactory.

**The Ussurian Pear** has a more or less pyramidal form, is relatively drought resistant, and colors up well in the Fall.

**Shubert Chokecherry** is an attractive smaller tree, broadly pyramidal in growth habit. When the leaves come out in the spring, they are green but after a couple of weeks, gradually turn to a dark purplish red. The flowers are similar to those of the common chokecherry on which it is usually grafted. Care should be taken that all suckers are kept removed.

Another native plant, and one which is not planted enough, is the **Nannyberry.** It usually develops more than one main stem and so would require careful and early pruning. It colors up well in the Fall.



Two other smaller trees which should be mentioned are the **Amur Chokecherry** which is quite drought resistant, and exhibits an attractive brownish-yellow bark, a distinctive winter feature, and the native **pincherry** with attractive clusters of white flowers in spring and red-purple leaf-color in the Fall.

**Rosybloom Crabapples** have made quite a contribution to the list of recommended trees for street planting. Many crabapples, although most attractive, suffer from bacterial fire-blight, a disease which can kill the trees in a few years. Three of the varieties with some resistance to this troublesome disease on the prairies, are Sundog, Selkirk, and Royalty, although the latter is not as resistant as the others. It, however, has shiny purple foliage and dark red flowers.

For additional varieties, more information on the foregoing, spacing for different species, and other species, Horticultural Societies and municipalities should check with the local Department of Agriculture office, University, or Federal Department of Agriculture Research Station.

Now is the time to assess your town's trees and formulate a plan to be extended over a few years for removal of those trees which are past their prime, before it has to be done all at once. Your Horticultural Society will be remembered in years to come for its foresight.

# Pruning Evergreens

DR. R.H. KNOWLES

For purposes of pruning, two types of conifers are recognized. Those such as Spruce, Pine and Fir that produce their branches in whorls belong to one group whereas plants such as Juniper that do not show this whorled habit belong to the other.

Seldom can a branch be removed entirely from one of the first group of plants without an unsightly gap being left. Such plants do not generate like decidous materials, hence at best only parts of branches can be pruned off.

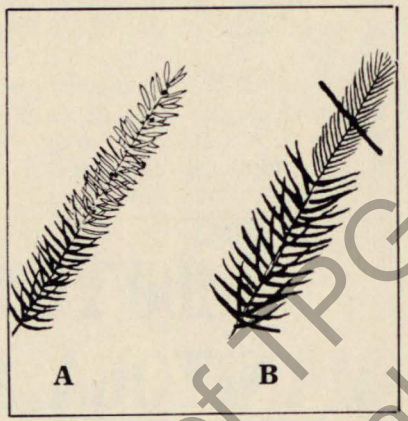
In the pruning of Juniper, good judgment must be used in the case of each cut that is made; however, the operator has much more freedom and in many cases whole branches can be removed without affecting the appearance of the plant.

### Spruce, Pine and Fir

Pruning on these trees must be completed shortly after new growth has begun in the spring. The objective of pruning here, may be to direct growth or to increase density. In either case pruning is confined to new growth.

### Pruning of Spruce and Fir

Although shearing is commonly practiced with these trees, it is not recommended unless confined to new growth just after growing points

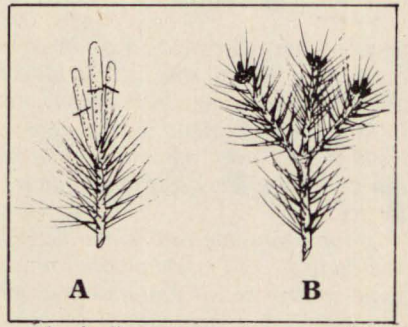



have begun to elongate. A. Shows normal terminal growth at the end of the growing season. To control the quantity of growth, prune as in B, early in growing season. This will permit new shoot buds to form normally. Pruning later than this, may remove buds that have already started to develop.

If a branch is not growing in the desired direction, the offending growing point may be removed entirely so that growth may be directed along another course. It may be that a branch on one side of a tree has developed faster than its opposite number. Pruning within the new growth on the vigorous branch will compensate for this and if practiced annually will result in symmetry being restored.

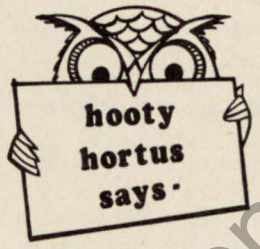
When pruning is confined to new growth and undertaken shortly after growth has begun, the results can be a noticeable increase in the density of the tree – particularly if it is practiced annually for a few years. When pruning is done at this time, new buds for next year's growth have yet to be formed. The usual number of buds are produced later on, but over a reduced area, hence the density of a branch increases. This kind of pruning is commonly practiced on the Mugo Pine where frequently a small, dense, compact specimen is desired. As a matter of interest, terminal buds which form on the pine after pruning invariably arise from the tissue in the centre of a terminal needle cluster.

### Pruning of Pine




A. Indicates the stage at which pruning is carried out on a pine. New shoots first develop as finger-like projections from terminal buds.






*The Savin Juniper For the Foundation Border. Since the low forms of this juniper were introduced some twenty years ago they have been increasingly popular for foundation borders. Skandia and Arcadia are two of the best. They grow about two feet high; Skandia with grayish foliage and Arcadia sometimes a bit higher with a distinctive light green foliage. Both are fully hardy when they are given the same general care required by evergreens. Junipers are particularly suitable for south and west-facing borders because they will stand more heat and dry weather than cedars and other evergreens.*

*There are also a number of prostrate junipers which are selections of the horizontal juniper. They are fine for the front of the foundation border, the rock garden, and are very effective when planted on sunny banks where grass has been difficult to grow.*

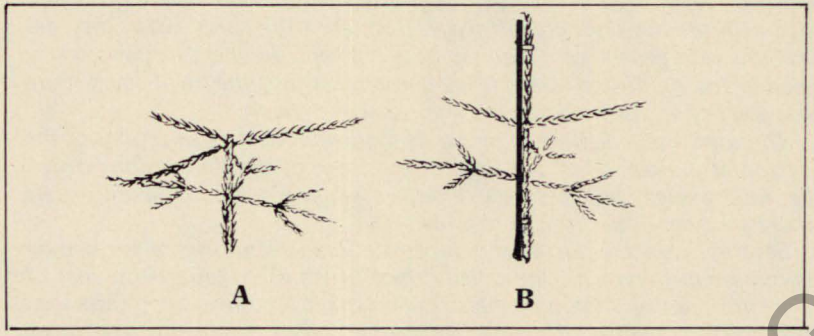
*Several distinct kinds of this prostrate juniper are offered for sale by the prairie nurseryman. One called Prince of Wales makes a dense mat of bright green foliage, not more than six inches high. Another called Dunvegan Blue makes a blanket of silvery, bluish-gray foliage that is most attractive.*

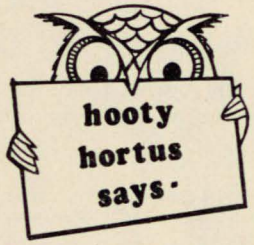
By pruning these at this time, the length of subsequent growth can be controlled, as in B.

Sometimes the vigorous terminal shoot of Spruce or Pine is cut out entirely as a means of controlling vertical growth. If this is done a less vigorous lateral from the whorl of branches immediately below, should be trained upwards to form a new leader. This practice will give a temporary check in growth and at the same time preserve the natural form of the tree.

## Replacing a Leader on Spruce

A lateral branch can be trained upwards to form a new leader; it must be supported as shown in B for at least one growing season.




*Red spider mites, the most troublesome of Evergreen Pests. The rusty red mite, about the size of ground pepper, is so small it is very hard to see. They however can be detected by a dull dirty brown discoloration of affected foliage, by the webbing it spins on the foliage and by shaking the branches over an open newspaper. If they are there, your newspaper will have the evidence.*

*Mites are dormant during cool weather and are no problem in wet weather but given a hot dry atmosphere, they will thrive and infestation can be severe. They suck plant juices and the foliage and make the tree unthrifty.*

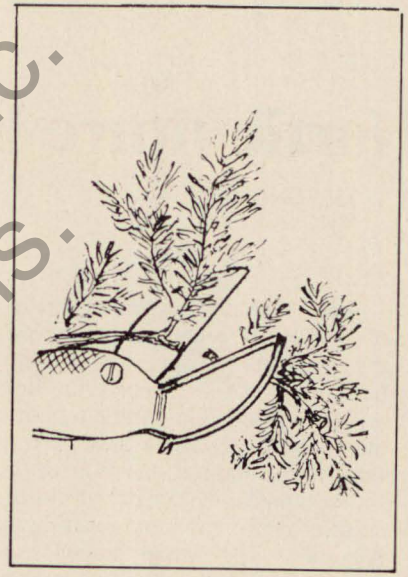
*A force spraying with water during hot periods is beneficial but the only real control is by using a good miteside such as Kelthane. Malathion gives some control and if you have had infestations in the past try the systemic Cygon 2-E. Spraying is done from late May to early September following directions on the containers.*

*Mites attack other plants as well as evergreens. Many house plants are susceptible while raspberries are often affected. The same controls are also used to these plants.*



## Junipers

These plants do not exhibit the whorled growth shown by Spruce, Pine and Fir. Neither do their buds or shoots come off the branches at right angles. Because of these characterisitics, pruning practices followed are more like those carried out with deciduous materials. In other words, a branch may be cut back to a healthy lateral without spoiling the look of the tree. Such would not always be practical with Spruce because of its more rigid growth characterisitics.



## Pruning of Dwarf Junipers

When removing branches or parts of branches from these plants, care must be taken to see that the cuts are made close to a branch junction. Cut should not be obvious, and may be made at any time of year.

# Horticulture in the Seventies

A. O. OLSON

The emphasis on the problems of people in urban communities, the necessity to provide alternatives to wheat as a basis for our agricultural economy, the requirement for greater care and utilization of our natural and human resources, make the field of horticulture one of the most exciting in Alberta. The urban sprawl has come to Alberta – our two largest cities, while situated in some of the most picturesque country in Canada, have begun to suffer the problems of loss of privacy through crowding, and the lack of individuality. One of the more immediate solutions is the use of horticultural material, both for shelter and for ornamental purposes. Can you picture a city without a tree, without a park, without the landscaped grounds which add so much to our natural need to ameliorate our rather harsh environment? This increased emphasis on the need for horticultural services and materials has resulted in a dramatic expansion in the private firms providing nursery or landscaping services. In fact, if one stops to think about the monetary value of this growing industry, and consider even your personal expenditure in landscaping your own property, and the number of households in Alberta, I think you will realize that environmental horticulture is actually a major industry in Alberta.

Agriculture is a primary contributor to Alberta's prosperity: a wheat surplus has immediate and wide-ranging effects on almost every other part of our economy. Vegetable crops are very successful alternatives in the irrigated areas of south Alberta, around Edmonton, and in the Peace River. The high cost per acre for production and storage and the relatively greater risk to the farmer, balance out when the high returns per acre are realized. We have a tremendous potential for vegetable production, over 100 million dollars worth of produce is imported into Alberta – should we not be exporting instead? At present, potatoes, carrots, onions, corn, cabbage and turnips are produced in large enough quantities to command at least part of our own markets, why not others?

Very few people realize how successful breeding and hardiness trials in Alberta with both tree and small fruits have been. Varieties of apples, crabapples, apricots, plums and pears have been developed for almost every part of Alberta. Their fruit is delicious for eating out of hand, for processing or even wine production. It is certainly possible that within the next few years, Alberta will have a wine industry using our strawberries, raspberries, and native fruits. "Pick-your-own" operations for these fruits have been established in considerable size in the Peace River and near Edmonton, and we hope in the near future, in the Medicine Hat and Brooks areas. Fruit and vegetables are very acceptable alternatives, particularly if protection such as shelterbelts is available.

Alberta is utilizing less than half of its irrigable acreage – with the wheat crisis, more of this resource is being seeded with specialty crops, and forage crops and vegetables. The Peace River valley is similar in value as a resource, as the long days result in produce that is as good as, and sometimes earlier to the market than the same product from south Alberta. Can we use more of this land – can we efficiently and economically market the products?

South and east of Calgary, a pilot project in potato seed production by native peoples has shown the potential of this human resource for developing and utilizing what has previously been low return land. Could not our other native peoples develop similar projects with other vegetables or fruits? Such operations near Edmonton and in the Peace River are developing successfully, and should be initiated in other parts of Alberta.

There are a number of groups in Alberta involved in horticultural research and development: the Alberta Horticultural Research Center at Brooks, with applied research programs in olericulture (vegetables), environmental horticulture (ornamentals, shelterbelts and greenhouse crops) and pomology (tree and small fruits); the Provincial Tree Nursery at Oliver which specializes in tree production for reforestation and shelterbelts; the University of Alberta with basic research projects in vegetable culture and processing, floriculture, ornamentals and landscaping; the Schools of Agriculture which provide training in technical horticulture as well as regional testing of horticultural material; and the Canada Department of Agriculture Research Stations at Beaverlodge, Lacombe, and Lethbridge with personnel directed to basic research into vegetables, small fruits and ornamentals. You must add to this the related activities of the Research Council of Alberta, the Department of Fisheries and Forestries, city parks and recreation departments, and private nurseries, and most certainly the practical horticulturists throughout the province who, in selection and breeding ornamental material, have provided us with some of the very attractive and hardy plants we have available.

What are the trends in horticultural research? Alberta will need more resources, however, the greater demand will be for supporting personnel, better services, and operating funds. More of the funds will come from the industrial and private concerns developed by the research, and thus, those programs which have been shown to produce results will first be supported.

This is an era of adjustment, from the rural to the urban community, from grain to a diversified agricultural economy, in our need to respond to social change, and the necessity to provide Albertans with living conditions and opportunities for progress. Horticulture is involved throughout.

# Fire Blight

F. J. WEIR

The bacterial disease fire blight *(Erwinia amylovora)* is well named. Infected tips of branches look as if one had held a burning smudge under them for a short while, and the twigs may be hooked back in a characteristic fashion.

Actually, fire blight may attack not only the tips of the branches, but also the blossoms, leaves, fruit and limbs of the tree.

Fire blight has been known on this continent for many years. It was first discovered in the East, but spread to the West Coast around the turn of the last century, and is present now in all apple and pear growing areas. The severity of the disease seems to depend, at least partially, on the weather as the disease is more prevalent in seasons of high humidity. It depends also on the fertility of the soil, as it is worse in soils high in nitrogen.

