



Top Horticultural Stories-1962

- Research
- Recommended Practices in
 - Ornamental Horticulture
 - Vegetable Gardening
 - Fruit Growing
 - Frozen Foods
- Monthly Home Garden Tips

COMPILED FROM NEWS RELEASES ISSUED BY THE INFORMATION SERVICE

The Institute of Agriculture issues many printed reports and bulletins recording the results of its research and providing information on new developments and recommended practices in horticulture. These appear as Extension Service bulletins, folders, or fact sheets; as Experiment Station bulletins; as articles in Minnesota Farm and Home Science and in several other forms.

In addition, the Institute also sends news releases and weekly columns on gardening to newspapers, radio stations, trade and farm papers and other outlets. These releases contain valuable information that could be used in the educational programs carried on by county extension agents, high school teachers and others.

This publication has brought together some of the more important of these releases written during 1961-62. Through this publication the Institute hopes to improve its informational service and to extend the reporting of the results of its research.

June, 1963

Ornamentals

TWO U BULLETINS GIVE TIPS ON LANDSCAPING

Home owners planning to do their own landscaping will find specific helps in two newly revised publications of the University of Minnesota Agricultural Extension Service.

They are Landscaping the Home, Extension Bulletin 283, by C. Gustav Hard, and Woody Plants for Minnesota, Extension Bulletin 267, by C. Gustav Hard and Marvin E. Smith, extension forester at the University.

Purpose of Landscaping the Home is "to provide the amateur gardener with information that will lead to a functional, yet beautiful landscape setting." The bulletin describes the steps in development of a landscape design. It also gives suggestions on how to landscape the public, private and service areas into which a lot is divided, to meet the needs and activities of the family.

Since trees and shrubs form the backbone of any landscape planting, Landscaping the Home includes a list of some of the woody plants recommended for Minnesota. Trees and shrubs are listed according to their size, their characteristics of bloom and autumn color and their use for special purposes, such as clipped hedges or informal hedges.

Woody Plants for Minnesota gives detailed information on selecting trees and shrubs for home plantings, caring for nursery stock, spacing, planting and culture.

Twenty-nine pages of the bulletin are devoted to lists and descriptions of deciduous trees and shrubs adapted to Minnesota conditions, with information on which zones in the states these plants will do well. A map of Minnesota indicates the plant zones. Whether you're looking for large or small shrubs, for trees or shrubs that will thrive in shade or in sandy soils, a vine for a trellis, or shrubs with showy bloom or autumn color, you'll find suggestions in specific lists in this bulletin.

In selecting shrubs, hardiness, size, texture and form are the most important considerations, say Hard and Smith. Foliage color, flowering and fruit habits and fall and winter color should also be considered. Their recommendation is to select shrubs that combine as many desirable features as possible, taking care to choose those that add interest in all seasons.

Landscaping the Home, Extension Bulletin 283, and Woody Plants for Minnesota, Extension Bulletin 267, are available free of charge from Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1.

FOLIAGE PLANT TROUBLES DIAGNOSED

Having trouble with your foliage plants?

In diagnosing some common house plant troubles, R. E. Widmer, associate professor of horticulture at the University of Minnesota, said foliage plants should not be hard to maintain if they are properly selected for the particular location in the home. For householders who are having difficulty with their plants, Widmer listed some common troubles and gave this key to possible causes:

. Lower leaves turning yellow and falling off readily. Cause: overwatering.

. Burned or brown leaf tips and margins. Cause: allowing plant to become too dry for short period, excess fertilizer or too low temperature.

. Yellowing and loss of leaves at various plant levels. Cause: chilling, overwatering, poor drainage and aeration or gas fumes.

. Small leaves. Cause: poorly drained soil, too heavy a soil or insufficient water.

. Weak growth, light green or yellow foliage. Cause: too much light, poor root system or root rot.

. Yellow, wilted, soft growth. Cause: too high temperature or root injury.

. Small leaves, long spaces between leaves. Cause: lack of sufficient light or high temperatures or both.

. Pale green leaves and hardening of plant. Cause: lack of fertilizer.

. Very dark green leaves, sometimes accompanied by yellowing in the growing tip or limpness and limited growth. Cause: excess fertilizer.

CHILDREN CAN MAKE INDOOR GARDEN

An indoor garden is an interesting and enjoyable indoor winter activity for children.

African violets, begonias, Chinese evergreen, coleus and a variety of vines and mosses are a few of the many plants that can be grown easily in a small, enclosed indoor garden or terrarium, says C. Gustav Hard, extension horticulturist at the University of Minnesota.

The plants may be grown in a fish bowl or aquarium or a gallon glass jar placed on its side. An extra piece of glass should be used as a cover.

On top of a 1-inch base of coarse gravel or crushed charcoal in the fish bowl or gallon jar place a 2-inch soil mixture of two parts garden soil, one part coarse sand and one part organic matter. The terrarium is now ready for planting.

Choose plants which grow at the same rate and require the same amount of sunlight. Plants which do well together are peperomia, Chinese evergreen pothos, fittonia and mosses or lichens. Don't overcrowd them. Place the terrarium in bright, but not direct sunlight. Because plants need ventilation, slide the glass top back when moisture collects on the inside.

Hard adds that children can experiment with their gardens and try new ways of arranging the plants such as in landscapes, wood scenes or gardens.

OLD-FASHIONED FLOWER GARDEN IDEAL

Flower gardening is one of the most popular and rewarding activities in the broad field of amateur horticulture, according to E. M. Hunt, executive secretary of the Minnesota State Horticultural Society.

The old-fashioned type of flower garden in which the plants are grown in rows in a garden space somewhat removed from the house and yard has a good deal of merit, Hunt said. Such a garden is likely to have well prepared soil, full sunlight and freedom from competition of trees and shrubs. A "row" garden may not be an asset to the landscape design of a home property, but it does provide the best flowers for cutting purposes.

When the flower gardens are planted as part of the landscape design -- in the foundation planting or border planting -- they enhance the appearance of a home if they are properly cared for. However, the plant materials must be carefully chosen and given special attention.

"Combinations of flower materials will be pleasing in the landscape design only if they are of the right sizes and colors for their locations," Hunt pointed out. "Experienced gardeners usually find that the desired landscape effect can best be obtained by using only a few types of flowers that can be depended on to perform well under the existing conditions."

SELECT RIGHT SIZE OF TREE FOR HOME YARD

In selecting trees and shrubs for the home landscape, consider hardiness of the plant, mature size, rate of growth, seasonal beauty and freedom from insects and diseases, L. C. Snyder, head of the horticulture department, urges gardeners.

Among large trees suitable for home planting he lists the American linden, green ash, honey locust, Kentucky coffee tree and the various maples. Among small trees he recommends the flowering crabapples, hawthorn, Juneberries, mountain ash and birch.

START FLOWER SEEDS INDOORS

Starting your own annual flower seeds indoors is one of the keys to early blooming flowers in the garden as well as to getting the varieties you want.

Seeds to start indoors by mid-March include ageratum, browallias, carnations, Unwin dahlias, lobelias, petunias, pinks, verbenas, snapdragons and torenia.

As equipment for growing seeds indoors you'll need garden flats or clay pots. Essential, too, is a sunny location for the container. A wooden box about 3 inches deep, 18 inches wide and 24 inches long makes a good garden flat.

Here are some tips on planting flower seeds indoors from C. G. Hard, extension horticulturist at the University of Minnesota.

Fill the flat or clay pots with soil to within an inch of the top. The best soil is loose in texture but holds moisture well. Mix the soil thoroughly and put through $\frac{1}{4}$ -inch mesh screen.

To prevent damping-off disease which kills many seedlings, cover the soil surface with a $\frac{1}{2}$ -inch layer of sphagnum moss that has been sifted through a $\frac{1}{8}$ -inch screen.

Space the rows $1\frac{1}{2}$ to 2 inches apart across the width of the flat. In clay pots, broadcast the seed on the soil surface.

Plant seeds thinly in the row. Cover the seeds lightly with sifted sphagnum moss. Water carefully with a fine spray, or set the flat in a container of water until the surface of the soil is moist.

Place a sheet of glass or plastic or moistened paper over the plant containers. Keep the flat in a room where the temperature is about 68° F. until the seeds germinate. A slightly cooler night temperature is desirable. As soon as the seedlings emerge, remove the cover from the container. Place the flat or pots in a sunny place.

When the seedlings are large enough to handle -- usually when the second pair of leaves appears -- transplant them to peat pots, plant bands, clay pots or to another flat. Space them at 2-inch intervals. Never allow the plants to wilt.

RIGHT PLANTINGS WILL ATTRACT BIRDS

If you want to attract birds to your garden, plant trees and shrubs with "bird appeal" -- varieties that will provide food and shelter for the birds.

That recommendation comes from R. A. Phillips, assistant professor of horticulture at the University of Minnesota.

Ornamental flowering crabapples, such as the Radiant and Flame varieties, have special appeal to birds because of the small fruits that hang on the tree and provide food throughout the winter. Migratory birds are also attracted to the fruit of these trees. Among other shrubs which have seeds or berries which birds find

edible, Phillips suggested viburnums, dogwoods, cotoneasters and highbush cranberries. The mountain ash, Russian olive and the mulberry are small trees which birds especially like.

AZALEAS MAY SOON BE COMMON PLANT IN MINN.

Rhododendrons and azaleas for Minnesota home gardens may soon be a possibility.

L. C. Snyder, professor and head of the University of Minnesota horticulture department, reported that tests by the department have shown that certain species and hybrid groups of azaleas and rhododendrons have sufficient hardiness to be grown in sheltered locations in the Twin Cities area, though these plants have generally been considered too tender for outdoor culture in Minnesota.

However, of the 850 known species, only a few are native to regions having low temperatures; hence Minnesotans are definitely limited in the number of species they can grow. The Mollis hybrids have been more widely grown in this state than any other group.

The opportunity to improve the hardiness and landscape qualities of azaleas and rhododendrons is unlimited, Snyder said. The University will continue the testing and hybridizing of these plants in an attempt to develop varieties suitable for this climate. Meantime, success with azaleas and rhododendrons will depend on how well cultural requirements are provided.

TIPS TO SUCCESS IN GROWING ROSES

Pruning, spraying, watering and fertilizing are among the management techniques that spell success in growing roses.

Winter covering should be removed from roses at least by the middle of April, horticulturist Richard Stadtherr advised. Next step in spring care is to check the canes. Prune canes that are green to about 8 inches. Remove all blackened dead canes and thin, weak stems. When pruning, cut to an outward facing bud, Stadtherr suggested, keeping the center of the plant open so light can get in.

About a week or two after uncovering roses, apply a complete fertilizer such as 5-10-5 in a circle extending about 2 feet from the center of the plant. Keep fertilizer away from the base of the plant. Use $\frac{1}{4}$ pound for each small plant, $\frac{1}{2}$ pound for each large plant. Work the fertilizer into the top 2 to 3 inches of soil.

Mulching in late June will help to cut weeds, keep the soil temperature fairly constant and conserve moisture.

When planting roses, choose #1 stock and select a location with good drainage, Stadtherr advised. A rose bed should have full sun for a minimum of five hours. Soak the roots overnight before planting. Plant bare-rooted roses by May 15.

As soon as plants start to leaf out, start a spray program and continue at weekly intervals, using a complete spray to take care of chewing and sucking insects and such diseases as mildew and blackspot.

About the time the first buds appear, fertilize the plants, using about $\frac{1}{4}$ pound of 5-10-5 for each plant. Fertilize about once a month until early August. Water roses at least once a week for best results, giving them a thorough soaking each time.

SPRING IS TIME TO PREVENT CRABGRASS IN LAWN

Prevention is worth a pound of cure when it comes to crabgrass, the worst weed in the home lawn.