Although more prevalent in apples and pears, the disease has been found on numerous members of the Rose family. In Manitoba it is most damaging on some varieties of apples and flowering crabapples, Siberian pear and mountainash.

In this province the commonest symptom is probably on the twigs, involving a killing back of the new shoots in spring and summer on both leaves and flowers. Sometimes the blossoms are killed, but the infection may move down the twigs

Fire Blight on crabapples. Note characteristic "hooking" of twig, darker stem and curled up leaves.

Fire Blight on mountainash. Note discoloration on bark.





and branches and eventually the whole tree may die.

Blight which begins on the leaves occasionally may result in killing off all the leaves, even in a non-blossoming year, and sometimes secondary infections may arise resulting in death of the leaves.

The usual progress of the disease, after initial infection, is for the bacteria to move down the twigs, leaves and branches to the main stem. The bacteria may be carried by rain washing it downward, or by insects, such as bees, pollinating the flowers, or by birds when catching insects.

The bacteria live over from year to year by remaining in the large sunken disease lesions on limbs and trunk through summer, fall and winter, particularly in the live tissue at the edges of the cankers caused by the disease. Type of injury may vary with the season, locality, variety, and other factors.

Although most growers should be able to recognize the disease, it is always wise to have it checked at any plant pathology laboratory, located at the local University or Agricultural Research Station.

Fire blight may be difficult to control. Cut off diseased twigs 5-8 inches below the point where infection appears, as soon as possible. In this area the bark may be a darker red or brown than on the remainder of the tree, and it may be slightly ridged. After each twig is removed, **the pruning tool should be dipped in formaldehyde** or other disinfectant to avoid spreading the disease. All infected twigs should be **burned immediately.** Painting cut surfaces with bordeaux paint or creosote often helps.

Growers should check with their local University, Agricultural Research Station, or Provincial Agricultural Department, for information on varieties which may have some resistance. These may not be as resistant in other areas. Some root stocks will give more resistance to otherwise susceptible varieties.

Growers should always be on the alert for signs of the disease in neighboring trees, because insects or birds can carry the bacteria to healthy trees in a matter of hours. Retention of any non-bearing or neglected trees should be avoided. Any trees used for windbreak purposes showing susceptibility of the disease should be removed.

# Rocks in Landscaping

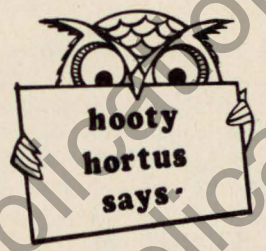
E.P. BOLLHORN

Numerous articles and publications have been written about rock gardens and guidelines have been established as to how and where to build them, what kind of stones and plants to use. These guidelines should be considered loosely, for if one builds a rockery, he usually does it for his own enjoyment, to either fulfill a desire for growing alpine and other such plants or to use rocks for some practical feature of the landscape. I think the most important thing to consider before one starts to build a rockery is that this type of landscape development requires a high amount of maintenance that is all hand labor, for one cannot operate a rototiller in a rockery. An unkept rockery looks worse than an unkept lawn.

In many areas such as central Alberta, there are not too many rock cliffs from which to obtain the necessary material. Field stones, however, are readily available, but it is often said that field stones are not the right kinds to use because of the smooth dull surface that is usually evident. It is surprising how interesting a dull old field rock looks on the inside. I have broken field stones, even granite of 2 to 300 pounds, with a 3 pound hammer and a good carbon steel chisel, but mind you, the chisel does not last too long on granite. Further, one should look for odd-shaped stones which can be used without splitting. Often, eye-catching, bizarre looking rocks can be gathered on holidays, as a memorial for the occasion, but care must be exercised that these are not gathered from restricted areas. The size of stone should be related to the area which means – big large rocks for large areas, small rocks for small areas. Small and unbroken stones from river beds should be avoided as should chunks of concrete. Another good material to work with especially for building retaining walls or wall gardens is flat sandstone slabs. These walls are very attractive, if they are built without mortar with only earth between the slabs where one may plant sedums or other trailing plants while the wall goes up. One should make certain that the wall has a slight slant backwards and each rock has a slight tilt towards the back. This will allow moisture to seep into where the plants are rooted and will also prevent the wall from shifting or tumbling down. Such walls are usually constructed without any concrete foundation, another factor in keeping costs at a minimum.

By using these locally available materials and judicially incorporating any imported rocks, one can develop an original bit of landscaping that will not look like an imitation of something that does not exist. To imitate old castle ruins out of concrete in areas where there never have been castles or to clutter of a front lawn with figurines is, I feel, poor taste. The goal of the amateur gardener, when building a rockery, should be to create a harmonic composition out of rocks and plants in the right proportions. If he achieves this, it will always be attractive and admired.






*Long Living Perennials for the Open Sunny Border. Most of these plants are deep rooted and can tolerate long periods of drought. Several of these are – the Sea Holly, a handsome plant with gray-green leaves a bit spiny and harsh to the touch. The flowers, which are not quite unlike thistles, are surrounded by bracts of metallic blue as are the stems at the top of the plant. Sea Lavender, once called Statice, is now Limonium latifolia; it is a fine plant with broad leaves and graceful panicles of tiny blue-purple flowers through July and August.*

*In this category also are the common gypsophila and the oriental poppy. Both of these have thick roots that go deep in the soil and the plant suffer no discomfort in long periods of drought. Plant also such double varieties of the gypsophila as that old favorite Bristol Fairy with its masses of double-white flowers and Rosy Veil which spreads out at about a foot high and bears panicles of pink flowers from July on.*

*The peonies, too, are in this group of long lived, deep rooted plants.*

—

# A Career in Horticulture

Olds Agricultural and Vocational College, Olds, Alberta offers outstanding opportunities to young people interested in a career in horticulture. One of the most modern facilities in Canada provides advanced training in the education of technicians and technologists in the field of horticulture leading to a Diploma in Horticultural Technology. The curriculum requirements consist of two 7 month classroom sessions (winter) and two 5 month on-the-job training periods (summer).

Excellent employment opportunities exist for young people trained in this field. For information, write to Registrar, Olds College, Olds, Alberta.

# Pears on the Prairies?

PERCY H. WRIGHT

In apples, the existence of the wild, berry-size Siberian crabapple from the Lake Baikal region of Southern Siberia has been the clue to the development of hardy apples for the Canadian prairies, because it provided the genes for hardiness. We could have expected the same sort of situation in pears, because the Manchurian pear from the adjacent Amur River region is also perfectly hardy in our prairie provinces. Why, then, have we been so slow to develop hardy pears of satisfactory appearance for our own conditions?

In the case of apples, the Siberian crab has sufficient hardiness that when it was diluted with the genes of full-size standard apples, the first-generation hybrids were mostly hardy enough for any part of the prairie area; and backcrosses only one-fourth of the genetic make-up of the Siberian crab, have proved to be hardy enough for the more favorable districts.

In the case of pears, the first generation hybrids are barely hardy enough for the milder parts of the prairie area, and quite impractical for the less favorable parts. This lesser hardiness means that any program to backcross the first-generation varieties to standard pears can lead only up a blind-alley. Progress, when it is to be made, must be made by sib-crosses among the first-generation hybrids. Obviously, the chance of getting worth-while combinations of hardiness, size, and quality will be much less than in the case of apples. However, just because the task is more difficult is no reason why the project should be delayed. Truly, the more difficult it is the sooner we should get at it.

Perhaps fifty years from now we'll have the ideal pear for the prairie area. But we won't have it even then, unless someone accepts the challenge and gets down to work on the project. The closed door never opens for us unless we have the courage to knock on it.

Apparently the development of new, hardy varieties of all fruits is going to depend largely from now on upon private breeders of the calibre and vision, for example, of the late Frank L. Skinner of Manitoba. I sincerely hope that we have young people of like ability and interest developing among us today.

*A Hint-to-Housewives: "Make sure your kitchen range is level; if it's not, the foods cooked in the oven won't burn as evenly as they should."*



# Pear Trees as Ornamentals

S. and T. BARSI

In our prairie regions where we depend so much on decidious trees for ornamentals, the autumn season can be very impressive. Perhaps it is nature's way of giving us that certain lift for the rather bleak winter season ahead. We often select fruit trees with some thought to their beauty during the spring flowering season, however, this is a relatively short period at best.

I would like to comment on the Patterson pears in respect to their value as ornamental trees. We selected the Andrew and David varieties and since 1963, they have proved vigorous, fast growing, upright trees. We enjoy the large white flowers in spring, and the leaves have a really distinct shape and glossy appearance until the first fall frosts. It's hard to describe the color change from pale yellow to a vivid scarlet, and finally to a deep wine as the autumn progresses.

In our experience these trees fruit fairly well, but the quality would be disappointing if one grew them expecting to compete with B.C. pears. While they do make an acceptable canned fruit and jam, we point out to visitors that these trees give us much pleasure aside from the fruit potential.

We shall be watching, with interest, further progress in the experimental growing of pears on the prairies because it is something new and an interesting challenge. In the meantime, we wonder if the nurserymen could not mention the ornamental value of the Patterson pear trees. Particularly, with reference to the varieties David and Andrew, the beauty of the autumn foliage merits emphasis.

# Put a "Zip" into Vegetables

MRS. MARION CAMPBELL

None of the "glamour" treatments that can be given vegetables will do anything for them if they haven't been properly cooked. It's so simple to cook vegetables correctly, and yet so many people just don't.

Vegetables may be braised, baked, steamed, fried, or boiled. Boiling is by far the most common method. It is also the method that results in the greatest nutrient losses. Minerals (Fe, Mg, P etc.) and water-soluble vitamins (B complex and C) may be leached out of the vegetable and discarded in the cooking water. In addition, vitamin C and B (especially thiamine) may be destroyed by heat. Vitamin A can also be lost by air oxidation.

To prevent nutrient losses when boiling vegetables, follow this simple guide.

1. Select an appropriate pan. The bottom should be flat and the diameter suited to the size of the heat source for maximum efficiency in heating. A tight-fitting lid is a "must", otherwise steam will escape and cooking time consequently lengthened.

2. Prepare vegetables just before cooking. Trimming and paring should be kept to a minimum because many nutrients are concentrated in outer leaves and skins. Furthermore, peeling exposes a large surface area to the air which results in oxidation and nutrients at the surface. For the same reason, cook vegetables unpared, or in large pieces (cubing is better than dicing; dicing better than grinding or mashing).

3. Start cooking by adding boiling water to the vegetables. If cold water is added to the vegetables and then brought to a boil, total cooking time is lengthened and nutrient loss increased.

4. Return to boil and lower heat to simmer to keep water boiling gently.

5. To eliminate access to air (since oxygen hastens oxidation of vitamins), boil water gently at first to drive off oxygen in the water, then put the lid on to exclude air.

6. Use as little water as possible! The greater the quantity of water used, the greater the nutrients leached from the water. Use 1/4 to 1/3 cup of water to cook one pound of roots, stems, flowers and seeds. For leafy vegetables, use just enough water to cling to the leaves.

7. Cook only to the "tender-crisp" stage. Overcooking increases the nutrients lost.

8. Season and serve immediately. Ascorbic acid and flavor are lost on holding.

9. Use vegetable water in soups, stews and sauces. Any nutrients that have been leached into the cooking water will be conserved.



## How to prevent color changes in vegetables during cooking

1. Red vegetables (cabbage, radish, beets etc.) and fruits change color in alkaline solutions (i.e. hard water). Add an acid (lemon juice, vinegar, sour apples) to preserve the color. Also avoid contact with iron or tin which causes the vegetables to fade or discolor.

2. White vegetables (cauliflower, potatoes, Spanish onions) turn yellow in alkaline solutions. Add an acid to preserve color. Also avoid contact with iron which turns the vegetables green, then brown.

3. Green vegetables (broccoli, green beans etc.) turn olive in acid solution and brown when overcooked. To avoid color changes use an alkaline solution (i.e. hard water), do not overcook, and add acid seasonings (i.e. lemon juice) just before serving.

4. Yellow-orange and yellow-red vegetables are fairly color stable and do not present problems in cooking.

5. Never maintain color by the addition of baking soda (alkaline). Certain vitamins are destroyed by this method and, in addition, the vegetables become soft and mushy.

## How to prevent strong flavors in vegetables during cooking.

1. Cauliflower, cabbage, broccoli, brussels sprouts, turnips and parsnips should be cooked uncovered because substances which develop strong flavors escape with the steam. Don't overcook! Strong flavors develop with long cooking.

2. Onions are stronger raw than cooked. To prevent strong flavors, cook uncovered in a moderate amount of water and don't overcook.

## How to serve unfamiliar vegetables

### Artichokes

**Selection:** Look for heavy, tight-heads. Leaves should be compact and the stem firm. Pass over any that have open or curled leaves.
**Storage:** Place the whole artichoke, unwashed, in a plastic bag and refrigerate. They'll keep for two to three weeks.
**Cooking:** Whole artichokes may be boiled (one quart water per artichoke) or steamed. They are done when their bases are tender when pierced with the tip of a sharp knife. The stem should be tender and the leaves pull easily from the base.

Serve hot with melted butter, Hollandaise or bearnaise sauce. Serve cold with vinaigrette or mayonnaise. For variety stuff with a favorite hamburger, chicken or fish filling.

To eat a cooked whole artichoke, pull off the thick-based leaves, dipping the stem end in butter or sauce. Then draw off the flesh between the teeth and discard the rest of the leaf. After all the leaves have been removed, the fuzzy center or "choke" can be seen. With knife and fork, cut out and discard the choke (it's prickly if eaten). The bottom that is left is the choice bit. Eat it with a knife and fork

and more sauce.

Artichokes can be cooked with the choke in or out. To remove the chokes before cooking, spread the top leaves apart and pull out the inner core of thistle – like yellow leaves. With a long-handled spoon, a melon baller or a grapefruit knife loosen and lift out the hairy choke inside.

## Squash

**Selection:** Winter squash thrive in hot summer weather, are harvested in fall, and stored over the winter – hence the name. When buying winter squash look for hard rinds and squash that are heavy for their size (meaning a thick wall and more edible flesh). A tender rind indicates immaturity and poor eating quality.

Some of the important varieties of winter squash are the small corrugated Acorn (available all year round), Butternut, Buttercup, green and blue Hubbard, green and gold Delicious and Banana. Usually Butternut and Hubbard are sold frozen and can be used successfully in many different ways.

Summer squash are quick-growing fruits, eaten when immature. In choosing summer squash, look for small, young squash that are heavy for their size. The rind should be soft. Hard rinds on summer squash indicate mature fruits with stringy flesh. You can identify a tender squash because the skin is glossy instead of dull.

Varieties of summer squash include the yellow Crookneck, the large yellow Straightneck, the greenish-white Patty Pan, and the slender green Zucchini and Italian marrow.

If you're confused about which are summer squash there is a simple rule of thumb. Young summer squash have tender, edible skins whereas winter squash have hard inedible skins.

**Storage:** Summer squash should be refrigerated and used as soon as possible to prevent spoilage. Winter squash are adapted for long storage in a dry place at a moderate temperature.

**Cooking:** Large winter squash may be either halved, filled with meat or fruit and baked or cubed, boiled and served with sauce. Summer squash can be baked or boiled. Zucchini often is fried.

## Eggplant

**Selection:** Look for a clear, dark-purple glossy color. Heaviness and firmness of flesh indicate quality. Beware of dull-skinned fruit. This signals overripeness and toughness. Eggplant with too many seeds means a bitter flavor (salt before using may draw out some water and bitterness).

**Cooking:** The secret is not to overcook. Frying is the easiest way to cook eggplant, but they are also excellent stuffed with meat and baked, deep-fried like French Fries, baked in a spicy casserole or simmered with other vegetables.

## Broccoli

**Selection:** Look for firm, tender stalks with green to purplish-green buds that are tightly closed and form compact clusters. The size of heads varies but does not affect the eating quality. Beware of quantities.



of yellow or brown flowers inside the buds – this indicates older broccoli which may be tough.

**Storage:** Broccoli is one of the more perishable vegetables, so wrap well in foil or clear plastic and refrigerate at a low temperature to prevent undesirable yellowing of the buds.

**Cooking:** Soak home-grown broccoli in salted water 20 minutes to draw out insects. Steam or tie in a bunch and stand upright in a deep kettle of boiling salted water which should come to the base of the flowerets. Serve tender-crisp with sauce (lemon butter, hollandaise), in a casserole or in a souffle.

## Brussels Sprouts

Brussels sprouts grow about two feet tall and have many tiny heads or immature buds that form along the stems. Protecting these tiny heads are small cabbage-like leaves, tightly wrapped around each other. Each sprout is usually one to two inches in diameter.

**Selection:** Choose firm compact heads with bright green color. Wilted or yellow leaves indicate poor quality.

**Storage:** Sprouts are highly perishable so store in a refrigerator crisper until they're used.

**Cooking:** Cut very large sprouts in half and boil. Serve with a sauce (lemon butter, egg, cheese), in a souffle or in a casserole with other vegetables.

## Asparagus

**Selection:** Look for stalks that are green and tender (though not rubbery) the full length. The tiny buds at the top of each stalk should be dark green or bluish green and tightly closed. The longer they've been cut, the more these buds will spread. Snapping the stalk, not cutting, will tell you where the woody part stops and the tender area begins.

**Cooking:** Fasten spears in a bundle, stand upright in boiling water (tips extending one-inch above water) and cover pot. Tips cook in the steam, while stalks cook in boiling water. Asparagus can also be cooked in a vegetable steamer.

Raw or cooked, hot or cold, asparagus can be used in salads and appetizers, souffles and soups, and certainly sauced a million different ways.

# Home Storage of Vegetables

T. R. KRAHN

Fresh vegetables have distinctive advantages over canned and frozen products in their colour, flavour and taste appeal. Canned vegetables lose much of their eye appeal and tastiness in processing – other vegetables do not freeze well. In addition, vegetables may be stored more easily in their natural form if one takes into account their perishable nature and provides specific storage conditions.

A vegetable storage should be designed to provide an environment which maintains quality, an environment which controls temperature, ventilation, and reduces microbial contamination of the produce. Living tissues respire, hence they give off heat. Low storage temperatures can in most cases reduce the heat given off by reducing the respiration rate; however, some vegetables can not be stored at low temperatures, while a few can be held even slightly below freezing. Good ventilation, with adequate air movement as well as some provision for humidifying the air will help in replenishing the storage air and reducing dehydration.

Store only good quality produce – remember "Garbage in – Garbage out". Vegetables differ in their storage requirements.

## Perishable Vegetables

A. Low temperature, high humidity

| | Temperature | Relative Humidity | Approximate Length of Storage |
|---|---|---|---|
| Asparagus | 32° | 95 | 3 weeks |
| Broccoli | 32° | 95 | 2 weeks |
| Cauliflower | 32° | 95 | 2 weeks |
| Corn | 32° | 90-95 | 8 days |
| Lettuce | 32° | 95 | 2-3 weeks (head lettuce) |
| Spinach | 32° | 90-95 | 1-2 weeks |
| Green Peas | 32° | 95 | 1-2 weeks |

Most vegetables should be used directly from the garden; however, if necessary, cool immediately in ice water and store in moisture-proof bags. A refrigerator is the usual storage.

B. Moderate temperature, high humidity.

| | Temperature | Relative Humidity | Approximate Length of Storage |
|---|---|---|---|
| Cucumber | 45-50° | 95 | 10-14 days |
| Eggplant | 45-50° | 85-90 | 10 days |
| Tomatoes (ripe) | 50° | 85-90 | 3-5 days |
| Snap beans | 45-50° | 85-90 | 8-10 days |

Tomatoes, if picked at the mature green stage, will ripen properly at 55°F., and may be held up 2 to 6 weeks. Ripening can be speeded by increasing the temperature to a maximum of 70°F.

## Fall and Winter

A. Moderate temperature, low humidity

| | Temperature | Relative Humidity | Approximate Length of Storage |
|---|---|---|---|
| Pumpkin | 40-45° | 70-75 | 6 months |
| Squash | 45-50° | 70-75 | 6 months |
| Vegetable Marrow | 32-40° | 70-75 | 2-3 months |

Cure fully mature material for two weeks at 80 to 85° to promote healing after removing stems. Store not more than one layer deep, not touching.

B. Low temperature, high humidity

| | Temperature | Relative Humidity | Approximate Length of Storage |
|---|---|---|---|
| Beets | 32° | 90-95 | 1-3 months |
| Cabbage (late) | 32° | 90-95 | 3-4 months |
| Carrots (topped) | 32° | 95 | 4-5 months |
| Celery | 32° | 95 | 3 months |
| Parsnips | 32° | 95 | 2-4 months |
| Potatoes | 40-45° | 85-90 | 6 months |
| Radishes | 32° | 90-95 | 2-4 months |
| Rutabaga | 32° | 90-95 | 6 months |

Cool before placing in storage, and maintain as high a relative humidity as possible – for instance by regularly sprinkling the floor.

Potatoes must be stored above 40° to prevent starch breakdown and after cooking darkening. Do not expose to light as this will cause greening.

Cabbage will withstand slight freezing, and will retain much of its color under natural or artificial light.

C. Low temperature, low humidity.

| | Temperature | Relative Humidity | Approximate Length of Storage |
|---|---|---|---|
| Onions | 32° | 50-70 | 5-9 months |

Onions should be well dried and stored with good ventilation. To provide adequate storage in modern homes, you may need a specially constructed room one that is well insulated and equipped with air ducting to supply fresh air and to exhaust old air.

For best results in storing vegetables, consult your Horticultural Guide, or contact your District Agriculturist. For further information please contact the Alberta Horticultural Research Center Brooks.

# A Look at Plums

D. R. ROBINSON

The choice of plum varieties for prairie gardens is rather limited but fortunately some progress is being made in the development of relatively hardy and acceptable varieties. In 1960 several plums were introduced by the Department of Horticulture, University of Saskatchewan. These may be described as of "hybrid origin", including *P. salicina* and *P. nigra* in their make-up.

As a result of moderately extensive re-testing, it now appears that two of these plums, Patterson Pride and Prairie, will find a place in gardens in central and southern Saskatchewan. Both varieties are medium large — approximately 1¾ inches in diameter, and both appear to be reasonably productive. Patterson Pride is a low growing plum, seldom reaching a height of more than four feet, and with distinctly recurving branches. Because of its dwarfing habit, Patterson Pride should be particularly suited to urban gardens. The new growth is rather vigorous and as a result, there is occasional tip killing of the branches. This trace injury is not extensive and does not markedly reduce the yield of fruit. Patterson Pride ripen in mid-September and is of good quality, both as fresh fruit and when canned. Prairie is a fairly vigorous tree to seven feet in height. It appears to be more productive than most other large fruited hybrid plums. One tree in Saskatoon yielded 110 pounds of fruit in 1970. Prairie ripens about September 10 at Saskatoon. When fully ripe the raw fruit is very tasty; as jam it is very good and as preserves it is good, but a bit tart.

It is entirely probable that these two plums will prove satisfactory south of a line drawn through Lloydminster and Yorkton. In favorable locations they may be found acceptable north of this line.

In the northern and north eastern communities the larger hybrid plums have not been productive although certain varieties now under test may yet find a place. In the general area extending from Meadow Lake to Tisdale (and somewhat south of a line connecting these centres) the Manchurian plums a hardy strain of *P. salicina*, are reasonably dependable. Satisfactory yields have been reported from Parkside. Several selections of these plums are available in the trade and one of the best in this group is Ivanovka. Others, in second place, are Ptitsin No. 5 and Ptitsin No. 9. Recently we had an opportunity to run cooking tests on two other plums of Manchurian parentage — both originating in Saskatchewan. These two plums are of good quality when canned and they appear to possess considerable hardiness. Hopefully, both varieties will be in the nursery trade in 1973. Along with these "northern plums" the well known variety, Dandy, is worthy of mention. It is worth growing as a pollinator for the various hybrid plums and for its jam making qualities. In general two or more varieties should be grown to ensure pollination and fruit setting.



# 353 Pounds of Squash

Last year we showed you a picture of a 250 pound squash for which Mr. Edgar Van Wyck of Roland, Manitoba, won the award for the largest squash at the 1970 Toronto Royal Winter Fair.

This year we have a picture of another one of Mr. Van Wyck's prize squash and this time it weighed in at 353 pounds. He further had one weighing 284 pounds and another at 241 pounds, all on the same vine.

Mr. Van Wyck states that the growing time from setting of blossom to maturity was 70 days, an average of 5 pounds per day. He estimates that at the peak growing period it was putting on at least 8 pounds a day.

You may have seen or heard about Mr. Van Wyck's squash on T.V. or radio. They both gave him national coverage last fall.

# Fruit in a Farm Garden

MRS. J. CHARLTON

As soon as our shelter belt had grown to really be a shelter we began to plant ornamentals and fruit trees behind its protection. As we live in a very dry area of Saskatchewan our success each year has largely been dependent on the seasons' rainfall. We persevered and now have a great deal of pleasure picking our own fruit from our trees and bushes.

Our apple trees have possibly been the most interesting and rewarding. Heyer No. 12 and No. 20 have grown to be nice healthy producing trees. The yellow apples are delicious eaten out of hand, and canned make tasty pies and preserves. They are winter hardy but we do have a problem with rabbits. We also have Rescue, Renown and Kerr apple crabs in production as well as two Dolgos that are loaded each year with small bright red crabs, perfect for jelly.

From one original plum we have raised dozens of trees. Many of these trees kill back each winter and much of the fruit is of little value. We however make all the plum jam we can use from the larger fruit while the beauty and fragrance of the blossoms each spring are well worth while in themselves. Plums are so easy to grow from seed that no farm yard need be without them. We grow them in bush form because of our high winds.

Chokecherries that we started as seedlings have grown to twenty feet and are laden each year with berries. The Pin Cherry too seems to do well in our heavy soil. The fruit is dark red, very acid and ripens early. It makes a good jelly of distinctive flavour, also delicious preserves. Does not sucker in its situation here.

The Cranberry has been a slow grower here and so far we have had no fruit from them. We will just wait.

The first Saskatoons planted were dug out of their native surroundings and have produced bountifully. From them we have planted seedlings that are already producing fruit which is superior in size and taste. The birds are so fond of our Saskatoons that they are at them long before they are fully ripe. Many a stern scolding we have had as we try to pick the fruit.

We also have Mongolian (which suckers badly), Rocky Mountain and Sand Cherries which do well depending on the weather and moisture conditions. Fruits are suitable for pies and jellies.

Currants here are reasonably good yielders year after year. Last year we had a bumper crop of raspberries. Black currants have been found to be space robbers, while we feel that all the hard work we spend on cultivating our red currants is fully paid for by the exquisite jelly they make. We also have Gooseberries. They are unexcelled for pies. We are however bothered with the Yellow Fruit fly which is very hard to control. The strawberry patch is endless work and you might say the more it is worked in the better the berries. We also find that we must be continually setting out new plants and changing the location of the patch.

We have a row of Siberian Pears in a roadside shelter belt that are just beginning to bloom. We expect little from the fruit but the blossoms should add to the scenic pleasure of people passing by.

A native grape vine has been growing for many years. It has enemies — early and late frosts, hard winters, birds etc. — but still we coddle it and enjoy each spring to see it burst into leaf again.

We have dozens of Mountain Ash seedlings and larger seedling trees set out permanently. They are all from one original tree. They are doing well and we have dreams of great beauty, as these trees with their clusters of large red berries, grow upward.



We use native Hawthorns as a filler in our shelterbelt to stop some of the high winds which seem to blow continually. It has fruit, is attractive and is extremely drought resistant. We have also planted Oak in our shelterbelt that were started readily from acorns. They are now small trees. Several Hazel Nuts are doing well. Walnuts have failed, although we have neighbours who have succeeded in growing them, but they have yet to produce.

We also have grown the following ornamental trees and shrubs with success and pleasure: — Russian Olive, Nannyberry, Bittersweet, Dogwood, Red-Berry Elder, Rosybloom Crabs, Honeysuckle and Sumac.

We are fully appreciative of the fact that hardy plant stock grown in prairie nurseries should be first choice in most plantings. However you cannot take away the fun we have had in taking our chances with our own seedlings and now the satisfaction of looking up twenty or sixty feet at trees we started from seed.