The best preventive is to use good cultural practices, according to horticulturist R. J. Stadtherr.

A good management program with fertilization, ample moisture, sufficient sunlight and proper mowing is the secret of a dense lawn that will resist the infiltration of weeds.

Application of chemicals is often necessary to supplement good cultural methods, however.

Pre-emergent herbicides which may be applied from early spring to Memorial Day before crabgrass seeds germinate are among the most effective materials to prevent crabgrass from taking over your lawn, Stadtherr says.

Two effective pre-emergent chemicals are the lead arsenates and the calcium arsenates. Apply lead arsenates at the rate of 20 pounds per 1,000 square feet. Apply calcium arsenates at 12 to 15 pounds per 1,000 square feet. Usually it is not necessary to seed at this time, for by reducing the weeds and stimulating the existing grass with fertilizer, the lawn becomes thicker and better able to resist infiltration by weeds.

All herbicides which also contain fertilizers should be watered thoroughly after they are applied to prevent burning, Stadtherr cautions.

Two relatively new non-arsenical herbicides containing dacthal or zytron have given excellent results in turf trials at the University of Minnesota during the past two years, Stadtherr reports. Products containing these chemicals are effective in controlling crabgrass. They should be applied sometime before Memorial Day. Follow the manufacturer's directions on the label in using all herbicides or fungicides.

Weed control is only a temporary measure, however, Stadtherr points out. Home owners should find out the reason for poor growth of lawn grasses, reseed if necessary and always follow a good cultural program.

THREE APPLICATIONS OF FERTILIZER BEST FOR LAWN

For a lush green lawn this year, apply fertilizer in early spring, follow with an application in late May or early June and with a third in late August or early September.

That recommendation comes from horticulturist R. J. Stadtherr.

Early spring is an excellent time to fertilize the lawn, Stadtherr says, because the grass is dormant and there is no danger of burning.

For the first application he recommends 1 to 2 pounds of actual nitrogen per 1,000 square feet. A few of the formulas of fertilizer commercially available are 10-5-5 (10 percent nitrogen, 5 percent phosphate and 5 percent potash), 10-6-4, 10-10-10, 8-8-6 or 12-12-12. Ten pounds of 10-10-10 fertilizer applied on each 1,000 square feet of area will furnish 1 pound each of actual nitrogen, phosphate and potash.

The application can be heavier if the formula contains organic nitrogen. If the grass is dormant, it will not be necessary to water it after the fertilizer is applied.

For the applications in late May and in late August, Stadtherr recommends using a nitrogen-carrying fertilizer rather than a complete fertilizer. Use 1 pound of actual nitrogen for each 1,000 square feet of lawn area.

Once the lawn has started growing, you can prevent burning the turf by fertilizing when the grass is dry but the soil is moist. Be sure to water the lawn thoroughly afterward, Stadtherr cautions. Spreading half of the fertilizer in one direction and the remainder at right angles will help to give more even distribution.

READ THE LAWN SEED LABEL

If you are buying lawn seed this spring, read the label.

The label will show the percentage, by weight, of each variety in the mixture. It also will show the percent germination, the amount of inert and worthless matter and the amount of weed and other seeds the mixture contains.

According to D. B. White, University of Minnesota horticulturist, a good grade lawn mixture will contain at least 75 percent permanent grasses, such as bluegrass or fine-leaved fescue.

For sunny locations, 50 to 75 percent of the mixture should be bluegrass and 25 to 50 percent creeping red (fine-leaved) fescue. Generally, ryegrass should make up no more than 25 percent of any mixture.

Lawn grass mixtures with no more than 5 percent red top, as a nurse grass, are also acceptable so long as the rest of the mixture is made up of permanent grasses.

For shady locations, 50 to 75 percent of the mixture should be creeping red fescue and 25 to 50 percent bluegrass. Rough-stalked bluegrass also does well in the shade.

So, don't buy blind; always look for and read the label when you buy. The Federal Seed Act requires that the label tell you what you are buying and assure you that you are getting it.

CONTROL DANDELIONS AND OTHER LAWN WEEDS

If you're thinking of sending the family out to dig the dandelions in your lawn, don't.

That's the advice of horticulturist Richard J. Stadtherr.

Unless you dig practically all of the root, your work isn't worth the energy it takes; the dandelions will come right back.

He has two recommendations for solving the problem of dandelions and other broadleaved weeds in the home lawn: 1) crowd out weeds by encouraging vigorous growth of the grass with proper fertilization, reseeding if necessary, watering and proper mowing; and 2) control the weeds with chemicals.

One of the best weapons to fight dandelions and other broadleaved weeds, Stadtherr says, is a knapsack sprayer filled with 2, 4-D recommended for lawn use.

Apply the 2, 4-D spray on a still day when the temperature is between 60° and 70° F. and when the weeds are actively growing. If the temperature goes up as high as 80° F., 2, 4-D becomes very volatile and is likely to damage ornamentals.

Use the spray according to manufacturer's directions. Hold the sprayer close to the ground so there is less chance of the chemical drifting to flowers and nearby shrubs. A low-pressure sprayer will restrict the spray to the plants you wish to kill. Often more than one application is necessary for the more persistent broadleaved weeds.

Chemical bars are effective in killing dandelion and other broadleaved weeds, as are various weed-and-feed and granular 2, 4-D products on the market. The horticulturist gives this precaution: avoid using a bar close to shrubs that are leafing out. Do not use it if the temperature is 80° F. or higher.

In University experiments silvex (2, 4, 5-TP) has been found effective in controlling chickweed, knotweed, creeping Charlie and other persistent lawn weeds. It will also kill or injure clover. Usually this herbicide is more effective if it is applied a week or two after a fertilizer application when the plants are still small and when the temperature is between 50° and 70° F.

Though grasses are tolerant to herbicides, careless spraying can burn grass and ruin ornamentals. For that reason, be sure to follow manufacturer's directions in using them, Stadtherr warns.

Do not use chemical weed killers on a newly planted lawn. Frequent mowing will control many of the annual weeds that appear the first year.

LANDSCAPE ARBORETUM PRAISED FOR EDUCATIONAL PROGRAM

The University of Minnesota Landscape Arboretum has been praised by the president of the American Association of Botanical Gardens and Arboreta for developing a challeng-

ing program of popular educational and special projects.

While parks are essentially recreational, arboreta and botanical gardens should have primarily an educational motive so visitors can take home ideas, thoughts and how-to-do-it information, John E. Voight said. Voight is superintendent of Alfred L. Boerner Botanical Gardens, Milwaukee.

Stressing the part arboreta and botanical gardens can play in American culture, he declared that they "should help create public opinion that would lead to effective action on many community problems related to civic improvement and long-range planning."

The future of the Minnesota Landscape Arboretum depends upon the people of the state, according to Leon C. Snyder, head of the University of Minnesota horticulture department.

"The Landscape Arboretum is a project for all of the people of Minnesota and the surrounding areas and it can be a mediocre or a successful enterprise, depending upon the amount of support they give it," he declared. "Dedicated individuals and groups initiated this project which now provides all the citizens with an opportunity to take part in and benefit from this research and educational facility."

Snyder suggested that groups sponsor special projects at the arboretum. Among many projects now being sponsored are the research on woody ornamentals, supported by the Louis and Maud Hill Family Foundation, and the rhododendron and azalea planting by the St. Paul Garden Club. The arboretum now has the most extensive rhododendron and azalea planting in the North Central region, with approximately 1,400 plants of about 100 species, varieties and hybrid seedlings.



The arboretum headquarters building.

LET CONTAINER ENHANCE YOUR FLOWER BOUQUETS

Use care in selecting the container for your cut flowers, keeping in mind that the lines of the container influence the lines of the arrangement.

Whether you arrange flowers for your own enjoyment at home or are a 4-H club member preparing a demonstration for your county fair, here are some suggestions about containers from Mrs. Myra Zabel, extension specialist in home furnishings at the University of Minnesota.

Keep the container simple. The container should be large enough to hold the flowers without crowding the stems and deep enough to hold plenty of water. Choose a container to suit the flowers. Light, fragile and smooth-textured containers look well with small, delicate flowers; bold, sturdy and heavy appearing containers are best for large, coarse flowers.

Let the color of the container repeat or complement the colors of the flowers. Lovely flowers should not have to compete with an overly decorated container. Plain glass, copper, burnished silver or natural-colored containers are always suitable. If you desire color, choose one with subdued color and dull finish. Vivid colors can be effective only if they emphasize the flowers because the container is less important than the flowers.

Now that you have chosen your container, consider a holder, remembering to look for flower holders that:

- . Hold flowers rigidly at needed angles with minimum injury.
- . Weigh enough to keep from tipping when holding heavy flowers.
- . Adapt for holding both large and small stems.

- . Resist rust and do not discolor water.

Many types of holders are on the market. Needlepoint holders in several sizes are satisfactory except when inserting flowers at an extreme angle, particularly flowers with hollow stems. Hairpin holders are good for low-massed bouquets. Chicken wire may serve as a holder for vase and basket arrangements. Synthetic products are available at florists but some may not absorb the water well and are best for bouquets that will be used for only a short time. Florist's clay secures the holder firmly to the container bottom if you knead the clay until it is soft. Be sure the container is clean and dry. Clay won't stick well to a soiled or wet surface.

CAREFUL PREPARATION IS REWARDING

Care and preparation of your cut flowers can be the most important part of a floral exhibit or demonstration, says C. Gustav Hard, extension horticulturist of the University of Minnesota.

The following tips will be helpful whether you are arranging flowers for your home or preparing a 4-H demonstration.

Select flowers in the proper stage of development for cutting. Most garden chrysanthemums are best for cutting before the flower is fully open; roses, before the buds are fully open; gladioli and iris, when the first floret is

open; peonies, before the petals unfold; poppies, the night before they open; and dahlias, when fully open.

Flowers keep best when cut with a sharp knife, making all cuts on the slant. The stems should be immersed in water immediately after cutting. It is a good idea to carry a pail of water to the garden with you if you are planning to cut many flowers.

After cutting the flowers, split the stems of woody plants for an inch or two to make sure they will absorb sufficient water. Remove all foliage that will be under water. Let blooms harden in deep water over night, if possible.

To condition flowers, place them in warm water (100° - 110° F.), keeping them for several hours in a dark room that is free from drafts and reasonably humid. Use deep, clean containers, washed with soap and water.

To keep your arrangement fresh and attractive, place the flowers in a cool room at night and change the water daily. A meat baster or a syringe will help in changing the water without disturbing the arrangement. Never expose flowers to direct sunlight or drafts.

BE ARTISTIC IN ARRANGING BOUQUETS

Be an artist in your flower arranging. Carefully select each flower for color, stem length, size and suitability, suggests C. Gustav Hard, extension horticulturist at the University of Minnesota.

An artist works on the basis of certain principles. Like an artist, you should consider proportion, balance, center of interest, harmony and rhythm, whether arranging flowers for your home or a 4-H demonstration.

The height of the arrangement varies with the type of flowers and kind of container. Flowers and foliage should usually be one and one-half times the average width of a low container or the height of an upright container to achieve proper proportion. Make the flowers appear natural by neither crowding them nor crossing stems.

To produce the feeling of balance, the arrangement must be attractive from all views. Dark, bright, open or heavier flowers are usually brought close to the base of the arrangement. Smaller, light-colored flowers and buds are best placed at the outer edges.

Make a center of interest in your bouquet by using a brighter, more open flower or a mass of color about one-third or less of the way up between the top of the container and the top of the arrangement.

Harmony between the flowers and the container can be achieved through color, shape, texture and design. You may wish to use one color, a neighboring color or contrasting color harmony, each time considering both the flowers and the container.