A yard full of blossoms in spring through to beautiful autumn colors in the fall is a delight to walk in and live in at all times, but even more particularly when you are the instigator of it all.

Tree Fruits in the Rocky Mountain House Area

# An Alberta Orchard

ROBERT ERSKINE

The Rocky Mountain House district in west central Alberta, is not about to compete with the Okanagan valley in fruit production. According to the horticultural zone map we are in the least favorable part of Alberta. It is worth noting, however, that some fruit trees have been grown in this region since the early days of settlement. One very successful orchard was planted by the late Richard Seeland near Bingley, northeast of Rocky Mountain House. This orchard is still tended by his relatives.

Much of the land here is unsuitable for growing fruit trees because of the winter cold and, accordingly, it is important to find a site that has a micro-climate, one that is warmer than the average. There are many such locations on the side of high hills. I bought some hilly land more than 20 years ago for the purpose of experimenting with fruit trees. Several sites on this land (township 41, range 5, W5) proved to be suitable as they are on high hillsides where the warmer air that rises is trapped. The subsoil is loose and friable and apples grow very well here. Most of the recommended varieties of plums have been tested at these sites but, unlike the apples, the plums are not winter hardy. It may be that the plums do not like the high altitude. Pears have been grown for only a few years and information is lacking, however, the pear varieties originated at the University of Saskatchewan are doing well. The variety, Philip, is 10 feet in height and Andrew, John, Peter and Simon are also thriving.

Crabapples and apples have done better than ever was expected — this in spite of animal pests that move in from tracts of wild woodland nearby. These include moose, deer, rabbits and porcupine. An expensive fence is the best protection against these "vandals". A tin can placed around the tree trunks gives protection from mice. The pocket gophers will cause serious damage by cutting off the roots below ground. If the orchard is located nearby, housecats will catch these rodents at night.

Our apples and crabapples have never been cultivated. They are grown in sod and manure is applied judiciously; moderate applications to young trees and larger amounts to bearing trees. These apple trees have never been infected with fireblight and growing them in sod may have something to do with that.

Dolgo and Osman were two of the first crabapples planted here. They may be rated as the two most valuable varieties; the former for jelly making, the latter for jelly and canning. Other varieties that can be recommended are Amur Red, Bedford, Columbia, Magnus, Quality and Redheart. Eleven other varieties have produced some fruit and in this group Eileen and Dawn are good keepers and are of an attractive red color. In addition 22 other varieties are under test but have not fruited. Two new varieties may be mentioned; the one, named Tasty by its originator, Percy Wright, is a fine flavored applecrab; the other, "Al Ma", originated here from seed, is also good of flavor.

Several B.C. apples have been tested but are lacking in hardiness. At present there are grafts of seven apple varieties from other countries under test. In addition to those varieties already referred to there are more than 70 standard apples in the orchard. These are growing as grafts or trees. Of this group the varieties listed below, and which appear to be hardy, are among the most dependable or most promising.

a-a-18-66 (U. of Alta.)
Adanac
Advance
Battleford
Brooks No. 27
Carlos Queen
Exeter
Goodland
Harvest Special
Heyer No. 12
Heyer No. 20
McLean
Mystery
Oriole
Patterson
Wealthy

Oriole has been an outstanding apple for size and quality. Red Melba has shown greater hardiness than was expected. Carlos Queen, Leafland and Manalta were raised here from seed and have been fully hardy and productive for many years.

I plan to plant another hillside to apple trees in the spring of 1972. This will be a test orchard as well as a seedling orchard. Varieties with hardiness, quality and size such as Advance, McLean and Mystery will be prominent in it. Certain new apples from the Brooks Horticultural Station will be included. If this new orchard succeeds I hope to distribute seeds from the best hardy apples available to anyone who will be interested.

Winter protection of red raspberries in Alberta

# Wintering Raspberries

S. MAHADEVA

Raspberry plantings frequently suffer from winter injury in Alberta. Such injury seems to result from alternate warm and cold periods in late winter. The cold or chilling requirement of the buds are satisfied by early winter but the plant continues to remain dormant only because of the cold temperatures of the external environment. Warm days in February, March or early April cause the buds to swell and lose their cold resistance. When these warm days are followed by cold nights or prolonged cold spells, buds are either killed or seriously weakened. Much winter injury may also result from cane drying if winter conditions are extremely dry and without appreciable snow cover. Precautions such as growing hardy varieties such as Chief, Boyne, Gatineau, Honeyking, Killarney, Latham or Trent, avoiding excessive moisture in the soil during the hardening-off period, growing a cover crop between the rows to hold the snow in place and choosing a site that is well sheltered from prevailing winds help to prevent or reduce winter injury to raspberry canes. In spite of these precautions, winter protection is necessary in many parts of Alberta.

The only practical means of protecting canes from winter damage is to bend the canes down in the fall and cover them with three or four inches of soil, particularly in the Southern Alberta chinook belt where snow cover may not be maintained throughout the winter. The canes may be bent over and held in place with a wire loop or a whole row may be bent using a long pole. If there are adequate well sheltered sites in this belt and with conditions which will trap the snow, such as those existing at the Alberta Horticultural Research Center, Brooks, then canes of the hardy varieties mentioned above need not be covered. However. the less hardy varieties such as Madawaska, Muskoka, Newburgh, Washington and Marcy need to be protected.

In most other areas outside the chinook belt, the canes may be bent over and the tips covered with a few shovels of soil to hold them down. Snow will then be trapped by the bent canes thus providing the required mulch for protection. This operation is normally done in the second half of October or early November before the ground freezes. Uncovering is done by forks in spring about the end of April.

For further information contact the Pomologist, Alberta Horticultural Research Center, Brooks, or phone 362-2702.



Commercial vegetable production at Outlook

# Outlook Vegetable Production

D.H. DABBS

Relatively large acreages of irrigated land have recently become available in the Outlook-Broderick area of Saskatchewan. This is one of the benefits of the Gardiner Dam on the South Saskatchewan river with the resulting Diefenbaker Lake. Most of the soil involved in this area is of a type that is generally considered suitable for commercial vegetable production.

Financial assistance to the Saskatchewan Advisory Horticultural Council from the Saskatchewan Department of Agriculture made possible a cooperative demonstration project near Outlook during the past two years. This project has been guided by a committee with representatives from the Saskatchewan Department of Agriculture, Canada Department of Agriculture, P.F.R.A. and the University of Saskatchewan. The work has been seconded to the Department of Horticulture Science, University of Saskatchewan, Saskatoon. Small growers blocks ranging in size from about one to two acres, depending upon the particular vegetable crop involved, have been grown on the P.F.R.A. Demonstration Farm. One level of sprinkler irrigation and several levels of fertility have been used on such vegetable crops as cabbage, carrots, onions, peas, potatoes, rutabagas, snap beans and sweet corn. Other crops that have been tested on a more modest scale are cauliflower, cucumbers, broccoli and tomatoes.

All of these crops have performed well and some have given outstanding results. Yields and quality have basically been at least equal to those from other commercial production areas on the Canadian great plains. It would appear that the production aspects of commercial vegetable growing in Saskatchewan are no greater than in neighboring areas. Progress in this direction will depend upon the development of markets for fresh and processed vegetable products.

Growing Tomatoes in Plastic-covered Greenhouses

# Tomatoes Under Plastic

J. D. CAMPBELL

The Prairie Provinces of Canada is an area having a severe continental climate. With short summers tomatoes can be produced only from August to October, about two months. The aim of this research project is to increase production under protected structures for an additional five or six months. High quality, vine-ripened greenhouse tomatoes could be sold from October to December (Fall Crop), and May to July (Spring Crop).

From 1961 to 1966 the Province of Nova Scotia increased its greenhouse vegetable sales from $105,000 to $302,000, which represents a very rapid annual increase of 40.8 percent. This attracted members of the Manitoba Department of Industry and Commerce to see how this dramatic growth had occurred. Greenhouse production of tomatoes developed by the Province of Nova Scotia was used as a basis for this program.

In 1970 a laboratory to test water, soil and plant tissue was established and a plastic covered greenhouse for research was constructed. Funds were made available through the Manitoba Department of Agriculture. A year ago no one in Manitoba was producing greenhouse tomatoes on a commercial scale. This year, tomatoes are being produced in the following locations: Brandon, Roblin, Arborg and Rathwell. Total growing area represents only about one third of an acre, but it is an encouraging beginning. There will be several new operators by the spring of 1972. Widespread interest is evident from the Peace River to the Pas.

To assist new growers, a booklet, "Guidelines for Greenhouse Tomato Production in Manitoba" by Campbell, Townsend and Beaton, was published in 1971.

Briefly the concept of greenhouse production of tomatoes in Manitoba involves:

1. A greenhouse 40' x 200' is built on laminated wooden rafters of the Gothic shape.
2. The outside covering is a low-cost reinforced plastic.
3. The inside is lined with a layer of 2 mil polyehtylene material to provide insulation and reduction in heat costs up to 40 percent.
4. Hot air furnaces with ducts at floor level along the sides.
5. Ground beds with weeping tile to provide drainage and to make it possible to force hot air into the soil or steam to sterilize if necessary.
6. Regular soil, water and tissue testing to guide the growers and ensure healthy plants, high yields and excellent quality fruit.

The project involves a working team from the University Departments of Plant Science, Agricultural Economics and Agricultural Engineering.

The first spring crop from the University greenhouse which is 30' x 50' produced 13 lbs. of fruit per plant of which 10 lbs. was marketed; consumer response was very favorable. Presently we are growing a Fall Crop; it will probably produce only half as many marketable fruit. This is due to the less favorable light conditions and a shortening day-length.

A new and larger greenhouse is being built to test different growing methods, test varieties and other similar purposes. Plans involve working with cucumbers and eventually cut flower production. The knowledge gained should be applicable to northern communities such as Thompson.

A growing room is being built to start the plants during December and January when the large house will not be fully heated. This would require the use of artificial light in a well-insulated room. This room will be heated by electricity and utilize the latest knowledge in controlled environment.

Those interested in this growing field are invited to visit our establishment and to request available literature.

1st crop of tomatoes in the vegetable greenhouse Univ. of Man. 1971. (Note soaker hose between the rows)

Placing the "Fulcon" plastic on the Univ. greenhouse — November 1970.

# Use Your Own Herbs!

PHYLLIS THOMSON

Since Marco Polo's day the exotic names of spices and herbs have conjured up in the mind special dishes and gourmet meals. And yet, although many herbs are so easy to grow that they spring up year after year completely unattended, many of us do not take advantage of their availability, and allow our meals to become – maybe just a little drab?

Now that gourmet cooking has been made easy, and is all the vogue, herbs are again popular. And they really are easy to grow – in a plant pot, small patch of earth outside your back door, window box, what have you.

## Planting

If you enjoy thinking of a garden when the snow is still on the ground so that spring seems a little nearer, plan a layout on paper, considering height of mature plants, whether annuals or perennials – then just follow package directions. Nothing could be simpler. Of course if you are planning on having a fairly large garden of herbs this summer and wish detailed information as to culture, propagation, etc. you will need more technical information. A very useful article on this subject appeared in the 1969 Prairie Garden, which also contained information as to fertilizer and type of soil required. Apparently in Ontario, they plant all seeds at the end of May in the same soil and same location, and the herbs and spices all pop up on schedule. As a matter of fact, most herbs seem to grow like weeds, and are also very resistant to garden pests. If you are a farsighted kind of person though, keep aside some of the less readily available seeds, just in case of disaster.

Mint and tarragon can't be grown from seed, but it is not hard to find someone who has mint popping up everywhere once started. I'm sure they'll be happy to have you take some of the plants away.

Growing herbs in pots indoors or on a balcony is a cinch, and apartment dwellers need not feel left out. Rosemary, thyme, marjoram, parsley and chives are the best for this type of planting. Get some pots, some earth, a package of seed, and you're in business!

## Harvesting

Makes you feel like a real agriculturist doesn't it? But even if you have a planter full, you can "thin" out for early salads. Then when ready to dry and bottle, remove the leaves from the stems, keeping them as large as possible. They crumble easily if you want them fine, but there may be times when you would like them whole. If using flowers, such as camomile, pick all blooms and dry at room temperature. If using seeds (anise, caraway, coriander, dill, fenel) pick seed heads as they turn colour before they pop open. Protect tarragon during the winter just as you would roses.

Well, now that you have your plant pots in the winter, and a spot in your garden in the summer chuck full of growing herbs, how to use them to best advantage?

First, scissors are better and easier to use than a knife when preparing fresh herbs for cooking. For a large amount of fresh herb, a blender is ideal for chopping. Whole dried spices should be ground just before using for freshest flavor. Whenever possible when purchasing dried herbs, buy the leaf rather than the powder because the crushing allows the flavoring oils to evaporate.

A few specific directions for herbs as to the foods they improve as to taste and how to harvest them:

**Sweet Basil,** is an annual, grows up to three feet, and is a member of the mint family. It has a spicy taste so use the leaves and tender stems sparingly in cooking. Very good for soups, salads, tomatoes, lamb, cheese, peas and beans.

**Dill,** an annual, grows to three feet, and is of the parsley family. The leaves and ripe seeds have a good flavor. Use fairly generously in cooking, in pickles, for potatoes, cole slaw, macaroni, in sauces for fish, with lamb, chicken, beans, and the leaves can be used with vinegar for all vegetables.

**Marjoram,** a perennial but best treated as an annual, grows to 1½ feet. It has a strong sweet, spicy flavor and must be used carefully in cooking. Goes well with lamb, cheese, poultry stuffings, in soups, vegetables and mushrooms.

**Mint,** Curly, a perennial, grows to two feet and can be grown from plants or cuttings but not from seed. Use mint generously in jelly, sauces, drinks, and with peas, carrots, fruit cup and beverages.

**Oregano,** a perennial, grows to two feet. Has a strong taste so use sparingly. Excellent in Italian dishes, omelettes, and with pork and chicken.

**Rosemary,** perennial, only grows to six inches. Has a pungent taste so use sparingly. Try in beef, lamb, pork, fish, poultry, sausage dishes, soups and in fresh fruit salad.

**Summer Savory,** an annual, grows to two feet. Use sparingly as the




flavor is peppery. Great with beans, meat, chicken, eggs, salads, sauces, stuffings, and fish.

**Tarragon,** a perennial, growing to two feet. This grows from plants and cuttings, but not seed. Has a strong aromatic flavor so use carefully. Try in vinegar with seafood, with chicken, salads and sauces.

**Thyme,** a perennial, grows to eight inches. Has a pungent flavor, use with care with fish, shellfish, in soups, poultry, dressings, and tomatoes and sauces.

**Harvesting** – Harvest the above herbs before flower buds open. Cut and tie in small bunches. Wash and rinse in tepid water, shake off excess and hang to dry in dark, dry, well-ventilated place. Pull small bunch through hand to strip off leaves when dry. Take out stems, and bottle.

**Bush Basil** an annual which grows a foot in height, and **Fine Green Basil** which will grow to 18 inches, can be used as is Sweet Basil. It dries better though and is not quite as coarse.

**Chervil,** a biennial, looks like parsley and will grow to two feet. Chervil has a slight anise taste and may be used generously in cooking. It also improves the flavor of other herbs when combined with them. Use for salads, sauces, stuffings for fish, shellfish, poultry, in soups, stews and omelettes.

**Chives,** a perennial, growing to a foot in height. Has a delicate flavor so may be used generously in salads, vegetables, cheese dishes, omelettes, soups and sauces.

**Parsley,** Curly, grows from six to eight inches, and goes with all main dishes. Can be used generously.

**Harvesting** – Cut these latter herbs as for Sweet Basil. Remove leaves from washed plants, spread thinly on foil and dry in a very slow oven with the door open (about 150°). Turn occasionally. Cool and bottle.

After you have been growing your herbs for awhile, you will probably start experimenting in using them with various foods. You will be rewarded for your efforts by having meals more appetizing and taste tempting, and also by a grateful family. Good luck!

# Annual Climbers

ISABELLE R. YOUNG

Climbing vines make ideal screens for privacy, to cover undesirable features or hide objectionable views. They also soften the lines of a house and protect a wall from heat or cold. Some may be used as ground covers and others are very showy trained over an archway.

Of the annual climbers that I have grown I think *Cobaea Scandens* (Cathedral Bells) or Cup-and-Saucer Vine is one of the most beautiful. It has one to one and one half inch bell-shaped flowers, which are green until fully opened when they turn a purplish-blue from July to October. There is also a white variety. Although grown as a perennial in warmer areas, it is treated here as a half-hardy annual. It is quite a rapid grower, reaching a height of approximately 20 feet, and will bloom all summer if started early. I planted the seed on January 30th and the first ones emerged February 12th. When sowing, lay the seeds on edge to reduce rotting. The nice feature about this plant is it has no enemies. Plant outside after danger of frost is over in a sheltered position in either sun or semi-shade.

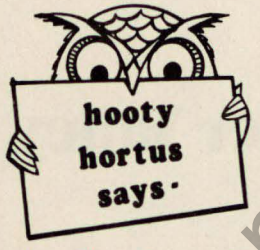
Another perennial climber grown here as a half-hardy annual is *Quamoclit lobata* (also known as *Ipomaea versicolor* and *Mina lobata).* This produces rosy-crimson flowers, changing to orange and then yellow. The seeds for this were also sown on January 30th, and some had germinated by February 2nd. Plant outside in a warm, sunny spot as soon as weather permits. This is a very attractive climber.

*Eccremocurpus Scaber* (Chilean Glory Vine) has sprays of showy orange-red, tubular flowers, with attractive, airy foliage. As this is ordinarily a perennial, but grown here as a half-hardy annual, it should be started in February to produce blooms during the summer. This plant may be used in hanging baskets or grown outside in a sunny, sheltered spot in well-drained soil.

If you want a conversation piece in your garden, grow the Marble Vine, a half-hardy annual. The apple-green berries, about the size of a marble, have white stripes, changing to amber and cream. This should be started fairly early in the spring. I do not have too much information on this, so if any readers try this you might let me know how you make out. *Thunbergia* (Black-Eye Susan) *Alata* mixed is one I like to grow every year. This is suitable for hanging baskets, tubs, window boxes, as a ground cover, etc. in a warm, sheltered place. It has very attractive flowers in colors of yellow, orange, buff, white, cream, with black centres and blooms all summer.

Then we have the ever-popular nasturtiums, which are easily grown and bloom until frost. These are excellent for a dry, sunny situation where the soil is poor. A rich soil produces an over abundance of foliage at the expense of flowers. The tall or climbing is the variety to use for walls, fences, window boxes, etc. and will bloom in about 50 days from seedling. Morning Glories *(Ipomea purpurea)* are easy to grow climbers and flower over a long period in a sunny, sheltered position. There are many lovely colors and forms to choose from. Early Call is one of the newest and is extremely early, with 4 inch flowers and the color is clear rose with a white throat. Last, but not least, is the well-known and ever popular sweet pea, which needs no introduction, and if you want scent in your garden, this is something to consider.






*Watch for Pine Needle Scale on your Pines and Spruces. Both these trees have a problem with scale, especially when they are near house walls where they can't get the full benefit of the rains. There is no mistaking pine-needle scale; the white scales where the insects hide for most of the year are not hard to see.*

*Spraying is only effective during hatching in early June when the young move out from their protective cover. Watch around June 1st, 6th and 10th for early, normal or late hatching, and if only a small number of trees spray on all three dates. Saturate the needles with Malathion using four teaspoonsful to a gallon of soapy water. Give them another dose of Malathion about the second week of August which is the time the female normally begins egg-laying. In the interval use the garden hose once a week to force water into the centre of your trees.*

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# Lilies in Swan River Valley

MRS. P. PIERREPONT

Among gardeners, one of the IN things these days is growing lilies. They are as easy as potatoes – and will grow in any soil where potatoes will grow. At the same time, they are just about as spectacular as a blooming perennial can be.

In 1957 we started with a Lemon Lady, still one of the most prolific and attractive bloomers in our garden, and a centifolium. These were planted on the slope on the north side of a creek. They multiplied there very well for a few years, until the beavers came. As a result of the beavers' damming operations, our garden spot became rather soggy. The centifolium died, probably because the bulbs rotted in the wet soil.

We then moved the lilies and other perennials farther back from the creek, to what was, though we didn't know it then, the ideal spot. The topsoil was a good sandy loam with an underlay of sand about six to eight inches down. By this time we had also acquired several of the Stenographer lilies and some of the highly scented Regals. The bush and trees along the south and west of the garden collected the snow in great drifts which lasted late in the spring. This not only gave good winter protection to the lilies but delayed early starting, which is desirable.

One year, in spite of that late start, there was a sharp frost when the lilies were about six inches high. Though the plants went on growing, there were few flowers that summer as many buds were frozen. But that happened only once in fourteen years.

With the minimum attention that many gardens receive, the lilies thrived and took many prizes at the local shows and we began to use the prize money for new lily bulbs. In about four years it was hard to see lilies because of thistles and brome grass, so they were moved again. The soil was the same, but it was a place where water collected in spring for a few days.

Until that time we had thought lilies were trouble-free. In this spot, however, as soon as they bloomed, commencing at the bottom of the stem, the leaves turned brown and died until, in a few weeks, the whole patch was no longer green but a mass of brown stems and leaves.

The next year the plants looked well enough but again as they bloomed they began to die. We discussed the problem and thought perhaps the lilies were dying because of a fungus disease caused by *botrytis elliptica* but spraying with the recommended Bordeaux mixture and with Captan did not help any. The plants grew each spring but got smaller each year. We then decided to move them back to the place where they had done so well, and which had lain fallow for a couple of years.

The outer scales of the bulbs dug up were partly rotted with a brown rot and there were very few roots on them. We made a large quantity of Captan solution and soaked the bulbs in it half an hour before replanting.

During the next three years the plants still showed some signs of the disease but, because the soil has better internal drainage, the rot has not been quite as bad.

By reading quantities of literature on lilies and corresponding with other lily growers, we have learned that this rot is caused by a soil borne organism and the disease is much worse where drainage is poor. It can be controlled fairly well by dipping the bulbs for a few minutes in a solution of a chemical called benomyl and water before planting, and then by following proper cultural practices. Another thing learned, is that lilies do better when the soil around them is not compacted, and when the root run is cool. To this end, though clean cultivation may be easier, it is best to plant shallow rooted, low growing plants at the base of the lily stems.

To prepare the new bed we plowed eight furrows, three or four feet apart, with one across each end joining these, making what looks like seven raised beds with a trench around them all. From one corner, the furrow continues to the roadside ditch and should drain off any excess water quickly. The bulbs are being planted, after soaking, in a row down the centre of the high part. If there is time, some ground covering plant with no bad habits (is there one?) may be planted along the row too. Failing that, we could use a decomposable mulch such as peatmoss.

Something else we've learned is that tiger lilies, the ones nearly everyone has, carry a virus which, although it doesn't affect the tigers much, does ruin other lilies. The striped tulips are striped because of a virus too, so do plant tigers and tulips as far as possible from other lilies.

Pocket gophers go for lily bulbs in a big way and, as with many of us, seem to find the more expensive the meal, the more it is to their liking. Everything possible should be done to prevent pocket gophers from getting into your lilies.

If you have plenty of time and can wait a year or two or more for flowers, do try your hand at growing lilies from seed. The results are always a surprise one way or another. Any lily fancier will be able to tell you how to grow plants from seeds, or join the North American Lily Society. Fees are $7.50 a year and you receive news bulletins, a good yearbook, the chance to join a round-robin, borrow books, rent slides, and exchange seeds. The Secretary's address is: Mr. Fred M. Abbey, North Ferrisburg, Vermont, 05473. As a suggestion, a membership would be a different birthday gift for a friend interested in growing lilies.

For varieties to try and cultural directions, see the 1970 and 1971 issues of the Prairie Garden. There are also articles on lilies in the 1964 and 1966 issues.

# Red and White for Color

ISABELLE R. YOUNG

A red and white color scheme in some of your beds and borders next summer could prove to be quite interesting. The following are among some of the most popular of the annuals. These come in varying heights each suited to a particular situation, with planting dates beside each, to be used as a guide.

**Pansy** – Clear Crystals, white and scarlet, January 16. **Matricaria** (Feverfew) White Stars, 6 inches, January 26. **Canna** (tubers) February 1. **Snaps** – tall, Topper 36 inches, Rocket 30 inches, February 10 to 14, Tetras February 26, Carioca 20 inches, and other intermediates, Little Darling 12 inches, Floral Carpet 8 inches, March 15. **Petunia** – (double) – Sonata White 15 inches, Valentine Red 12 inches, Strawberry Tart red and white 12 inches, Snow Bird 14 inches, February 15. **Petunia** – (single) – Candy Apple red, 12 inches, Super White 14 inches, Red Magic and White Magic 12 inches, Red Ensign 12 inches, Red Cascade and White Cascade, 16 inches, White Satin and Red Satin 15 inches, all March 15. **Carnation** – 14 inches, February 15. **Aster** – Princess 30 inches, Lady 30 inches, Pimpernel 24 inches, February 20. **Celosia** – February 28. **Salvia** – Pronto 15 inches, Redcoat 10 inches, March 1. **Phlox** – Beauty Crimson and White, 8 to 10 inches, March 9. **Ageratum** – White Blazer, White Cushion and Summer Snow, 6 to 9 inches, March 11. **Alyssum** – Carpet of Snow 4 inches, March 13. **Annual Larkspur** – Majestic White and Red, March 15. **Dianthus** – Bravo 8 inches, Queen of Hearts 14 inches, March 20. **Zinnia** – Cherry Buttons 12 inches, Red Riding Hood 18 inches, Firecracker 30 inches, Snow Time 24 inches, Red Man 20 inches, Snowman 20 inches, Blaze 32 inches, Polar Bear 30 inches, Crimson Monarch 30 inches, April 10. There are many others, but I have tried most of these with wonderful success.

Now that you have a variety of red and white flowers, it might be an idea to give you a few suggestions as to what you may do with them. Petunias are one of the showiest and most popular of all annuals. A bed, circular or any other shape, filled with red petunias and bordered with white alyssum is bright and cheery. Red and White Magic planted in front of taller annuals or perennials may be edged with white matricaria, alyssum or ageratum. For window boxes, planters or hanging baskets, red and white cascade are ideal. A border along a vegetable bed of red and white phlox makes a striking effect against the greenery of the vegetables. For a spot of color in the rockery, the Floral Carpet snap is just the thing. These are also nice for the front of planters.

If you would like something really different and "way-out", plant a mixed border of the reds and whites in varying heights and forms (round and spike) of the flowers mentioned above. Do not plant them all in straight rows – bring some of the groups (the taller plants in groups of around three and the dwarfer ones in groups of five) slightly forward so the overall effect is more appealing. You would need a fairly wide border, at least four to five feet, six is even better. Make a plan on paper before you start and really have fun. At least it will be different!

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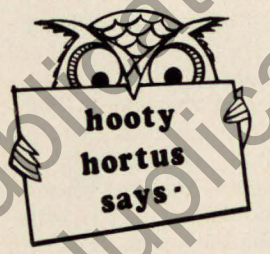



*Lilies for the north – facing Border. Lilies, that is the true lilies, are not as a general rule recommended for shady places but there are some kinds that will stand more shade than others. These are the martagon lilies, their hybrids with the Hanson lily, the caucasian and the henryi.*

*There is another advantage in growing the martagon hybrids in partial shade; the delicate colors of such well known varieties as Brocade, Guinea Gold and Sutton Court, that tend to blanch in the hot sun, will be preserved. Also the brilliant orange colored flowers of henryi also fade in hot sun so choose a spot where it gets a bit of shade from the noonday sun.*

Nothing ventured Nothing gained

# From Seed to Bloom

MRS. RON PIERCY

One of my most successful ventures was the use of fluorescent lighting for the growing of plants indoors, inspired by Fred Dale in a weekly publication. This seemed to be the answer to a growing number of problems associated with planning and landscaping our home grounds. The information on a light system for plants that could be set up anywhere with almost guaranteed results was most timely. It directly led me to a series of seed testing adventures which expanded into the wide selection of plants. My purpose here is to share with you some plant preferences that have resulted from my adventures.