Rhythm is movement in a design, starting at the center of interest and carrying from one point of interest to another in natural and logical order. Repeating shapes of the material or the same type of flower in different sizes, making a line with accents of stems, leaves, flowers, or

using large, bright flowers for important accents can create rhythm.

With your arrangement nearly complete, pay special attention to final details. As an artist, you know that any art object must look unified. Every flower and stem should look as if it really belongs to the arrangement.

BETTER SHADE TREES NEEDED

More careful selection of trees for boulevard and home yard planting is being called for by a University of Minnesota horticulturist.

Seedling trees for boulevards are not satisfactory, L. C. Snyder, head of the University horticulture department, declared.

Serious thought has not been given to selection of trees for landscape plantings until recently, Snyder pointed out. The early settlers on the Northern Great Plains planted the boxelders, cottonwoods, silver maple, green ash and the American elm they found growing along the streams. Enterprising nurserymen grew seedlings of these native species in their nurseries for resale to the home owner. These seedlings varied in form as well as in hardiness and resistance to disease and insects.

Snyder predicted that the public will soon demand improved varieties of shade trees as it has demanded improved varieties of fruits. As a consequence a breeding program will be needed to develop better varieties through hybridization.

Some nurseries are now beginning to propagate shade trees by such vegetative means as budding and grafting and are introducing these selected named varieties to the public. The number of named varieties produced by vegetative propagation is still small, however, compared with the seed-propagated species.

Snyder listed these qualities a nurseryman and plant breeder will look for in shade trees for the future:

1. Hardiness to withstand low temperatures but also ability to grow and thrive under a given set of conditions.

2. Resistance to disease. In selecting replacements for the American elm which has fallen victim to the Dutch elm disease, nurserymen will want to be sure the trees will not succumb to some disease in future years.

3. Resistance to insects.

4. Known growth habits. The home owner can plan his landscape plantings more effectively if he knows the form and size of a tree.

5. Seasonal aspects of the tree. Attractive summer foliage, showy autumn fruits, attractive fall colors, interesting bark and twig patterns are all important.

TREES AND SHRUBS GO MODERN

Superior dwarf varieties of trees and shrubs are needed for landscaping home grounds today.

The shift toward the one-story ranch style home has brought with it sweeping changes in home landscaping, Leon C. Snyder, head of the University of Minnesota's horticulture department, said.

Shrubs like the lilac and honeysuckle and large trees like the American elm are no longer in scale with the modern home and grounds. The need is for small, compact shrubs and small to medium-sized trees.

To help solve this need, an active project of testing and breeding woody ornamentals was started by the University of Minnesota horticulture department in the spring of 1954, Snyder reported. Establishment of the Minnesota Landscape Arboretum in 1958 provided 160 acres for the purpose of testing and developing new varieties of woody ornamentals. More than 1,400 species and horticultural woody plants are now being tested to find out their adaptability to this area. Many heretofore unknown varieties for this region are proving their hardiness. A breeding program is under way to develop new varieties of flowering crabapples, Weigelas, azaleas, mock-oranges and roses for Minnesota and similar climates.

BULLETIN ON CARE OF HOUSE PLANTS AVAILABLE

Foliage plants needn't be discarded when they get tall and leggy. Simply renew them by air layering.

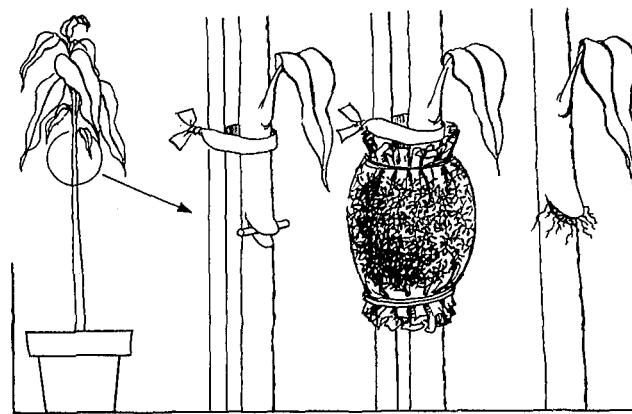
Better still, prevent them from getting spindly and overgrown by limiting the water and nutrient supply and providing adequate light.

These are some suggestions given by R. E. Widmer, associate professor of horticulture at the University of Minnesota, in a recently revised University Agricultural Extension Service bulletin, Care of House Plants. The free bulletin is available from your county extension office or the Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1.

First section of the publication is devoted to culture of house plants and control of insects. Separate sections on flowering and foliage plants give detailed directions on care of more than 100 varieties. Forcing spring-flowering bulbs for winter bloom indoors, growing plants under artificial light, planting terrariums, special problems with planters are also discussed. Each section is well illustrated.

At the end of the publication Widmer lists plants that do well at various temperatures, under dry conditions and with different exposures to sun. For the householder who never had a green thumb a list is given of plants that will withstand abuse.

The techniques of air layering, discussed in the bulletin, can be used by anyone to renew large-leaved plants with stiff or woody stems such as some of the philodendrons, dracaena and rubber plant which are difficult to propagate from cuttings at home. The process allows a portion of the plant to root while it is still attached to the parent plant.



Use air-layering to propagate some plants.

Widmer gives these directions for air layering: Make a cut a little more than half way through the stem at the point where roots are desired. It may be necessary to tie the stem to a stake for support. Prop the cut open with a pebble, match stick or something similar. Surround the area of the cut with moist -- not wet -- sphagnum moss and cover with a piece of plastic. Remove the plastic and some of the moss when the roots are visible. Then sever the rooted cutting from the parent and plant it in soil.

TIPS GIVEN ON PROPAGATING PLANTS

Use vigorous new growth if you want to be successful in propagating a plant from a stem cutting, C. J. Weiser, University of Minnesota horticulturist, advises gardeners.

Old woody portions of a stem or old leaves do not root as readily as new vigorous growth. Always remove flowers, flower buds and lower leaves which would be beneath the surface of the rooting medium. Usually about half the length of the stem is placed in the rooting medium, or the entire petiole (leafstem) on leaf cuttings.

Weiser recommends using clean sand, vermiculite or perlite to root cuttings. Though water is fine to start such plants as African violets, it does not hold enough oxygen for most cuttings. Soil may be used as a rooting medium, but often it, too, may have insufficient oxygen and it may also carry diseases that will attack the cuttings. All media for rooting should be in well drained containers. Cuttings should be watered regularly.

Place the rooting container in a well lighted place so the cuttings can produce food for the formation of new roots. Wilting will result if the temperature is too high. Rooting hormones will speed rooting and increase the number and length of roots.

Most plants can be propagated from stem cuttings, including geraniums, coleus, chrysanthemums,

themums, garden carnations, philodendron and most shrubs and trees. African violets, gloxinias and some begonias are among plants propagated from leaf cuttings.

HERE ARE TIPS ON PLANTING TREES

Spruce up your yard this spring by planting a tree.

This is a good activity for 4-H'ers in the home yard improvement project or for anyone who enjoys working out-of-doors, says C. Gustav Hard, extension horticulturist at the University of Minnesota.

You will want to use trees to frame your home or provide a background for it. Or plant some small, bushy trees to screen out a certain area, or choose a tree mainly for shade.

Decide on your purpose and the place to plant the tree before you buy it. It's best to order a tree early in the season to be certain of a good selection. Order from a nurseryman near your home because he will be able to tell just which trees grow best in the area and are most desirable for your purpose.

When the stock arrives, open the bundle and examine the roots. If they are at all dry, stand them in water for several hours before planting. Otherwise, plant trees or shrubs as soon as they arrive. The best time to plant is in the spring as soon as the soil can be worked. Many 4-H'ers may want to observe Arbor Day by planting a tree.

Spacing trees and shrubs properly is important. Each tree should have enough room to develop fully without being crowded or cut off from sunlight. Trees used for framing the house should be at least 25 to 30 feet from the corners and at about a 45-degree angle. Since many shade trees will grow to have a branch spread of 50 feet, plant them where they are most needed and will have room to grow.

When you are ready to plant, dig a hole that is much larger than the roots because a cramped root system will not grow. Hold the tree upright and pack the soil around it so no air pockets remain. Leave a dish-shaped basin around the tree so that water will soak in around the roots.

TRY PERENNIALS FOR SPRING PLANTING

For an attractive yard every summer, plant a flower border of perennials.

A perennial flower is any flowering, herbaceous plant which will survive the winter and live for more than two years, says C. Gustav Hard, extension horticulturist at the University of Minnesota. Planning and planting a garden of perennials is a good activity for 4-H'ers in the home yard improvement project, he adds.

Since perennial flowers live for several years, you will need to enrich the soil thoroughly before planting. A good plan is to cover the soil

with a 2-inch layer of well-rotted manure plus an application of 2 or 3 pounds of a complete fertilizer for each 100 square feet of area. Work the fertilizer into the soil by spading at least 8 inches deep. Work the soil with a rake to break up all lumps and leave a smooth seed bed.

By planning your garden and carefully selecting plants, you can have an attractive garden and one that blooms all summer long. Perennial flax is a plant which will grow from 12 to 18 inches tall and has flowers ranging from blue to white. Its blooming season lasts from May to September. Another early-blooming flower is the Virginia bluebell. This flower will do well if your garden is in a shady area.

For blossoms about mid-July, plant shasta daisies. This plant has white flowers with golden centers and will reach a height of about 2 feet. For a colorful garden at the end of the season try the coneflower and Stoke's aster. The coneflower is brilliant yellow with a dark center and blooms during August and September. The Stoke's aster is a low-growing plant which has blossoms of light lavender, blue, white or rose color. It blooms from late July until frost. For more fall colors, chrysanthemums are a bright addition to a garden.

As a part of their project, 4-H'ers should learn the best time to plant each type of flower. Most plants and seeds can be put in as soon as the soil is workable in the spring, Hard says. When planting, consider the mature size of the plant and be sure to allow ample space for it to develop.

PLANT MUMS FOR THIS AREA

Development of early flowering varieties has made the chrysanthemum increasingly popular for Minnesota gardens.

The University has pioneered in the development of chrysanthemum varieties suited to growing conditions in the upper Midwest. Since 1941 the University Department of Horticulture has developed and introduced more than 40 early flowering varieties adapted to this area.

Introduced to gardeners in the spring of 1962 was Minn-Autumn, a bronze cushion-type garden chrysanthemum developed by the University of Minnesota horticulture department.

The vigorous plant has deep reddish-bronze, $2\frac{1}{2}$ -inch flowers topping the healthy, dark green foliage. Plants reach a height of 12 to 15 inches and a spread of 30 to 36 inches when grown in full sun. Blooming usually begins in the first half of September in the area of Minneapolis and St. Paul.

The prefix Minn is used in University of Minnesota introductions to designate both the low cushion habit of growth and the fact that it is a Minnesota introduction.

Though garden chrysanthemums are frequently advertised as hardy plants, they are actually not reliably hardy in Minnesota, according to R. A. Phillips, assistant professor of

horticulture. For that reason they need special winter protection.

Phillips gives these tips on culture of chrysanthemums.

Select a location in full sun, where the soil is well drained, since shade will delay blooming and may produce tall, spindly plants.

Set out plants after all danger of killing frosts has passed. When the plants have grown to a height of 6 or 7 inches, pinch the tops back to make the plants more bushy. About a month later, pinch back all growing stems. Do not pinch tips after July 4.

Once a week give the chrysanthemums a thorough soaking. Lack of water will result in small flowers.

NEW ROSE DEVELOPED BY U OF MINNESOTA

A large, very full double pink floribunda-type climbing or pillar rose has been developed by the University of Minnesota.

Called Viking Queen, the new rose is a seedling resulting from a cross of White Dawn and L. E. Longley, both University of Minnesota introductions. It is the sixth rose developed by the University's horticulture department.