It wasn't long before our first basement fluorescent set-up was in operation. Two large fixtures, salvaged for a reasonable price from a renovated building, were attached to floor joists with lengths of furnace chain and the "bench" was a sheet of plywood set on sawhorses. What could be simpler than that? It was not very elaborate but it certainly was functional, for that plywood sheet was filled to every edge with boxes of bedding plants. Since that time, the project has grown as much as a built in space of 8 feet by 6 feet with double shelving will allow, and I find it is adequate.

January, to many gardeners, may seem like a "Nothing month", but that is far from the truth in my case. The day the first seed catalogue arrives, there is a perceptible change in the atmosphere. Even a bleak, blustery day doesn't seem all that bad as I begin to pencil red circles around varieties that look promising. In a matter of minutes I begin to visualize borders and beds with color combinations and textures changed from anything previously tried. The planning is underway and I've become an instant evaluator, designer and budget-bender. The object of selections is always the same ... to discover new varieties that are not only good consistent performers, but have a distinctive characteristic as well. Although difficult to define, it is not unlike the situation where one suit or dress is preferred to others, all else being equal.

I will admit to a few peculiarities in selection of seeds that at any time I would hesitate to ignore. With few exceptions, color mixtures, very dark colors or orange shades are not included in my lists. Some degree of objectivity may be lost, but mixtures don't usually fit in with planning, dark colors do not show as much as I'd like and some aversion to orange as a color takes care of the third point.

Of all the annuals that have been tried, the petunia section has undoubtedly been given the greatest share of attention. A wide selection in varieties of this dependable plant has provided ample opportunity for diversity from year to year. Of the grandifloras, there is a group that might be better named supergrandifloras from the standpoint of size, I have grown the Cascades, Toreador, Lavender Lady, White and Red Ensign and Snowcap. The whites are impressive, but for all there is a tendency to some browning of blossom edges and sun-fading of colors in planters or beds openly exposed to the south and west. Locating these very large petalled varieties in a bed protected from wind and long exposure to sun is advisable, but wherever placed, floral abundance is sufficient to overcome any necessary trimming out. Still in the grandiflora class but not so large are Ballerina, Sugar Daddy, Calypso, Cherry Blossom, White and Red Magic, Gay Lustre, Appleblossom, Maytime, Pink Lace and Candy Apple. The first four I found outstanding and Ballerina has always been a star performer for me. For exhibition the grandifloras do well in competition.

Multifloras are hard to beat for a solid color effect. Bloom is very prolific which compensates for size smaller than their grand neighbors. Preferences in these types are the Satins, Firechief, Celestial Rose and bi-colors Starfire, Satellite and Crusader. Special favorites have been Sugar Plum, Comanche and Paleface, though the latter grows taller and has a mounded form.

Doubles that I have found appealing are Sonata, Valentine, Caprice and Blue Danube. Multiflora doubles do not have the compact petal growth of the larger ones but again have the advantage of more bloom. The Riches and Tart series rate well and certainly merit a place in the flower garden.

Low growing annuals that have been good are Blue Mink ageratum, Dwarf Queen asters, Bravo and China Doll dianthus, Silverdust dusty miller, Crystal Palace lobelia, White Stars matricaria, Spun Yellow, Yellow Nugget and Bolero marigolds, Polka-Dot periwinkle, Twinkle phlox, Hot Jazz salvia, Mini-Pink and Buttons series zinnias. Add to these Moonshot marigolds and Peter Pan Pink zinnias, both excellent in every respect. Silverdust dusty miller is a real winner for texture contrast and complements any plant with its silver-gray velvety foliage.

For plants in medium height range and apart from petunias, the following have been consistently good. Carioca snaps, Unicum asters, Pygmy calendulas, Dwarf Fragrance carnations, Korean mums, Early Bird dahlias, Carefree geraniums,

Dwarf Jewels nasturtium, Knee-Hi sweet peas, Double Column stocks, and Lilliput zinnias. Tall annuals include Ladies asters, Rocket and Mme. Butterfly snaps, Sunset cosmos, Climax yellow, Diamond Jubilee and Doubloons marigolds, Emperor salpiglossis. The Rockets are exceptional and Mme. Butterfly is unusual. As well, the latter has shown a tendency to stem instability which may be environmental rather than characteristic. The hedge-type marigolds Diamond Jubilee and Doubloons are accurately described ... tall with a full lateral growth, that requires adequate spacing.

Arranging bedding plants in the spring for maximum effect is quite a challenge as combinations are rarely repeated. White flowered varieties interspersed or alternated with colors relieves the effect of monotony and provides a fresher over-all appearance. Narrow borders planted in sets of three different plants is an interesting approach ... for example, Moonshot, Silverdust, and Blue Mink ... then repeat the pattern.

Vegetable seed testing has not been extensive as there is little inclination to change from varieties that have proved themselves already. Some that I have found very good are Stonehead and Junior Baseball cabbage, Gardentreat and Golden Beauty corn, Spartan Valor, and Shamrock slicing cucumbers, Spartan Dawn, Pioneer and Mincu picklers, Buttercrunch lettuce, Autumn Spice onions, Burpee White globe radishes, Rocket and Starfire tomatoes. A new tomato variety called Summer Vee was sent to me this year for trial and excelled anything grown before for early ripening, quantity and quality of fruit. In our short season area, the gynoecious type of cucumber is a real boon, but I think it would be an advantage to gardeners if seedsmen could identify the 10% male pollinator seed content placed in the packs by pretreatment with some coloring matter. Planting the pollinators would then be assured as without them the advantage of these types is lost and yields could be disappointing.

To conclude, I will admit that ordering new varieties, All-America selections and F-1 hybrids will increase the amounts of a seed order considerably but the rewards during the summer more than overcome that aspect. It's a good investment if results meet or surpass our expectations. In addition, this kind of venture should prove to be a constructive exercise in other directions . . . to any amateur who discovers the superiority of a variety in a particular area as well as to the professional levels where plant development is executed and to which the amateur is very much indebted.

The Horticultural Society in Rosetown has maintained an active interest in testing plants for this area for its beginning ... on an individual basis and as a group. As a result, bedding plant orders to the greenhouse for our annual plant sale are tailored to a list of varieties that we know will perform well in this area. Due to an exchange of information, test seed and test plants, different varieties have been added to the growers list and to ours. That seems a very worthwhile outcome ... and a great many people benefit by it. Truthfully, isn't that what horticulture is all about?



BOLD COURTIER.

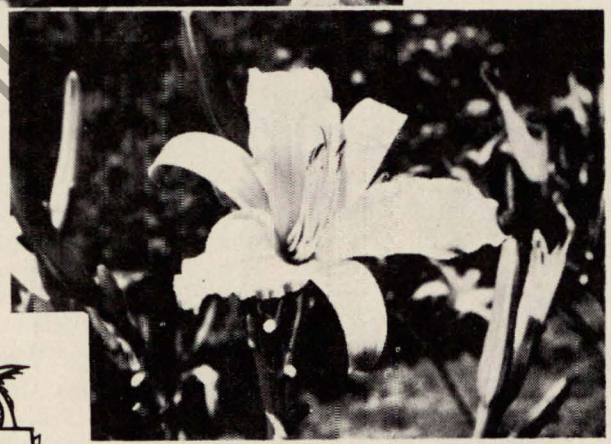
YELLOW AND ROSE BICOLOR.

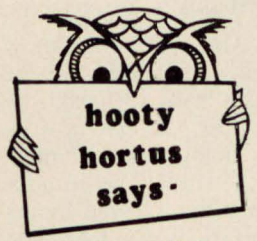
EARLY HEIGHT 36".

CANARI.

CANARY YELLOW.

MID SEASON HEIGHT 40".






*Daylilies for your Perennial Border. They are most accommodating plants, not even being really particular about the kind of soil, as long as it has good drainage. They will even thrive reasonably well in partial shade, but will bloom much more freely the more sun they get.*

*When planted they should be left undisturbed; they make a tangled mass of roots which are quite fleshy and will sustain themselves well in periods of dry weather.*

*They now come in a number of colors including pinks and reds as well as unique shades of apricot and brown. By selection of early and later blooming varieties you can maintain a considerable season of bloom.*

*They are also hardy and relatively free of insect infestation and diseases. No staking is needed to keep the flower stems erect. Above are pictures of two good selections.*

# Flower Show Planning

A. BROCK

Many factors contribute to the success of every flower show. One of the most important and often underrated is the preliminary planning. The responsibility for this aspect of any show can present a real challenge. If this planning is your responsibility the following check-list might be of some help.

**1. Time and Place** – The date for your show will have to be selected on the basis of local experience. It should be timed to coincide with the peak of the crop for the varieties included in the competition list. The location will be determined strictly on the basis of what halls are available and which of these is best suited for this particular use. Finalize both early.

**2. Publicity** – The more people you tell about your show the more you can expect to exhibit and attend. Get your publicity committee working early. Every member of the society would consider himself an unofficial member of this committee and do his utmost to arouse the interest of his friends and acquaintances.

**3. The Hall** – The person responsible for planning the show should visit the hall and make a list of all measurements which could have a bearing on the placement of any of the show tables or displays. Windows, doors, support columns, stairways, the stage, as well as electrical outlets, should be included. This inventory should also include the number and sizes of tables available in the hall and the number of chairs on hand.

**4. The Concept** – Exhibits should be so placed that the guest's first view is of a panorama of beauty. This cannot be achieved if the view is down long aisles between tables. The show manager must develop a concept which will create the most favorable impression through the placement of tables and the careful arrangement of the various competition classes on those tables.

**5. The Plan** – With the show concept clearly in mind and the details of the hall at hand, the floor plan for the hall may now be prepared. In doing this you must strive for the most effective arrangement for your tables. When planning your table positions don't hesitate to put some obstacles in the way of visitors to the show. By setting up obstacles such as show tables and making people walk around them you will help these people to see more of the show. The use of paper scale cutouts representing the tables will be of great help in this phase of your work.

**6. The Arrangement** – The fine detail of your show concept must be applied when assigning table positions for each of the classes and sections in the prize list. If there is only one main entrance to your hall an idea which you might consider is the placement of lower exhibits such as small cut flowers and potted plants on the table nearest this entrance, taller cut flowers on the next table, baskets on the third with fruits and vegetables behind. If your hall has a stage, this can be an excellent place for showing gladiolus. One problem which every show manager will encounter in planning his arrangement will be the allocation of space for each competition section. Perhaps the only solution will be found in a reliable crystal ball.



**7. The Prize List** – Since the prize list serves the dual purpose of

guide to the show and competition reference the classes and sections should be listed in the same sequence as they are to be found on the tables. This may mean a substantial revision of the prize list each time the show plan is changed. One very important point to remember, however, is that there should not be a separate numbering sequence for the sections within each class.

**8. The Judges** – The requisitioning of the judging staff for the show should be taken care of at the earliest possible date. In Manitoba lists of qualified personnel are mailed to all societies and requests on the basis of these lists are made through the Provincial Department of Agriculture. When these requests are received by the department, assignment is made and the societies notified accordingly.

**9. Working Committees** – In addition to the committees already working your society may wish to appoint one to assume responsibility for decorations. Another will be needed to provide assistants for the judges while they are doing their work. The committees required will have to be determined by each society but should be organized in sufficient time to properly plan their work. One in particular will have to commence work early by ordering such supplies as entry tags, award labels and ribbons for the show.

**10. Decorations** – If decorations are to be used the planning by the responsible committee should begin in good time. This committee must always remember that their decorating must not draw the attention of the visitors away from the entries. They should simply finish the picture, not dominate it.

**11. The Check-List** – During his planning the show manager will be giving a great deal of thought to his task. As he assembles information and ideas he should make up his own personal check-list. This will include data on the hall such as the measurements, number of tables available, etc. It should also include items such as tacks, masking tape, pins, table cloths, section numbers and tools which will be required during the set-up of the hall. There will be times when this list will be worth its weight in gold.

**12. The Judging** – After the entries have been placed, the hall should be closed to all except the show committee, the judges and their assistants until the judging has been completed and the show dressed. Regardless of their excuse, no one should be allowed to enter and not one exhibit should be moved or changed in any way.

**13. The Official Opening** – The official opening ceremonies should be kept as brief as possible. Guests have come to see the show and not to listen to a number of speeches. Your program will be greatly appreciated if it is kept short.

**14. Wrap Up** – Your show has come to a close. It has been a success because you planned it well. All that remains now is for you to wrap it up and begin planning for next year.

As the title suggests, Flower Show Planning prevents poor performance.

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Life is a Flower of which Love is the Honey.

— Victor Hugo



# Indoor Bulb Gardening

H. D. MATTHEWS

As an amateur gardener I have always had the greatest pleasure from the wide range of spring bulbs which flower at a time when any colour is most welcome.

After reading Dr. Maginnes' article in the 1968 edition of "Prairie Garden" on 'Flowering Tulips and Daffodils in the Home' I was encouraged to renew earlier attempts to grow bulbs in my Calgary bungalow.

During the winter of 1968/69 several dozen tulips and daffodils were placed in moist peat moss in plastic bags in the lower part of the family refrigerator and after 10-12 weeks storage the bulbs were potted up, placed under cardboard boxes during a 3-4 week period of re-adjustment and brought to the light in the main living room at intervals during January and February. The success ratio was perhaps 60-70%.

Since the use of the family refrigerator was not too convenient, a better solution seemed to have a refrigerator primarily for the use of bulbs and in September 1970 I purchased a second-hand 'frig for $25.00. The purchase was made at a good time, namely after Labour Day when refrigerators were no longer in demand for use in summer cottages and yet early enough to make good use of it during the forth-coming bulb-growing period. In the summer months this 'frig has been very useful for storage of spare soft drinks, fruit and was a good investment.

By potting up the bulbs initially and placing them in the frig, the shock of transferring bulbs with considerable root development from the plastic bags and moist peat moss to pots is removed. This shock often shows itself in the loss of the leaf-tips and should be avoided if possible.

In using the refrigerator I would definitely recommend leaving the temperature at the warmest possible level, which gives a temperature of around 40-42 degrees F. This also means that the frig does not require de-frosting as the water accumulates in the tray below the freezing compartment and can be removed at monthly intervals.