Plants of Viking Queen will be available in Minnesota nurseries in 1963.

The new rose produces clusters of fragrant flowers 3 to 4 inches in diameter from late June until mid-October. Blooms are borne in clusters of five or more flowers. Flower color is a clear, medium to deep pink that does not fade for the normal life of the bloom. Petals remain on the blossom even after it has passed its prime.

Foliage of the Viking Queen is a rich, glossy, deep green that appears to be highly resistant to black spot and mildew diseases. However, plants should be sprayed or dusted periodically with an all-purpose rose dust or spray recommended for roses, according to R. A. Phillips, in charge of the rose breeding program. New plants of Viking Queen will make 6 feet of growth in one season and numerous canes develop during the season. The canes require a supporting pillar or trellis. Flowers are borne on both lateral and terminal growth.

Although the plant has demonstrated unusual hardiness, some protection is advisable during winter. Phillips recommends trimming down the canes at the end of the growing season and covering them with tree leaves or hay to a depth of 2 feet.

Rose breeding was started at the University of Minnesota in 1939 by L. E. Longley and continued by Phillips. Principal objectives of the rose breeding program are winter hardiness and disease resistance.

Further information on the new rose is given in Miscellaneous Report 49, Viking Queen, available from Bulletin Room, University of Minnesota, St. Paul 1.

YOUR ORNAMENTALS NEED PROTECTION AGAINST WINTER COLD

Snow warnings are reminders to gardeners that many ornamentals may not survive the rugged Minnesota winter without some protection.

Best way to protect the perennial flower border is to cover it with a mulch of dry leaves or marsh hay to a depth of 6 to 8 inches, according to C. G. Hard, extension horticulturist at the University of Minnesota. Apply the mulch after the soil has frozen slightly. Do not pack the mulch. Evergreen boughs will also make a good mulch, especially because they will trap snow, one of the best materials for winter protection. Bulbs need the same type of protection as the flower border.

The mulch serves several purposes. It will insulate the flower border against extreme cold and will help control the temperature in the spring when the alternate freezing and thawing would damage plants.

Chrysanthemums will usually overwinter if they are mulched in the same way as the flower border. If they are growing in a low spot in the garden, it may be a good idea to lift the clumps and move them to a higher place. Or put them in a coldframe and mulch them. Another method of overwintering them is to put them in garden flats, put the flats on the east side of the house and cover them.

Hard gives these alternate suggestions for protecting roses:

Cover them with dry leaves to a depth of 24-36 inches. Pack the leaves around the base but pile them loosely on top. The mulch should be about a foot deep above the top of the bush to provide enough insulation. Or

When the ground is beginning to freeze, mound garden soil around the base of the roses to a depth of 12 to 14 inches. After the soil is frozen, mulch the top to protect the upper part of the bushes. Prune back roses to a convenient height to make them easier to protect.

Apply a good fungicide before mulching or mounding roses to control black spot, mildew and canker.



Viking Queen, a fully double pink rose.

Tilt climbing roses so they can be laid on the ground easily. Then cover with soil and marsh hay or dry leaves.

DOUBLE POTTING SIMPLIFIES PLANT WATERING

Regular and proper watering is an essential part of the care of the foliage plants that add a touch of green to accent your home.

But many homemakers say they often forget to water the plants or they overwater them. To simplify the task of watering, C. G. Hard, extension horticulturist at the University of Minnesota, suggests double potting.

The plant itself is potted with the usual soil mixture in a porous clay pot. Then the clay pot is placed inside a larger decorative watertight planter. The space between -- right up to the rim of the clay pot -- is filled with peat moss or shredded sphagnum moss. The top of the inner pot should be approximately 1 inch lower than the top of the outer container and at least $\frac{1}{2}$ inch of space should remain between the two pots.

Keep the moss damp, as well as the soil in the porous pot. In this way, moisture is absorbed slowly through the pot. Waterings can be less frequent, and time of watering will be less critical.

The clay pot can be removed and replaced at will or turned around to allow for variations in lighting.

If you use a decorative outer liner or planter with no drain, the bottom of the planter should be filled with 3 inches of gravel. Then add a layer of charcoal to prevent stagnation of standing water. The clay pot should never stand in water.

LOOK FOR SHORTER POINSETTIAS FOR CHRISTMAS

Don't look for a plant psychiatrist if your florist advertises tranquilized poinsettias for Christmas.

Actually "tranquilized" plants are those that have been treated so they will be shorter and stockier, explains R. E. Widmer, associate professor of horticulture at the University of Minnesota.

The demand for lower cars and homes has extended to plants -- even to the most popular Christmas pot plant, the poinsettia.

Because well grown specimens of poinsettias tend to grow tall, developing shorter poinsettias has presented a problem to researchers in horticulture.

But University of Minnesota horticulturists are coming up with a solution to the problem: use growth regulators. Success in the use of these growth regulators leads Widmer to predict that within a few years tall poinsettia plants will be far less common than they are today.

One of the growth regulators used in the Minnesota experiments -- CCC, developed at



R. E. Widmer and student in greenhouse.

Michigan State University -- has been responsible for production of shorter poinsettias within the past two years.

Untreated plants in the studies grew up to three times as tall as plants treated with CCC. Foliage of treated plants was a darker green, stems were sturdier and the distance between the leaves was shorter. Plants propagated as early as July 15 and properly treated with CCC developed desirable height. The bract clusters on "tranquilized" plants were more compact and fuller appearing. The more compact cluster has the advantage of being bruised less easily when wrapped for delivery, Widmer says.

Use of CCC -- now commercially available under the trade name Cycocel -- should enable the grower to produce sturdy, short, attractive plants with large red bract clusters from mid-season cuttings. However, University of Minnesota studies indicate that the concentration of CCC solution applied to the soil must vary with application time, variety grown and degree of height retardation desired. Results may also vary with soil type and other cultural factors.

TIPS ON CARING FOR CHRISTMAS PLANTS

The blooms on your Christmas plants will last longer if you follow a few rules in caring for them.

Most flowering plants of the Christmas season are short lived when brought into the home because it's difficult to obtain the ideal conditions under which the plants have been growing in greenhouses. However, C. G. Hard, extension horticulturist at the University of Minnesota, says you can prolong the beauty of many of these plants by:

. Placing them in bright light, preferably sunlight.

. Keeping them at cool night temperatures.
. Keeping the soil moist but not bog-like.

Of all the Christmas plants, the poinsettia is perhaps most sensitive to sudden drops in temperature and to drafts. A temperature of

70° to 75° F. is preferable. Temperatures below 60° F. or above 75° F. shorten the life of the poinsettia. Avoid setting it near a cold or hot air register or near the door. The poinsettia should never be near a window at night.

Keep the soil in the pot moist but do not overwater. Placing the plant in a metal tray in which sand is kept constantly wet will increase humidity.

Hard gives these further tips on caring for other popular gift plants:

Jerusalem cherry. Keep as cool as possible and in full sunlight. Discard when fruits have dropped. Fruits drop naturally soon after they mature.

Cyclamen. A cyclamen may bloom for several months if placed in a cool room of 65° to 68° F. Place it where it gets some morning light. Never allow the soil to dry out completely while the plant is in flower.

Cineraria. Keep in full sunshine during the day and at a night temperature of 50° F. Water heavily. The lower leaves will turn yellow and wilt if the soil is too dry or if the plant gets too little light.

Azalea. The blooms will last much longer if the plant is kept at a temperature between 50° and 60° F. Keep in partial shade and water moderately.

UNIVERSITY OF MINNESOTA INTRODUCES NEW ORNAMENTALS

A bright lavender garden chrysanthemum named Tenstrike, a flowering crabapple called Vanguard and a pink floribunda-type climbing rose, Viking Queen, have been developed by horticulturists at the University of Minnesota's Agricultural Experiment Station.

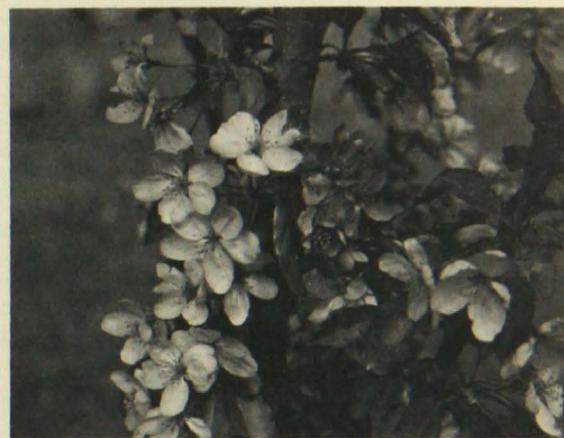
They will be available from Minnesota nurseries for 1963 spring planting.

Tenstrike produces a vigorous, stiff-stemmed, high-mound type of plant topped by $1\frac{1}{2}$ -inch bright lavender, fully double flowers. The clean, medium-green foliage is hidden by a mass of blooms. Because of their uniformity, plants are formal in appearance. They reach a height of 15 to 18 inches and a spread of 30 inches when grown in full sun. Blooming usually begins by mid-August. This garden chrysanthemum is especially useful for a mass color effect in the garden.

Vanguard is a hardy, upright crabapple which produces deep pink buds opening to large, showy single flowers of bright rosy pink. Flowers are profuse, even on young trees. The young foliage has a reddish cast but soon turns a bright green.

Showy red fruits make the tree attractive in autumn as well as spring and provide food for the cedar waxwings and other birds during winter. Individual fruits are nearly spherical and about half an inch in diameter. They reach their full color about September 1.

The tree is upright in habit of growth with narrow crotches. After several successive crops of fruit, there is a tendency for the top to spread out slightly, producing a vase-shaped tree at maturity.



Vanguard is a new flowering crabapple.

Viking Queen is a very full, double pink floribunda-type climbing or pillar rose, producing clusters of fragrant flowers 3 to 4 inches in diameter from late June until mid-October. Blooms are borne in clusters of five or more flowers. Flower color is a clear medium to deep pink that does not fade. Petals remain on the blossom even after it has passed its prime.

Foliage of the Viking Queen is a glossy deep green that appears to be highly resistant to black spot and mildew diseases.

New plants of Viking Queen will make 6 feet of growth in one season. The numerous canes which develop during the season require a supporting pillar or trellis. Flowers are borne on both lateral and terminal growth.

The plant has demonstrated unusual hardiness, but some protection is advisable during winter in northern climates.

Vegetable Gardening

WONDERING WHAT POTATO VARIETY TO PLANT?

If you're wondering what variety of potatoes to plant this spring, here are a few tips from O. C. Turnquist, extension horticulturist at the University of Minnesota.

If you want a "very early" variety, choose Norland. It is an attractive red variety with shallow eyes and some resistance to scab. But it's not recommended for long storage, as the color tends to fade and the quality to decrease.

For an "early" variety, plant either Irish Cobbler or Cherokee.

Where common scab appears to be a problem, as it is in most gardens, Cherokee would be superior to Irish Cobbler. And Cherokee is also resistant to late blight. Both Cherokee and Irish Cobbler have very good cooking quality.

Good mid-season varieties are Kennebec and Red LaSoda.

Kennebec is a high quality white variety with resistance to blight. It requires close spacing and vine killing to prevent over-size and rough tubers. Kennebec tubers should be hilled to prevent greening and frost injury.

Red LaSoda is an attractive, glossy red potato with medium deep eyes. It is generally more uniform in appearance and quality than Red Pontiac.

Snowflake, a new white variety maturing two to three weeks earlier than Kennebec, has performed well in some areas. The tubers are shallow-eyed and don't green as much when exposed to light as do those of Kennebec.

Probably the most outstanding variety in the 1961 University of Minnesota potato trials was Bounty. Its tubers are round and blocky in shape, with extreme uniformity. It's high in yield as well as quality. Its maturity is similar to Red LaSoda or Pontiac.

A new red variety, LaRouge, with the same maturity as Bounty, looked very good in the 1961 trials. It has resistance to both scab and blight but sets heavier than other red varieties.

Russet Burbank is still recommended as a late variety on lighter soils.

Other information on potato varieties will be found in Horticulture Fact Sheet No. 4, "1961 Minnesota Potato Variety Demonstrations," by Turnquist and Richard Goff, research assistant in horticulture at the University of Minnesota.

The fact sheet gives data on color, yield, percentage of spuds scoring No. 1 in size and specific gravity, by variety and location. (Specific gravity indicates how mealy a potato will be when cooked.) The sheet reports data from tests conducted by county agents. University experiment stations and the State Department of

Agriculture at five locations -- Baker and St. Paul, Minn., and Grand Forks, N. D., in the Red River Valley; and Hollandale and Osseo.

A new feature of the fact sheet this year is data on chip color and chip yield for 20 varieties at the five locations.

HERE'S HOW TO INCREASE EARLY TOMATO YIELDS

Home gardeners can greatly increase early yields of tomatoes by following some techniques used by University of Minnesota plant scientists.

R. E. Nylund, professor of horticulture at the University of Minnesota, suggests use of these techniques:

. Select an early variety such as Faribo Hybrid EE or Fireball.

. Grow the plants in peat or clay pots instead of flats. Root damage is far less from setting the potted plants in the garden than transplanting from flats.

. Place black plastic mulch over the planting area.

. Set the transplants through slits in the black plastic, planting them close together -- about a foot between plants in the row, with rows about 3 feet apart.

. Use a starter solution at transplanting time to get plants off to a good start. Dissolve $\frac{1}{2}$ cup of complete fertilizer in a gallon of water and use about 1 cup of this solution around each plant.

. If the weather is cool when blossoms come out, spray the blossom clusters with a hormone blossom spray to prevent excessive blossom drop.

WAY TO CONTROL INSECTS AND DISEASES

Crop rotation in the vegetable garden is one of the ways of keeping insects and diseases in check.

H. G. Johnson, extension plant pathologist at the University of Minnesota, told home gardeners that a few techniques will prevent insects and diseases from taking over the vegetable garden before the end of summer.

Besides rotating annual crops each year, he recommended obtaining good quality seeds and plants, a regular spray program for tomatoes and potatoes, a spray for sweet corn to control corn borers and ear worm and soil

treatment before planting to control such soil insects as cutworms and grub worms.

STEPS LISTED TO SUCCESSFUL GARDEN

Good cultural practices and selection of suitable varieties for planting in Minnesota will improve the quality of your vegetable garden, according to O. C. Turnquist, extension horticulturist at the University of Minnesota.

He listed these six steps to a successful vegetable garden:

1. Choose a sunny location, where the soil is good and where there is access to a water supply. The garden should be located away from trees and shrubs, which compete for moisture and nutrients.

2. Plan the garden on paper before planting, so you will know how much space to devote to each crop and how to arrange the crops.

3. Select varieties that are disease-resistant, productive and adapted to Minnesota conditions.

4. Use approved planting and transplanting techniques.

5. Control weeds, insects and diseases with such methods as mulches and chemicals.

6. Harvest frequently, when vegetables are at their peak of quality.

RECOMMENDED VARIETIES LISTED IN U PUBLICATION

For disease-resistant, productive, high-quality vegetables for your garden, select some of the new varieties adapted to Minnesota conditions.

That's the suggestion of O. C. Turnquist, extension horticulturist at the University of Minnesota, and author of an Agricultural Extension Service publication just off the press, Vegetable Varieties. A revision of Extension Folder 154, it summarizes results of vegetable variety trials conducted by the Extension Service last year in various locations in the state in cooperation with both home and commercial gardeners.

Selecting vegetable varieties adapted to local conditions continues to be one of the most important steps to a successful garden, according to Turnquist. Whether you decide to plant old or new varieties, be sure they are dependable for Minnesota, he cautions.

Among the varieties of vegetables that have done well in Minnesota test plots, Turnquist recommends these to home gardeners:

Tendercrop snap bean, disease-resistant high-quality and highly productive green bean; Kinghorn wax bean, yellow-podded wax bean with pure white seeds, excellent for freezing; Greenhart lettuce, light green, finely frilled, tolerant against going to seed; Bibb lettuce, loose-heading type; Red Boy radish, quick maturing, bright scarlet variety especially suited to summer planting; Cherry Belle radish, bright red, globe-shaped variety acceptable for early or late planting; Fireball tomato, an early tomato that can be seeded directly into the garden in early May; Hybrid EE tomato, one of the earliest and highest yielding strains tested in the last few years.

Both old and new varieties that do well in Minnesota gardens are listed in Extension Folder 154, Vegetable Varieties. Copies of the publication are available free of charge from county extension offices or from Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1.



Tendercrop is a high yielding bean.

Fruit Growing

BUY DISEASE-FREE RASPBERRY PLANTS

Don't plant more than you can take care of if you want a successful home fruit planting.

Home raspberry plantings are often unsuccessful because gardeners get diseased plants from neighbors and then let them grow without any pruning, according to L. C. Snyder, head of the horticulture department. The result is a dense tangle of brush and only a few berries.

Success in growing raspberries depends on buying disease-free plants and then cultivating and pruning them "so you get berries instead of brush," Snyder said. He recommended using the hill system for growing raspberries, keeping the number of bearing canes to about six canes per hill.

It pays to bend the canes over in late fall and cover the tips with soil for winter protection, he added.

Among good varieties of raspberries, horticulturist E. T. Andersen recommended summer-bearing Latham, Amber and, for northern areas of the state, Chief. Among reliable autumn-fruited raspberries he suggested Durham for the northern and western sections of the state and September for other areas.

Andersen listed these strawberry varieties as worth trying out in the home garden: June-bearing -- Sparkle, Cyclone and Earlimore, and such new everbearing varieties as Ogallala and Ozark Beauty.

DWARF FRUIT TREES ANSWER TO SMALL SPACE

No room for fruit trees in your garden?

Dwarf trees may be the answer to your space problem, says E. T. Andersen, University of Minnesota horticulturist.

Other advantages of dwarf fruit trees are these: they come into bearing sooner than other fruit trees -- often the year after they are planted; they are easier to prune and spray; they are easier to harvest, necessitating only short ladders if any at all; and they fit into home landscape or garden schemes. Furthermore, fruits are generally better in color, quality and size than from standard-sized trees.

Andersen cautioned, however, that a winter mulch is important to protect the roots. Plantings of dwarfing rootstocks at the University Fruit Breeding Farm were killed out entirely in unprotected plantings during the dry, snowless winter of 1958-59. But where these stocks were protected by weed cover or sawdust they survived. There was no serious loss of dwarf apple trees in sodded orchards where grass

cover surrounded the trees, though many dwarf trees died where no winter mulch protected the roots.

In selecting dwarf fruit trees, consider varieties adapted to Minnesota conditions, Andersen urged. He pointed out that there are some natural dwarf fruits hardy in this area, in addition to those produced by grafting to dwarfing roots. Among these are the Chestnut and Centennial crabapples and the Northstar cherry, which tend to be dwarf in growth habit, as it also is the case with the Haralson apple.

PRUNING IMPORTANT IN FRUIT PRODUCTION

For success in growing fruit in the home garden, it's necessary to learn proper pruning techniques, says a University of Minnesota horticulturist.

T. S. Weir, assistant superintendent of the University Fruit Breeding Farm, told gardeners they could increase production of small fruits by:

. Thinning out old wood and excess new wood in currants and gooseberries.

. Removing old canes and thinning new canes in raspberries.

. Pruning grapes to 40 buds or less on weaker growing varieties.

FRUIT TREES REQUIRE LOTS OF CARE

Don't plant fruit trees unless you're willing to undertake a sustained spray program and give the trees proper care.

That is the advice of L. C. Snyder, professor and head of the University of Minnesota horticulture department.

He outlined these recommendations for success in growing tree fruits:

. Choose varieties adapted to your area in Minnesota. Order early from a nursery close to home to get the varieties you want.

. Don't overcrowd trees. Space them so they have a chance to develop.

. Protect fruit trees from rabbits and mice by using wire screen or hardware cloth.

. Plant fruit trees where they will not get competition from other trees.

. Prune trees at planting time; then give them a light pruning each year.

. Fertilize as needed to maintain proper growth.

. Spray consistently to control pests; don't wait till insects and diseases appear.

Food Processing

USE APPLIANCES TO SAVE TIME

The home freezer can be a real time and energy saver for the busy homemaker and a special boon in entertaining.

Mrs. Shirley T. Munson, in charge of the University's food processing laboratory, urges women to use the freezer as a short cut to successful entertaining. In planning a company menu, choose foods that freeze well -- for example, foods in sauces and gravies; then prepare them ahead of time. She gives these time-saving tips on using the freezer:

. Freeze baked rather than unbaked pies. It will take less time to thaw a baked pie than to bake an unbaked pie. Baked pies also have better quality.

. Wrap rolls for the freezer in aluminum foil so they are ready to pop into the oven for warming.

. Keep plastic bags filled with ice cubes from the ice cube tray.

. Fill sherbet glasses or paper cupcake containers with ice cream or sherbet and set on a tray in the freezer ahead of time.

SHOPPERS CAN PROTECT QUALITY OF FROZEN FOODS

Consumers as well as retailers have a responsibility in keeping frozen foods at top quality.

As a shopper you can protect the quality of the frozen foods you buy by keeping them cold enough and using them soon enough. But you can also check on poor handling of these foods at the store. Most common cause of quality loss in frozen foods is storage at too high temperatures, whether it's in the frozen food case at the retail store or in the home freezer.

To get the most for your money when you buy frozen foods, Mrs. Shirley T. Munson, in charge of the University of Minnesota food processing laboratory, has these suggestions:

Before you buy, check the frozen food case. The packages should be stacked no higher than the fill line. Sometimes a thermometer is inside so you can check the temperature. It should be 0° F. or lower.

. Choose packages that are clean and firm. Avoid misshapen packages, which may indicate that the food was thawed and refrozen. Make sure packages are not torn, crushed or juice-stained. If frozen food is exposed or poorly packaged, it dries out and develops off-flavors quickly.

Often the first sign of quality loss in frozen food is the large quantity of frost inside the

package. Another sign of deterioration is loss of bright color in frozen fruits or vegetables.

. Put frozen foods at the bottom of your shopping list so you can select them late, just before you go through the check-out line. Ask the checker to place your frozen foods in an insulated or a double grocery bag, especially if the weather is warm.

. Put the frozen foods into the freezer as soon as you get home. If the temperature of your home freezer or freezing compartment is above 0° F., use the frozen foods within a few days.

FREEZING IS GOOD WAY TO PRESERVE APPLES

If you're wondering how to store all the apples from the tree in the backyard, there's an easy answer: freeze some of them.

Apples frozen for pie or sauce will keep a year or longer, according to Mrs. Shirley T. Munson, assistant professor, in charge of the University of Minnesota food processing laboratory. She points out, too, that many homemakers like to make apple pies now and freeze them for later use. Laboratory tests show that baked pies are more satisfactory than unbaked pies and will keep longer -- at least six months.

Take your choice among three different methods of freezing apples recommended by Mrs. Munson:

1. If apples are in perfect condition and if you have room in your home freezer, wash the fruit and package six to eight apples in a plastic bag without peeling or slicing them. To use these frozen apples for pie or sauce, run cold water over them, one at a time, peel while they are still frozen, slice and use immediately.