Another definite recommendation would be to use plastic pots, with the occasional ceramic pot being satisfactory. I have found clay pots far too liable to drying-out in the dry climate we have in the Prairie Provinces. For spring bulbs there seem to be very few, if any, advantages to using clay pots and, in addition to being risky, they are also unsightly with their build-up of salts and other accretions. Having said that, it is also important to purchase plastic pots of sufficient

thickness to withstand a certain amount of jostling and being picked up by the rim when full of soil and bulbs. If the plastic pots are too thin, as is the case with some brands, the rim of the pot will crack easily. As a general rule I would also recommend that all pots used with spring bulbs have drainage holes, not only for drainage but also to enable the gardener to see when the roots have developed adequately and are growing out of these holes. At this point (after 10-12 weeks in cool storage) it is usually a good indication that the bulbs can be transferred to warmer conditions for forcing. Certainly, as a general rule, this transfer to a dim light for 10 days and then to the main light should not take place until the roots can be seen. Without drainage holes there is also the problem of sour soil, over-watering and bulb rot and additional supplies such as charcoal are then required. The most suitable pots are the 6" and 7" varieties, the 6" pot being a very useful size for all-round use.

Growing winter bulbs is much less complex than many articles would suggest and while leaf mold may be desirable, it certainly is not essential to obtain good flowers. Similarly, it is perfectly satisfactory to water bulbs from above and to have bulbs touching each other when planted. The flat side of tulips does not necessarily have to face outward as so many articles suggest. The amount of soil covering the bulbs is, again, not too significant. As a rough guide, bulbs should be covered to approximately the tip at planting time. Subsequent watering may well expose part of the bulb but by covering the bulb adequately at the start there is less chance of the bulb being forced up when the roots start development. Again, it should be stressed that it is not too important, one way or the other. Pots should not, however, be overfilled with soil at planting time as the soil level will rise perhaps half an inch when the roots expand and fill the pot.

Over the past two seasons I have tried a wide variety of bulbs, including the relatively short-lived types such as crocus. Even though each crocus flowers for only 3-4 days an average pot will have flowers in bloom for over two weeks at normal room temperatures and are therefore well worth growing. Other minor bulbs, such as Scilla Siberica, Scilla Tubergiana, Muscari (Grape Hyacinths) Dutch Iris, Puschkinia, Iris reciculata and even Fritillaria Meleagris (a late-flowering bulb)



bloomed satisfactorily last season, in addition to the well-known daffodils, tulips and Dutch Hyacinth. The Grape Hyacinths have a large mass of leaves initially with no flowers evident until the leaves are very long and draped in an unattractive mass over the pot. It is not until the leaves are almost flat that the flower itself rises and colours up for an unusually long flowering period of up to three weeks in the average suburban home. It is nevertheless a good plant to grow with its distinctive blue colouring.

Regular Dutch hyacinths also perform well under the conditions mentioned above, but one feature which is seldom pointed out is that it is unwise to put more than three hyacinths in one pot as the perfume from these attractive plants is very rich and overpowering if there are too many hyacinths in one room. Many photos depict pots of five to seven hyacinths and in the average home the scent from these flowers would detract from their many other good points.

Dutch Iris is an extremely vigorous spring bulb which roots rapidly and whose stems quickly pierce the plastic bags if the bulbs are stored in this manner. With such vigorous bulbs it is probably better to plant them in pots initially and subject them to lower-than-average temperatures, i.e. in the coolest part of the frig.

It is clear that with a frig available it is now possible to have many normal, untreated spring bulbs flowering by Christmas time so that daffodils, narcissus, hyacinths, crocus, iris and possibly tulips can be added to the flowers in bloom at the Holiday Season. Azalea, Christmas Cherries, Pointsettias and Cyclamen will no longer be the only flowers available for Christmas gifts. To have spring bulbs ready for Christmas they must be placed in the frig by Labour Day at the latest and preferably in the last few days of August if you can obtain bulbs in your area at that time. Most tulips will not flower until January, although in future years experiments with Single Early varieties may prove successful so that these flowers can be added to the list of spring bulbs blooming at Christmas time.

# Growing Gladioli

GEORGE A. SMITH

Regardless of what we desire in the growing of gladiolii or any other plant material, the success of the project is entirely dependent upon the effort put into it. It has been said that gladiolii can grow anywhere with a little care, and from experience that extra bit of loving care makes the difference in how they thrive.

Corms come in various sizes. The medium sized (over ½ inch in diameter) are adequate for ornamental or cutting purposes, and the larger corms are preferred for show spikes.

Classes of gladiolii range from size 100 (Miniatures) up to 500 (Giants). In between are 200 (Small), 300 (Medium), and 400 (Large). This measurement is taken from the first open floret, diameter-wise, from petal tip to petal tip and ranges from under 2½ inches for Miniatures to 5½ inches and over for Giants.

## Soil Requirements:

Providing cultural methods are adequate, most garden soils will give good results. Good cultural practices include deep cultivation which enables roots to penetrate easily to 12 inches and allows good drainage. Inadequately drained soils encourage disease. Well rotted barnyard manure dug in before planting plus a handful of fertilizer, sprinkled along a 20 foot row at planting time and raked in carefully so as not to come into contact with the corm, is adequate fertilization.

During growth keep the soil surface loose and free from weeds. To control thrips, spray or dust with Malathion when the plants are about one foot tall and then every 10 to 14 days until blooming. Any plants that look unhealthy, i.e. with brown leaves, cupped florets, or stunted appearance, should be completely removed and burnt to prevent the possible spread of disease.

## Planting:

A ten day **heat treatment*** for ten days before planting will advance blooming. This is most desirable on late varieties which may otherwise fail to bloom before frost. However, only if earlier blooming is desired on the early and mid-season varieties is this heat treatment used.

On light sandy soils the corms can be planted 6 inches deep, but on heavy clay soils 4 inches is deep enough. Cormels may be planted between corms with about a 1 inch soil cover. Planting should be done when the soil can be worked easily in the spring.

* See heat treatment under harvesting.



## Staking:

The staking of gladiolii is not usually necessary but is advisable for prospective exhibition blooms. Choose the strongest bud spikes as they appear and place 4 to 5 foot stakes beside them. Tie the stems loosely to the stakes and as the flower head pushes upward, tie it progressively using a large loop so that future growth is not cramped.

## Watering:

Gladiolii require about one inch of water per week. During dry spells water thoroughly as deep watering encourages good root development.

## Cutting Blooms:

Since the leaves produce the food materials in the plant and transfer it to the corms, it is necessary to retain as many leaves as possible to build up the corms for the following year. When cutting insert a good sharp knife at the top leaf and slide down the stem until the required length is reached, then cut at an angle and twist. The stem will pull out leaving all or most of the leaves intact. If the bloom is left on for display, cut it at the first leaf when flowering is finished.

## Harvesting:

In areas with short growing seasons, 90 to 120 days will allow new corms to develop and mature. Leave until the first heavy frost. When an increase in stock is required, keep the cormels which form around the corms as these will develop into flowering corms during their third growing season. Cut off the top about ½ inch above the corm and place in trays to dry. Do not put them in bags as there is no air circulation.

Depending upon quantity, corms and cormels can be left in the sun to cure during the day and brought under cover at night. It is better to cure the corms at a temperature as close to 80 degrees as possible for ten days (and nights) if a suitable place is available.

This **heat treatment** for the curing of the gladiolii is most important. However, it can be done fairly easily in homes with forced air heating. A flat (about 16 x 12 x 3") with a screen bottom can be placed on a stand close to a heating outlet so that good air circulation is achieved and the corms placed in it, if necessary more flats can be added using spacers between each. Thin wood or cardboard dividers can be used to separate different varieties. The corms and flats should be turned occasionally to ensure even curing, during the ten day period.

If forced air is not available, other forms of heating can be used, providing that the necessary temperature can be maintained with reasonably good air circulation for the ten days.

After two weeks clean the corms by removing the old corms, loose husks and soil, then dust with Malathion and a good fungicide. The trays can be placed in a basement. The most satisfactory storage temperature lies between 45 and 55°F. Check occasionally during the winter months for any fungal disease which may develop.

# Propagation of House Plants

W. J. EMERSON

## Growing House Plants from Seed

Many house plants can be started from seed, and by using the following method, success is usually assured. Often it is a slow process, inferior plants can result because many plants do not reproduce true from seed.

Secure a 4 x 6 inch clay pot. Place a piece of crock or rubble over the drainage hole and place one inch wet peat moss over this. Fill the pot with soil (one part loam, one part peat, one part sharp sand) screened through one-quarter screen; firm soil in pot. The soil should be sterilized, and this can be done by putting the mixed soil on a tray and placing in the oven at a temperature up to 400 degrees. Let soil bake for 35 minutes.

Formaldehyde can also be used – one tablespoon of formaldehyde to ten tablespoons of water, sprinkled over one bushel mixed soil. Place soil in container and seal for 24 hours, air well before using. There are also other chemicals but if you use them, follow the manufacturer's directions carefully.

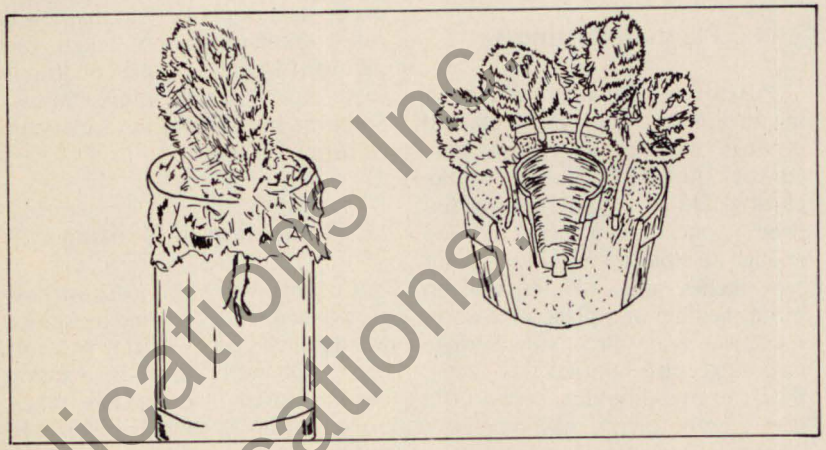
After filling pot with sterilized soil, cover it with a thin layer of sharp sand or vermiculite. The seed, if very fine, can be broadcast or, if large, sown in a trench made in the medium. Cover the seed to a depth about diameter of seed.

The pot should then be placed in a pan up to its rim in water. Let soak until the moisture appears on the top of the sand. Remove, let drain for a while, place the pot in a clear plastic refrigerator bag or cover with a sheet of glass, and place in a warm place, (65-70 degrees). Check for moisture, particularly if glass is used. When seedlings appear raise glass, or open plastic bag, gradually and expose to sun and air. Prick off into pots or boxes when first true leaves appear. Don't be discouraged, some plants may take months to appear.

## Stem or Leaf Cuttings

Many house plants can be started in water, and a transparent blue glass container is best when using





this method. Take a piece of waxpaper, place over the mouth of the container of water and tie. Punch holes, and insert the leaf or cutting; this will hold the cutting upright. Philodendrons, African Violets and Chinese Evergreen are some that can be rooted in this way.

Plants started from cuttings will be identical to parent plant. Most cuttings will root best in one of the following mixtures: sand and half peat moss, vermiculite, sand, however, the new medium, Perilite, horticultural grade, is best. Vermiculite and Perilite are sterile when new. The container should be filled with one of these, firmed and watered, and left to drain.

## Taking of Cuttings

Select the top three to four inches of the growing branch or strong three to four inches shoot from base of plant, or strong side shoot. Take only the best material for your stock. Cuttings should be trimmed with a sharp knife to leave a clean edge. With most cuttings this cut should be just below a node where one or more leaves originate. Remove the bottom leaves as per geranium picture, and any buds, or badly damaged leaves.

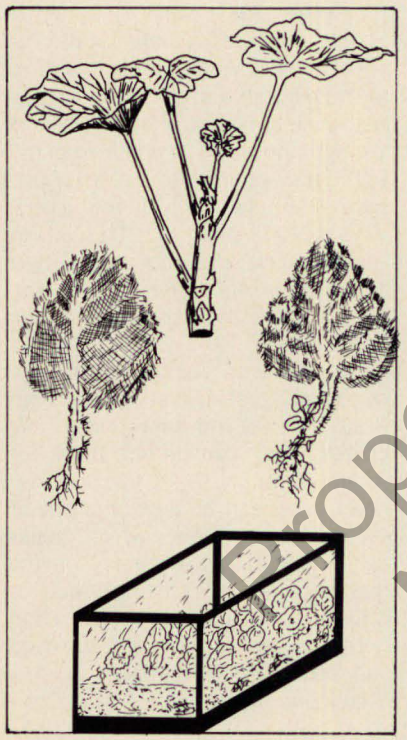
Fleshy plants such as patience, coleus, begonias, should be allowed to dry for a while before planting, an hour or so will do. After preparing, geranium should be left for six to eight hours to dry before planting. Cacti, pineapple, etc. after preparing should be left for several days before planting. This allows the cut surface to scar or seal over and thus prevent bleeding and rot. Do not leave cuttings in strong sun or heat.

If unable to pot cutting at time of collecting, place prepared cuttings in a plastic bag and store in vegetable crisper; they can be left there for several days.

Cuttings can be dipped in one of the rooting hormones which speeds up rooting. There are many on the market. For soft cuttings such as geranium, coleus, etc., a soft wood hormone would be used. Fuchsia and other woody cuttings need a hard wood hormone.

## Planting Cuttings

After filling containers with rooting medium the cuttings are planted or stuck. Make a hole with sharpened stick just wide enough to take cutting. Do not plant cutting too deep – one to two inches is deep enough to hold them up, and plant two inches apart. Water well to settle medium and place in a warm spot away from direct sun. Syringe daily (except geraniums and cacti), the latter two should be kept a little dryer. Some plants may do better under glass or plastic, but many will rot if great care is not taken. Experiment a little, as home conditions vary greatly from a greenhouse. Some methods of rooting are pictured here.



## Indication of Rooting

Cuttings will start to show new growth and will give some resistance when pulled gently; wilting will also cease. Do not leave in rooting medium after rooting has taken place. Pot up as soon as possible in soil.

## Air Layering

Many house plants become too large for the home and are difficult to start by usual methods. Among them are rubber plants and dracins and dieffenbachias and on them we use air layering. The operation is very simple – at the length you wish the plant to be, make one or more notches, depending on the thickness of the stem. These can be held open with a piece of matchstick. Dust with rooting hormone, wrap a handful of wet spagnum moss around the stem, covering the notched area, tie in place, then wrap with a piece of plastic, tie above and below. It may be necessary to support the plant with a stake.