2. Peel and slice apples. To prevent them from darkening, submerge the slices for 5 minutes in a sodium bisulfite solution made by dissolving 1 teaspoonful of sodium bisulfite (U.S.P. grade) in a gallon of cold water. Mix the solution in a glass, earthenware, enamel or stainless steel container. This amount will treat about $\frac{1}{2}$ bushel of apples. Avoid making the solution any stronger, since it may toughen the apples. Do not use sodium sulfate.

After the 5-minute dip, drain the slices and pack in sugar, using 1 cup sugar to 10 or 12 cups of apples, or 1 pound of sugar to 5 to 7 pounds of apples. Sprinkle the sugar evenly over the slices, allow to stand for a few minutes and then stir carefully until each slice is coated with sugar before filling the containers. Freeze. To use these apples for pie, defrost them partially and drain off some of the juice.

3. Peel and slice apples and soak for 15 minutes in a weak brine solution, using $\frac{1}{2}$ cup of salt to each gallon of water. Drain the slices and pack them in freezer containers, covering them with a sugar syrup made in the proportion of 2 cups sugar, $\frac{1}{2}$ teaspoon ascorbic acid and 1 quart of cold water. Freeze. Drain off all the sugar syrup and defrost the apples partially before using them in pie.

FREEZE FISH SOON AFTER IT'S CAUGHT

When the fisherman in the family brings home a big catch, a good way to extend your enjoyment of it is to freeze some for later use.

Follow these suggestions from Mrs. Shirley T. Munson, in charge of the University of Minnesota food processing laboratory:

Clean fish as for table use. Scale, eviscerate, remove head and fins, wash thoroughly and drain. Freeze small fish whole; fillet or steak large fish.

To improve flavor and reduce drip on thawing, dip cut pieces of fish except lake herring for $\frac{1}{2}$ minute in a brine made with 1 cup of salt per gallon of water. Drain and then package in aluminum foil. A brine dip is unnecessary for whole fish.

Another method of freezing small fish is in water. Put the fish in a breadpan, fill with water and freeze. Slip the block of ice into a plastic bag. Store the fish in the coldest part of the freezer.

Mrs. Munson gives this precaution: because fish deteriorates rapidly, it should be frozen soon after it is caught. If that's not possible, keep the cleaned fish packed in crushed ice until you're ready to freeze it.

Store in the freezer at 0° F. or lower, not longer than four to six months.

SPEED IMPORTANT IN FREEZING CORN

Speed from the garden to the home freezer is one of the most important rules to observe when it comes to freezing sweet corn.

Mrs. Shirley T. Munson, in charge of the food processing laboratory at the University of Minnesota, says rapid processing is important because corn quickly loses flavor when it is held for any length of time after picking unless it is refrigerated.

For top quality, corn must also be at just the right stage of maturity for best eating. If corn is picked when immature, it will be watery when cooked; if it is too mature, it will be doughy. Corn can usually be considered at the proper stage of maturity if milk spurts out freely when the thumbnail is pressed into a kernel. Harvest the corn in early morning if the weather is hot.

Tests at the University of Minnesota food processing laboratory indicate that Golden Bantam types are best for freezing.

Scalding is perhaps the most important step in preparing sweet corn for freezing. By inactivating the enzymes, scalding preserves the fresh quality of corn as well as its color and vitamin content and lengthens storage life.

For scalding, it's best to use a large kettle that will hold at least 12 to 15 quarts of water. Bring the water to a rolling boil. Place the husked corn in a wire basket or large cheese cloth bag and submerge it in the boiling water. Keep the kettle covered during the scalding period and have the heat on high. Always count time from the second the vegetable is put into the boiling water.

Whole kernel corn to be cut from the cob should be scalded $4\frac{1}{2}$ minutes before cutting. For corn to be left on the cob, follow this schedule: Scald 24 midget ears or 14 small ears in 12 quarts of water for 8 minutes; 14 small-to-medium ears for 8 minutes; 10 medium-to-large ears in 12 quarts of water for 11 minutes. If corn is scalded for too short a time, it may have a cobby taste.

Chill the corn quickly in cold running water or iced water for at least the same length of time as given for scalding. Then drain, package and freeze.

To prepare frozen corn on the cob for serving, partially thaw it first and allow from 6 to 8 minutes for four to six ears, counting time from the second the corn is put into the boiling water.

TIPS GIVEN ON FREEZING MEAT, OTHER FOODS

If you want satisfaction with meat you put into the freezer, always select cuts of high quality in both freshness and grade.

That advice was given to homemakers by W. J. Aunan, associate professor of animal husbandry at the University of Minnesota.

Quality of the frozen product will depend on the quality of the fresh product, he said.

Boning many of the cuts of meat will save freezer space and make for easier wrapping and carving. After separating the different cuts, package them according to family size, and label and date the packages. Ground beef should be compacted firmly and wrapped tightly.

High quality wrapping materials are a must for packaging meat and other foods to protect against freezer burn and development of off-flavors.

Storage periods for different meats in the freezer will vary. A good wrapping material can extend the keeping time. Aunan gave these maximum storage periods for keeping meat in the freezer at 0° F.: beef and lamb, 10 to 12 months; fresh pork, 6 months; veal, 8 to 10 months; cured products and sausages, 5 to 8 weeks; ground beef, 3 months.

HERE ARE FRUITS AND VEGETABLES TO PLANT FOR FREEZING

Planning to raise some fruits and vegetables to put into your freezer?

Then select seed or plants of good freezing varieties.

At harvest time home gardeners often freeze varieties that prove to be disappointing in both flavor and appearance when taken out of the freezer later, according to Mrs. Shirley T. Munson, in charge of the University of Minnesota's food processing laboratory.

Experiments in the University food processing laboratory show that both vegetable and fruit varieties differ greatly in appearance and in quality when frozen. For that reason, Mrs. Munson urges that gardeners expecting to freeze fruits or vegetables from their gardens plant varieties especially adapted to freezing and recommended for Minnesota growing conditions.

Here are some of the fruits and vegetables tested in the University's food processing laboratory and found successful for freezing. All of them are suitable for Minnesota gardens.

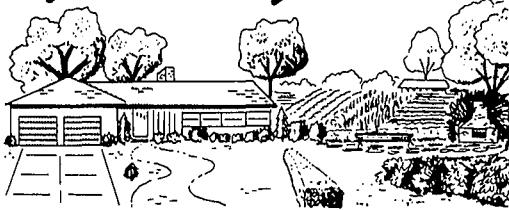
Asparagus -- Washington, F₁ Hybrid

Green beans -- Tendercrop, Topcrop,
Tendergreen

Yellow wax beans -- Kinghorn Wax,
Cherokee
Broccoli -- Green Mountain, Waltham 29
Cauliflower -- Snowball, Super Snowball,
Snowcap
Muskmelon -- Hearts of Gold, Iroquois
Sweet corn (on the cob) -- Sugar and Gold
Sweet corn (whole kernel) -- Most good
garden varieties
Peas -- Little Marvel, Laxtons Progress,
Dark Seeded Perfection
Raspberries -- Latham, September, Chief
Spinach -- America, Bloomsdale Long
Standing
Rhubarb -- Valentine, MacDonald Crim-
son, Chipman's Canada Red
Squash (summer) -- Black Zucchini,
Early Prolific Straightneck
Squash (winter) -- Buttercup, Hybrid R,
Rainbow
Strawberries -- Trumpeter, Earlimore,
Red Rich, Sparkle

Other varieties of vegetables suitable for freezing are listed in Extension Folder 154, Vegetable Varieties, available from Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1.

Yard 'n' Garden



C. Gustav Hard

Orrin C. Turnquist

AGRICULTURAL EXTENSION SERVICE

UNIVERSITY OF MINNESOTA • ST. PAUL 1, MINNESOTA

MARCH

BETTER VEGETABLES FOR 1962

Looking over seed catalogs each spring is always an enjoyable activity for the gardener. Every year new varieties and hybrids are described that are sure to tempt you. Some new introductions are worth trying, but others are merely novelties or show little improvement over older standard varieties.

Tendercrop snap bean is still one of the newer varieties. It has disease resistance and high productivity. Pods are round, straight and stringless. Kinghorn Wax, a round yellow-podded bean with white seeds, is especially well suited for freezing.

Some of the most dependable root vegetables include Red Boy radish, Ruby Queen beet and Nantes carrot. All are well suited to Minnesota gardens.

An early maturing hybrid sweet corn with large ears is Earliking. Another dependable corn is Golden Beauty which matures later but still in time to be useful in most of our gardens in the state.

Badger Market cabbage continues to be an excellent choice for the garden. It is disease resistant and heads split less readily than other varieties.

A new cucumber is Spartan Dawn, a hybrid that produces female blossoms but no male blossoms. It has to be grown next to another variety for pollination. Other good slicing cucumbers are Challenger and Saticoy. Burpee Hybrid is still one of the most dependable.

Leading the list of tomatoes is the hybrid Big Boy. It produces large thick-walled meaty fruits from midseason to frost. Though not early enough for northern Minnesota gardens, it is highly recommended for the southern part of the state. For the north, try Hybrid EE or

Fireball. Another good tomato is Moreton Hybrid for dependable crops of high-quality, medium-sized fruits.

Buttercup squash is one of the best varieties for the garden. For summer squash, a good choice is either Hybrid Zucchini or Seneca Prolific Hybrid.

PRUNING ORNAMENTAL TREES AND SHRUBS

The beauty of a landscape planting must be maintained by careful pruning. Many of the shrubs grown commonly in the landscape can be pruned during March.

Almost all summer-blooming shrubs and shade trees can be pruned now. You can also prune shrubs grown for screening purposes, informal hedges and shrubs that do not have significant flowering. These include Froebel spirea, dogwood and rugosa roses.

Pruning should do three things:

1. Improve the shape and form of the tree or shrub.
2. Remove weak or diseased wood.
3. Rejuvenate and keep the shrub in vigorous condition.

Shade trees are pruned to improve their form and to thin them out so more sunlight will penetrate through the branches.

For a good pruning job you'll need a small hand pruner for cuts under $\frac{1}{2}$ inch, a lopper for making cuts from $\frac{1}{2}$ to 1 inch and a good pruning saw for larger cuts.

Most cuts don't need to be treated with a wound compound. However, use a wound dressing such as orange shellac for cuts over $\frac{1}{2}$ inch.

Make all cuts to a side branch or to a main trunk. Don't control the growth by shearing; it makes a shrub look unnatural.

When pruning shrubs, cut back some of the heavy wood to the ground each year in order to encourage new young wood to develop.

APRIL

TREE DAMAGE BY MICE AND RABBITS

Each year fruit and ornamental trees are damaged where they aren't protected with screen or hardware cloth. When the bark is completely removed all the way around the trunk, the part of the tree above the girdle will die. It is entirely possible for some trees that are completely girdled to leaf out and remain alive for one season, but both the top and root will die the second year unless sprouts are produced below the girdle.

Mice generally feed under the snow at the base of the trunk. If they haven't gnawed through the bark to the wood, the damaged portion may be protected from drying out by covering it with shellac, asphalt compound, or very heavy paper or burlap. Generally new bark will grow from the cambium. Mounding with soil will also offer good protection.

Rabbit damage is usually some distance above the ground or snow line. Rabbits cut off twigs and pull off bark in shreds. As long as the trunk isn't completely girdled, the tree won't die.

Where you find complete girdling, you can bridge graft. Small trees under 2 inches in diameter are too small to repair by bridging, however. Strong winds can easily dislodge the cions. It's best to saw off the tree just below the girdle before top growth starts in spring. Wax or mound the stump to prevent excessive drying. Shoots of the same variety will probably grow out from the trunk above the ground or above the place where the tree had been grafted originally.

Bridge grafting of larger trees may be done from April 15 to May 15 when the bark will lift readily from the wood. Extension Bulletin 273, Grafting Fruit Trees, explains how this is done. Copies are available from your county agricultural agent's office.

THE HOME FRUIT PLANTING

Two of the most popular fruits for the backyard garden are strawberries and raspberries, but with the development of dwarf fruit trees it's possible also to have apple trees in small garden areas.

Dwarf fruit trees are standard varieties of apples grafted to dwarfing roots. These roots will start fruiting a year or two after planting, and fruits are usually of fine color and quality. The trees are small enough to permit a thorough job of spraying for insects and diseases and are easier to prune and harvest than trees of regulation size.

A good summer apple is Oriole. Lakeland would be an excellent variety for fall. For winter use, try the Haralson or Connell Red.

Success with small fruits will depend on healthy disease-free plants of a good variety. Dependable varieties include Earlimore and Trumpeter June-bearing varieties, or Red Rich and Ogallala everbearing strawberries. The

Latham raspberry is a good variety but some gardeners prefer the everbearing types like September and Durham.

June-bearing strawberries are spaced 2 feet apart in rows 4 feet apart. Everbearing varieties may be placed 1 foot apart in the row. Raspberries are spaced 4 feet apart in rows 6 feet apart.

Fruits may be planted early in the spring when the frost is out of the ground and when the soil can be worked easily.

PLANTING YOUR VEGETABLE GARDEN

Proper soil preparation is one of the steps to a successful garden. It's very desirable to spade or plow down some organic matter such as well rotted manure, compost or peat at the rate of 3 to 4 bushels per 100 square feet of area. This will improve the structure of the soil and provide better tilth.

Each spring it's also important to replenish the nutrients which were taken out by previous crops. Broadcast a complete fertilizer such as 5-20-20, 8-16-16 or 10-10-10 at the rate of 15-20 pounds per 1,000 square feet of area. This should be raked into the upper 2 or 3 inches of soil.

Avoid locating your garden near trees or large shrubs. Even if there is ample sunlight on the area, the plants can suffer from root competition for moisture and nutrients in the soil.

Don't plant all your vegetable seed at one time. Allow for succession plantings to assure a continuous harvest of good-quality produce. Warm-season crops like beans, corn, cucumbers, melons and squash should not be seeded until mid-May, after soil and air temperatures are warm. Tomatoes, eggplant and peppers should not be set out until after Memorial Day when frost danger is past. Most of the other vegetables can be seeded as soon as the garden is ready in the spring.

Granular dieldrin is effective in controlling soil insects like root maggots, cutworms, white grubs and wireworms. Apply it along with the seed or on each side of the row.

TOMATOES

One of the most popular vegetables in the garden is the tomato. In most parts of Minnesota this vegetable may be seeded directly in the garden if early varieties are used. Crops from these plants may be used for canning. For early fruits for the table, start a few plants early or buy them from a greenhouse for transplanting to the garden.

Selection of good varieties is important. For northern Minnesota, Fireball or Hybrid EE are good; for southern Minnesota, Merton Hybrid or Big Boy. Other good varieties are Firesteel, Sioux, Stokesdale, and Rutgers. Jubilee or Sunray are excellent yellow varieties.

Don't make the mistake of setting plants outdoors too early. In Minnesota we usually suggest Memorial Day as a guide, when soil and air temperatures are warm enough for transplanting tomatoes.

If space is limited in the garden, set the plants 18-24 inches apart and plan to prune the plants to one or three stems. Tie these to a stake for support. As the plants begin to branch, remove the small side shoots that develop where the leaf joins the main stem. If plenty of room is available, space the plants 3-4 feet apart and don't prune or stake.

When transplanting, use a starter solution of $\frac{1}{2}$ cup of complete fertilizer in 1 gallon of water. Use $\frac{1}{2}$ cup of this solution to each plant.

Blossom-end rot of tomatoes is often caused by root pruning. A mulch of clean straw, ground corn cobs, sawdust or black plastic will reduce this problem by eliminating the need for cultivation. Apply the mulch early in July after a rain.

Begin spraying tomatoes for blight control when they are 8-10 inches tall. Use maneb fungicide (Manzate or Dithane M-22) for best results.

BUILDING A PATIO

Patio living is relatively new in Minnesota. The patio is an economical way to expand the living space of the home. It has a versatility of space a room indoors can't provide: it's an outdoor living room, a recreation room, a place for sunning and a ready-made kitchen-dining room for outdoor picnics and barbecues.

The patio can be located anywhere within the private area of the landscape. However, it should have some shelter from wind and from sun during the hottest part of the day. Screen fences and shrub backgrounds help to provide shelter. It's best to have the patio near the house for the sake of convenience to kitchen, electric outlets and storage of equipment.

Materials for patio construction are grouped in two classifications: (1) soft surfaces such as turf, loose aggregate gravel, washed sand, granite chips and tanbark; (2) hard surfaces such as concrete (blocks and brushed surface), stone, wood block or wood decking, compacted clay-gravel aggregate. These materials are used in many patterns and textures. Combinations of materials are also popular.

Soft surfaces have the advantages of not requiring a sub-surface fill or base. A disadvantage is the maintenance required in keeping them smooth and level.

First step in patio construction is preparation of the subgrade. The drainage should be away from the house. There should be a slope of 1 inch for each 10 feet. For hard-surface construction 4 inches of sand should be used as a sub-fill.

Since certain types of patio construction must meet building code standards, it's wise to get a copy of the building code for your locality before starting.

Spaces between the surface stones or blocks can be filled with white sand or mortar.

A wood preservative is recommended for wooden blocks or wood decking.

MAY

PLANTS FOR THE PATIO

Plants are used on or around the patio to provide privacy or shelter, shade for comfort and shadow effects, color and pattern. They can create the same interesting effects for a patio as pictures do in a room.

For screen plantings, select shrubs that will be an appropriate height to remove undesirable views, yet dense enough to provide shelter from wind. Shrubs may be used in combination with fencing or masonry. Some useful shrubs are hedge cotoneaster, redosier dogwood, Chinese lilac, French hybrid lilacs, mockorange, highbush cranberry, Clavey honeysuckle, Zabel honeysuckle, Shubert chokecherry and ninebark chokecherry. Selected varieties of evergreens may be appropriate, too.

Interesting patio trees include the toba hawthorn, pagoda dogwood, flowering crabapple, Japanese tree lilac, Russian olive and mountain ash. They can be planted in planter wells or movable tubs. The honey locust is an interesting tree for pattern.

Plants can contribute ground pattern and soften the appearance of hard surfaces. Planter boxes can be constructed within the patio itself, or above-ground plants may be used. Petunia, verbena, begonia, periwinkle and marigold are a few good annuals for both planters and ground beds. For shady locations, try hosta (funkia), daylily or fuchsia. Pansies and geraniums like full sun.

A pool with water lilies adds an attractive note and makes a good conversation piece. Herbs are appropriate plants because they are fragrant and are edible. Roses are especially lovely in the patio because they can be viewed at close hand and their sweet perfume contributes to the setting.

DIRECT SEEDING IN THE FLOWER GARDEN

The most common method of planting annual flowers is to seed them directly into the garden. Because it will take considerable time before they bloom, it's a good idea to get the seed planted as early as is practicable.

Sweet peas are usually the first seeds to be planted out of doors in spring. The seeds may be planted as soon as the soil is workable. It isn't necessary to wait for the soil to warm up.

Often there is a place in the garden where the soil warms up early so it can be worked. Seeds can be sown in a small area about 5 by 5 feet. Cover the area with a black plastic until the seeds have germinated. Later they can be transplanted to their permanent location in the garden.

Another suggestion for direct seeding is to outline the planting areas for the various annuals with string. Then sow the seed thinly within the planting areas. If you wonder how you can tell flowers from weeds, planting two or three flower seeds together will help identify them as they come out of the soil. Growing samples of seeds in small pots is also helpful.

Flowers which are most commonly seeded directly into the garden are zinnia, bachelor button, marigold, cleome, snapdragon, stock and sweet alyssum.

MEMORIAL DAY PLANTINGS

Follow a few rules if you want your Memorial Day plantings to be attractive and long lasting.

A week or 10 days before you plan to take the urns or flower containers to the cemetery, have your florist or nurseryman plant the flowers. Flowers newly planted when taken to the cemetery will not do as well as established plants. In a week or 10 days, however, the plants will have an opportunity to become adjusted to the planters.

Soil in the planters should be high in organic matter to increase the water-holding capacity. Soils that dry out easily limit the blooming period. After the plants are set into the planters, cover the soil surface with wet sphagnum moss.

Planters will be most attractive if the flowers are planted in combinations that give a variety of color and extend the bloom. It isn't necessary to have all the plants in bloom at one time.

Plants commonly used for cemetery plantings are geraniums, dwarf marigolds, Persian carpet zinnias, zinnias, petunias, verbena, lantana and pansies. Some greenery like vinca, asparagus sprengeri or dracena will add to the effectiveness of the planting.

TREES FOR THE LANDSCAPE PLANTING

Trees should be selected for their specific use in the landscape design. They may be used for shade, for framing the home, screening undesirable views, for boulevard plantings or as specimen plantings.

Trees for shade should be dense enough to provide the desired shelter from the sun; yet enough light should penetrate the foliage to allow other plants to grow under the trees. In turf areas deep-rooted trees are most desirable.

Trees for framing the house should be proportionate to the dwelling. Two-story homes require larger trees than low ramblers. The basic form of a tree may often complement the roof lines and design of the house. Groupings of evergreens as well as multiple plantings of deciduous species may be used.

Screening trees may be dense enough to block out an undesirable view, or they may provide a light screen that merely breaks up the pattern of the view. Where air circulation is important, the light screen may be more desirable. The height of screening trees may vary because it is often possible to place them so the ground view is destroyed but a more desirable view is created of the horizon.

Specimen trees usually have a special quality for a part of a season, such as flowering,

fruiting, autumn color or variegation of foliage. Specimen trees are used for focal interest, to divert attention from less desirable views or for plantings for the interior-exterior relationship of the home.

Boulevard trees are often controlled by city or village ordinances. Be sure to check on these regulations before you select trees for your boulevard.

JUNE

GARDEN GROOMING

Good garden grooming may make the difference between an ordinary garden and a showplace. Grooming consists of edging the lawn, mulching the flower beds, removing dead flower heads and pruning.

Edging the grass around flower beds and walks helps to define the area and bring out the design of border plantings. Lay the garden hose along the border to establish the exact line you wish to follow. To edge the lawn next to a flower border, cut to a depth of 5 inches, remove the sod from the inner edge and then fill with soil to a level of 3 inches. Firm the soil so it will not dry out so rapidly.

A good summer mulch will help to control weeds and conserve moisture in the flower border. For a mulch use compost, buckwheat hulls, commercial peat and leafmold.

Timely pruning of trees and shrubs can improve their appearance. It isn't necessary to wait until a shrub is badly misshapen to prune it.

PESTS ON ORNAMENTALS

Almost all trees, shrubs and flowers have their insect problems. The infestation of insects will be worse some years than others. But gardeners should be ready to control pests in order to avoid extensive damage to garden plantings.

Aphids are among the common insects on ornamentals. Usually they're found on the newly growing tips or clustered around the stem. They vary in color but most are black, reddish or green. Malathion is effective as a spray or dust.

Red spider or spider mites cause considerable damage. Often these tiny pests cannot be seen on the plant. They attack evergreens as well as shrubs and flowers. Sometimes they can be seen if the branch is tapped lightly over a piece of white paper. When used for aphids, malathion may help control mites. Also effective are aramite, dimite, Kelthane and ovev.

Most chewing insects can be controlled with DDT or methoxychlor spray or dust.