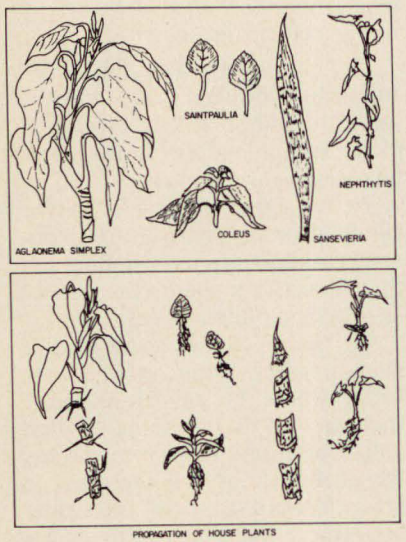
When you see the root filling the plastic bag, severe just below the bud and remove the plastic bag, but not the moss. Put in proper soil. If you have room, the stub can be kept, watered, and will make side growths, often making better plants than the original. Keep parent plant on dry side to induce cutting to root.



## Division

As plants mature some will form young plants at the base. African violets develop multiple crowns, also begonias, ferns and others. Other plants produce runners with young plantlets at the ends. These can be pegged in small pots of soil until rooted. All these plants can be increased by division.

**Method:** Turn the plant out of the pot, examine to see where the new plants are established; use a knife to cut through the soil ball so as to separate the new plant with some roots attached. Pot in container of suitable size and keep out of sunlight for about a week.




PROPAGATION OF HOUSE PLANTS

Other plants produce bulbs, or bulblets. Some of the Boston-like ferns produce these fleshy tubers in bottom of pot. These bulbs or tubers will readily form new plants. Remove from parent plant, place them on layer of peat moss in container; cover with half to one inch more moss, keep moist, shady and warm. With ferns, pot four or five plants to six inch pot when tubers have two or more leaves.

## Special Plants – Air Plants or Bromeliads

Baby plants often appear at base of parent plants. Wait until the baby plants are at least six months old then remove, taking plenty of roots, and pot. These can also be started from seed but this is a long process. Caution: Do not spray Bromeliads with insecticides. Insects should be washed off with water and a soft brush.

**Achimens:** Seeds sown mid-winter; cuttings and divisions of mature rhizomes.

**Amaryllis:** Seeds very slowly. Offsets are the best way. Also by slicing bulb in longitudinal section, like an orange, with slice of base.

**Schefflera:** From seed.

**Citrus fruit – orange, lemons, etc.:** From seeds, but do not produce flowering plants. Cuttings and air-layering, selecting material from flowering plants.

**Croton:** Cuttings.

**Gloxinias:** Best from seed – cuttings; purchased tubers are quickest.

**Hibiscus:** Cuttings.

**Orchids:** By division.

Jewels In The Wilderness

# Myriads of Geraniums

BETSY SHORTT

Tucked away in a setting of lake and forest, where poplar groves merge with conifers on the fringe of Pre-Cambrian rock, lies the G. & F. Geranium plant nursery, three miles north of Lac du Bonnet and fifty-eight airline miles northeast of Winnipeg.

Upon being welcomed inside, we were greeted with a most wondrous sight! – masses upon masses of geraniums in full bloom – like brilliant jewels sparkling in the sun. It was breathtaking to come upon this unexpected spectrum of riotous color.

There were endless varieties of geraniums and on being introduced to the young breeder, Mr. Gordon Boone, we were shown a myriad of new colors, shapes and types which are his specialties.

There were the miniature geraniums which are such tiny imitations of their larger parents, with brilliant tiny blooms – some almost like tiny butterflies, and others like stars. The colors are deeper, brighter, newer – truly jewels that made us gasp at their beauty.

Other plants have beautifully variegated leaves, which are more colorful than ever; most of these evolved from "Skies of Italy", some of them are also miniature.

Others that were intensely intriguing were the scented ones – coconut, apple, old-fashioned rose, lemon, mint, nutmeg, cinnamon, etc. How pleasant they are to touch and smell the lovely fragrances that emanate from them, bringing to mind foreign lands where they first grew. Some of the plants he uses in his work originate in countries all over the world. We were absolutely fascinated and deeply impressed by Mr. Boone's ability to grow these lovely flowers here, where one would least expect them. His enthusiasm just bubbled as he explained to us how he had crossed this kind with that one and came up with an entirely new plant, or a new color, or a new shaped flower, or newly colored leaves.

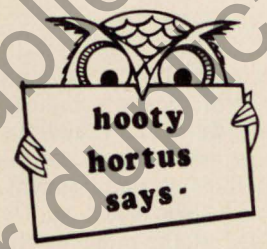
He has such plans, for newer and more brilliant geraniums, some, for outdoor use, with enormous and numerous flowerheads, blooming continuously.

He is experimenting with the climbing or ivy types for baskets, making the blooms more double and the colors richer and deeper, as well as coloring up the foliage.

Mr. Boone comes to us from a plant-breeding family in Red Oak, Iowa, where he gained his early training. It is refreshing to find such zeal in one so young, who has the qualifications and eagerness to press forward to new and wider horizons in the geranium field. He has also an avid knowledge and interest in the wild things of the forest around him, and is doing some experiments involving some of our native plants. Plant specialists from various points in the United States have come to see and learn of the breeding program at the G. & F. Nursery. They found it to be very extensive and considered it far in advance of most North American breeders.

We were told that the best time to see the geraniums in truly "full bloom" is in May and June. But just imagine coming upon these greenhouses in the depths of winter, with the snow five feet deep – what a contrast a few steps inside would make! It was an unbelievable experience, making winter seem far away. Truly a gem of a find and new geraniums in our house as a continuous reminder of a most enrapturing episode.






*Points on planting Annuals. Buy the best you can get, the best is always the cheapest in the long run. Plant in the evening hours or on a cloudy day if you can, and be sure to water the plants before you take them from the flats or containers, so that the soil will cling to the roots when you handle them.*

*Remove all or most of the plants from the container at one time and only separate each plant as you plant them. Make the holes big enough to hold the ball of soil without crowding, pushing down and outwards. Fill in with fine soil and make firm by treading, leaving a heel mark for the water. Use a slow - running hose or watering can to do your watering; it is not recommended to set up the sprinkler and soak the whole bed. Roots find their way more readily in soil that is just moist than they do in soil that's soggy wet. It is also a good idea to use a water soluble plant food in your water at this time, to help overcome transplanting shock. Follow the directions on the container.*


Taken at their farewell party in Winnipeg on August 23rd, 1971.

# Dr. and Mrs. Leslie's Farewell

G. W. MALAHER

The man who plants a seed of corn
And watches o'er it night and morn,
And prays the heaven for kindly cheer
To nurse its heart with dewy tear,
Is doing work of goodly part

Thomas O'Hagan
(Two Workers)

The poet must have had Dr. W.R. (Russ) Leslie – or someone mighty like him – in mind when he wrote those lines, for they typify the life, work and the honoured place which Russ gained in the Manitoba Community.

We could wish to boast that he had been born in Manitoba but we must yield that distinction to Saskatoon, Saskatchewan, while still taking pride in him as a hardy ornamental of the prairies. Ornamental? Yes, but that is only a small part of it! His ready smile, boundless energy, friendliness and kindness to all, attracted everyone to him and were as much a part of his outstanding success in his career as his scientific achievements. These achievements were many and the Morden Experimental Farm was the location of their accomplishment.

"W.R." as he was affectionately known to his staff, came to the Morden farm as Superintendent in 1921 only six years after it had been established. He was not new to Manitoba as he had obtained much of his higher education here, first at Wesley College where he obtained his B.A., and later at the University of Manitoba where he graduated in Agriculture and received the Lieutenant Governor's Gold Medal for general proficiency in 1916. During summer vacations he learned to know and love the northern Manitoba scene while engaged on location surveys for the Hudson Bay Railway.

There followed a short period of graduate study and specialization in plant breeding at several locations in Ontario and then came the challenge of taking over the infant experimental station at Morden, developing it, enlarging it and bringing it and himself to international renown during his tenure of thirty-five years.

There will be no attempt here to expand on all the work done or the honours earned in those years; these have all been well documented. The purpose is to express the appreciation and thanks of all of us to the man who spent the most productive years of his life in "making Manitoba a better place for all in which to live". Those words indeed were used when Russ Leslie was chosen as one of the first "Golden Boys" of Manitoba.

Morden became the Mecca of horticulturists from all over the continent and beyond. To homemakers across the prairies and the northern States a visit to Morden was an inspiration and delight; a demonstration of what could be done to beautify home surroundings with perennial borders, annual flower beds, fruit trees, flowering shrubs, ornamental hedges, rock gardens, rose gardens and tree shelters. It was a place where everyone was welcome and free to roam. The ability to recruit and hold skilled staff and specialists and to instill his own enthusiasm into their work made the wide variety of endeavour and achievement possible. Field days for nurserymen and the general public spread the knowledge gained at Morden far afield.

But interest and activity were not confined to Morden. Space does not permit the detail of membership in many societies and local associations or the round of lectures given over half a continent. If one example can be given it would be the International Peace Garden, in the development of which Russ Leslie served for thirty-five years as a director and for ten years as Chairman of the Board.

Retirement from official duty came in 1956, but that meant only a change in emphasis and Russ busied himself as consultant in landscaping to government departments, Manitoba Hydro, commercial firms, hospitals and homemakers. As editor of Over the Garden Wall he reached people throughout the wide distribution area of the Winnipeg Free Press and few were the evenings when he wasn't called to the phone to answer some question on what he had written.

In 1920 Russ had married Gertrude Josephine Bruce who was to use his own words, "Sweetheart of the Ranch Country, champion horsewoman and noblest of her sex". In 1970 these two celebrated their Golden Wedding anniversary among a host of friends, after fifty years of teamwork and companionship. That others agree with Russ is evident from the tribute paid to Gertie Bruce Leslie that day – "loved for what she is; appreciated for what she so abundantly gives; admired for what she so artistically creates. A person endowed wholly with goodness of mind and heart. A lady whose genuine personal pleasure is to give pleasure to others".

Combine the attributes of these two people; allow them to grow and develop for fifty years and they overflow to all that know them?

Now Russ and Gertie Leslie have left our Manitoba winters and found a new home in the milder climate of Victoria, B.C.

We miss them. We salute them and we wish them well Over the Garden Wall.

# Contributing Authors

S. & T. BARSI — Mr. & Mrs. Barsi are farmers in the Langbank Saskatchewan district with an eye for beauty as well as the practical.

E.P. BOLLHORN is Foreman Gardener, Canada Department of Agriculture, Research Station, Lacombe, Alberta.

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MRS. J. CHARLTON of Griffin, Saskatchewan is another lady of the soil, who along with her husband, have spent many years of loving toil on their farm homegrounds and are now reaping their rewards.

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ROBERT ERSKINE of Rocky Mountain House, Alberta, has through many years of planting and testing of apples, made an outstanding contribution to hardy apple varieties for the west.

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HOOTY HORTUS is the nom de plume of G.S. REYCRAFT editor of the Prairie Garden.

Dr. W.R. LESLIE was Superintendent of the Canada Research Station at Morden, Manitoba for 35 years, followed by many active years as garden consultant and columnist in Winnipeg, Manitoba. He has now retired to Victoria, British Columbia.

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G.W. MALAHER was formerly Director, Wild Life Services, Manitoba Department of Natural Resources, Winnipeg, Manitoba. He is a forester and naturalist of wide acclaim. [

H.H. MARSHALL, after many years at the Canada Research Station in Brandon where his breeding work, particularly with Monarda Heucheria and Hardy Roses, brought him much acclaim, is now Horticulturist at the Canada Research Station at Morden, Manitoba.

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MRS. R. McLAUGHLIN is a member of the Indian Head Horticultural Society in Indian Head, Saskatchewan, and has been active in fostering interest in gardening among our young people.

GARRY G. McCULLOUGH instructs in the Horticultural Technology Program at Old's College, Old, Alberta. He completed the requirements for a M. Sc. Degree through studies in California, this past summer.

Dr. S.H. NELSON is Head, Department of Horticultural Science, University of Saskatchewan, Saskatoon, Saskatchewan.

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D.R. ROBINSON is Extension Horticulturist with the Extension Division, University of Saskatchewan, Saskatoon, Saskatchewan. He has a particular interest in the winter hardiness of tree fruits.

BETSY SHORTT along with her husband are well known naturalists. She is a gardener of note with a particular forte for flower arrangements.

GEORGE A. SMITH is a Horticultural Technician at the Alberta Horticultural Research Centre, Brooks, Alberta, in the Environmental Horticultural Section specializing in Gladioli and Roses.

J. DREW SMITH is a Pathologist with the Canada Agricultural Research Station on the University of Saskatchewan campus in Saskatoon, Saskatchewan. He is an authority of diseases of grasses. Author of a book on grass diseases.

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F.J. WEIR is Provincial Horticulturist for Manitoba and Chief of the Horticultural Division of the Soils and Crops Branch, Manitoba Department of Agriculture, Winnipeg, Manitoba.

PERCY H. WRIGHT now of Saskatoon, Saskatchewan, was for many years a nurseryman at Moose Range, Saskatchewan. He is noted for his plant breeding work, particularly in hardy roses.

ISABELLE R. YOUNG is co-author, with her late husband, of the recent publication Better Ways to Successful Gardening in Western Canada. She is also a garden columnist and an outstanding gardener.

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**The E.H. Wilson Lily Award and Two Awards of Merit, W.C.S.H.**

# Lily Awards to Porter

A.J. (Bert) Porter of Parkside, Saskatchewan added to his many achievements in horticultural breeding by being the recipient of the E. H. Wilson Award from the North American Lily Society, at their International Lily Show in Boston last July. This award is given annually to a person considered to have made a noteworthy contribution to the development of lilies. It is the highest award given by this Society.

Further, last spring at the 1971 annual meeting of the Western Canadian Society for Horticulture, held in Lac du Bonnet, Manitoba. Bert was given Awards of Merit by this society for two outstanding lily introductions — Orange Light and Redland.

Congratulations Bert!

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