MULCHES AND WEED CONTROL

Mulches on top of the soil around garden plants serve many purposes. They help control weeds, conserve moisture, cool the soil and keep edible parts of vegetables and fruits clean.

Mulches are especially beneficial around tomato plants because they reduce the need for cultivating with the hoe. Often roots of the plants are cut off in the process of cultivation with the result that plants suffer from lack of moisture. The mulch makes possible a more uniform moisture supply. By keeping the fruits off the ground, mulching also helps prevent blossom-end rot.

Mulches are also desirable around vine crops which are difficult to cultivate because of the meandering growth habit of the vines.

Grass clippings, finely chopped straw, ground corn cobs, buckwheat hulls, peat moss or sawdust may be used for mulching. Apply 2 to 3 inches of the material between rows or around the plants after a heavy rain or before the weather gets hot.

Black plastic may also be placed between rows for smothering weeds. Making a few slits in the plastic after it is laid will provide a way for water to get into the soil under the mulch during rains or irrigation.

Yellowing of foliage indicates competition for nitrogen. In the decomposition of the mulch nitrogen is taken out of the soil. As a corrective measure, apply some ammonium nitrate or any other nitrogen fertilizer to the mulch.

CARE OF STRAWBERRIES

By the end of June your June-bearing strawberry planting will probably have a solid bed of plants. Many of these will be so crowded they will not produce good quality berries next year.

You can correct this situation by renovating the old plantings. Cut plants to the ground with a scythe or mower. Rake up all the leaves and mulch material and remove it from the planting. By doing so you'll also help eliminate insect and disease problems.

Stretch strings every 4 feet apart across the patch to mark the location of the new rows. Remove all plants between the strings with a plow or cultivator, leaving only narrow rows of plants about 8 or 10 inches wide. These new rows should be to one side of the original rows. Next remove the weeds and with a hoe thin out the plants remaining within the row.

A side dressing of a complete fertilizer applied at the rate of 1 pound per 25 feet of row will help the planting after renovation.

New plants will soon form, and by fall you'll have a new, well established bed for next spring. Keep the planting clean and free of weeds. Broadleaved weeds can be controlled with 2, 4-D weed killers. When you spray, be careful to avoid drift toward other vegetation or flowers and vegetables. Cultivate often so you can keep the new planting narrow -- to a width

of about 18 inches. In this way you'll eliminate late-formed runner plants and will provide for easier harvest next season.

J U L Y

CONTROLLING WEEDS IN THE LANDSCAPE

Weeds are often difficult to control in landscape plantings. But proper use of cultural methods and chemicals can do much to ease the burden of weed control -- a tiring garden chore, at best.

Weeds should be controlled when they are small and growing rapidly. That's the time they are most easily killed. Hoeing around shrubs and flowers is easy, but when the weeds become larger it's a difficult job. See that your hoeing is very shallow so you do not injure the roots of shrubs and plants. Pulling weeds while they are small does less damage than waiting till the weeds are heavily rooted.

Weed control in the lawn is relatively easy with proper chemicals. Most broadleaved weeds can be killed with 2, 4-D in the amine form. To avoid unnecessary drift, be sure to apply it when there is little wind.

Crabgrass in the lawn can be controlled by spraying with phenyl mercuric acetate, potassium cyanate, disodium monomethyl arsenate or ammonium methyl arsenate. Follow the manufacturer's directions carefully.

A summer mulch 2 to 3 inches deep in flower border will control most weeds and conserve moisture. Compost, peat, sphagnum moss or buckwheat hulls may be used for a mulch.

WATERING THE LAWN AND GARDEN

Proper watering is important to the health and development of landscape materials, since good growth is dependent on an optimum supply of water. Too much watering can result in shallow-rooted plants or even death of the plant. On the other hand, an inadequate water supply will cause wilting or retarded growth of plants, and persistent lack of water will result in death of the plant.

Most plants require from 1 to $1\frac{1}{2}$ inches of moisture per week. If this is not provided by normal rainfall, you should supply supplementary water by soaking the soil or using a mechanical sprinkler. Soak the soil to a depth of 6-8 inches, using a soaker hose. Or when sprinkling, place a coffee can within the radius of the sprinkler. When a needed amount of water has accumulated in the can, move the sprinkler to a new location.

Frequent light sprinklings of the lawn will cause grass to become very shallow rooted. Grass grown under these conditions will not survive drouth if you stop watering.

Watering in the evening may increase the hazard of diseases in both ornamental plants and lawns. Leaf surfaces continuously moist

provide a good environment for diseases to develop. However, if evening is the only time you have to water, it's better to take your chances with the possibility of disease problems.

TRANSPLANTING IRIS

Iris is one of the showiest of spring-blooming perennials. To keep the iris clump vigorous and free from disease and insect pests, rejuvenation and transplanting are important. Mid-July to mid-August is the recommended time for transplanting iris.

Loosen old clumps with a spading fork and remove them intact from the soil. The fan (foliage) attachment is the newest part of the clump. The fans should be salvaged for transplanting. Each fan will form a new plant. Examine the clumps for diseases such as rhizome rot and for borer-type insects. If you find evidence of either, discard the clumps.

Cut the foliage back to 6 or 8 inches. Dig a shallow trench about 3-4 inches deep and 8 inches wide. In the bottom of the trench make a slight ridge which will serve as a saddle on which to plant the iris. Place the iris on the ridge and press the side roots into the soil on both sides of the ridge. Fill the trench with soil. Use 3 to 4 tablespoons of a complete fertilizer (such as 5-10-5) for each planting.

Iris may be grown in clumps or in rows. Always face the fan away from the center of a grouping. When iris is used as an edging, face the fan toward the lawn area.

Water thoroughly and frequently until the iris is established.

EXHIBITING FLOWERS

The summer flower show has become an important event in the garden club calendar. Most gardeners welcome the opportunity to exhibit their flowers at the county fair, club show or state fair.

Exhibiting flowers poses such problems as transporting them to the show, keeping them in a fresh condition and preserving them in arrangements.

Keep the car as cool as possible while hauling the flowers. The windows may be open, but don't allow severe drafts to pass over the flowers. A light covering of netting will reduce the draft around them. A deep bucket with a broad base makes a good container for transporting flowers because it will not topple easily. Cover the bucket with a coarse mesh chicken wire to help separate the flowers and avoid injuring them.

Hardening flowers will help to preserve their quality. When the flowers are cut, plunge them into deep lukewarm water. After they have absorbed water for several hours, store them at a cool temperature in the basement or refrigerator. Flowers will stand up much better in arrangements after they have been hardened. Don't leave the flowers out of water when preparing them for an arrangement. And don't forget to put water in the container when you have finished the design.

PREPARING VEGETABLES FOR SHOW

Part of the fun of gardening comes with bringing the produce to show at the fair or harvest festival. A good exhibit arouses interest in better cultural practices and varieties.

Select specimens uniform in size, shape and color, true to varietal type. Avoid large, overmature vegetables. Be sure to label with the correct variety name.

It's important to follow requirements set forth in the premium list or show schedule. Not only should high-quality produce be exhibited, but specimens should be trimmed or groomed properly. Below are some tips on preparing vegetables for showing.

Cut off tops of carrots and other root vegetables $1\frac{1}{2}$ to 2 inches above the crown. Trim tap roots of beets so they are $1\frac{1}{2}$ inches long, carrots to 1 inch. Washing is permitted for root vegetables and potatoes. Wash lightly; don't damage skin by scrubbing.

Don't trim cabbage too much. Leave two or three outside wrapper leaves around the head. Leaves should be free of insect damage or spray residue.

Don't peel off the dry scales of onions. Onions should have an outer hard, dry skin, well closed necks and roots trimmed to $\frac{1}{2}$ to 1 inch.

Exhibit sweet corn in the husk. A few outer leaves may be trimmed off the ear, allowing the inner husk to remain. Cut the shank short.

Remove stems from tomatoes and select uniformly ripe fruits.

Exhibit beans and peas in the pod. Don't remove the small stem at the end. Show ground cherries in the husk.

AUGUST

HARVESTING FRUITS AND VEGETABLES

To get the most out of your garden, harvest your produce at the proper stage of maturity. Many vegetables like sweet corn, beans, peas, broccoli and cauliflower deteriorate rapidly after picking. They tend to dry out and the sugars change to less desirable starches. Quality can't be improved after the produce is harvested but it can be maintained if the produce is cooled quickly.

Allowing vegetables like beans, cucumbers and tomatoes to overmature on the vines will reduce the total yield of the plant.

Use the thumbnail test for sweet corn. If the kernels are fully filled out and in the milk stage, the watery substance will squirt out freely when the kernels are pressed with the thumbnail. This is the ideal stage for harvest. The silks are also dry and brown at this stage.

Leave tomatoes and melons on the vine until ripe. Pick tomatoes when they have a uniform red color and remove the stems before placing the fruit in the picking container. Often a simple twist of the wrist when picking tomatoes will leave the stem on the vine.

Muskmelons are ripe when the stem slips easily from the melon, leaving a clean scar. Watermelons are ready when the underside of the fruits turn yellow or when snapping the melon with the fingers produces a dull, hollow sound.

Use summer squash when it is 6 to 10 inches long and before the skin and seeds are hard. Winter squash, on the other hand, should be allowed to ripen on the vine. When the skin resists pressure of the fingernail at the stem end, the winter squash is ready for harvest.

Cucumbers should be harvested with a little of the stem on the fruit so they will not shrivel or wilt rapidly.

Pears should be picked before they become soft on the tree. Remove them when they are a little on the green side and allow them to ripen in a cool basement.

Don't harvest apples for winter storage until the fruits have a good waxy covering to improve their keeping quality. Store only fruits that have not been bruised. Windfalls do not keep well.

TRANSPLANTING PEONIES

Transplanting peonies can improve the quality of bloom and at the same time increase the number of plants of your favorite variety. Peonies may become infested with crown borers which destroy the fleshy underground root. Or, over a period of years, peonies may become too deeply implanted in the soil to bloom. Lifting the plants and resetting them may correct either or both of these problems.

As you transplant, remove the soil from around the clump and lift the clump intact. Then carefully separate the roots as you check for symptoms of disease and insects. Use a sharp knife to cut the roots into individual plants. At the top of each root you'll notice that the new buds for the next year's growth have already developed. There should be two or three buds for each fleshy root.

When you replant the roots, be sure the buds are no more than $1\frac{1}{2}$ -2 inches below the soil surface. Firm the soil around the root to avoid its settling any further. Space the roots 2 to 3 feet apart.

Though peonies are considered a very hardy perennial, they should be mulched the first winter.

PRUNING RASPBERRIES

The success of your next year's raspberry crop will depend largely on the care you give your plants during the rest of the season. The first step is to prune them after harvest.

To do a good job of pruning, you should understand the growth habits of the raspberry. It is a perennial that lives for years without replanting. Only the roots are perennial. The canes above ground are biennial. They come up one year, produce vegetative growth and then produce fruit the second year on lateral branches of these canes. After fruiting once, the cane

dies. On everbearing varieties fruit develops on the vegetative growth the first year as well as on laterals the second year. Then the canes die.

Pruning consists of cutting out all the canes that have borne fruit. If you grow your raspberries in narrow rows, thin out the new canes also to about three or four per foot of row. If they are grown in hills, thin out the canes to about six to nine per hill. In thinning always leave the sturdiest new canes.

Pruning can be done with a pair of hand pruners right at the ground line. If anthracnose -- characterized by small white sunken spots -- appears on the new or old canes, spray the plants with ferbam or captan.

AUTUMN COLOR IN MINNESOTA

The grandeur and color of many trees and shrubs native to Minnesota are spectacular during autumn. The cool nights and balmy days during late August in Minnesota and through September help bring on the fine show of color.

The Staghorn sumac is among the first of the shrubs to show autumn color. First it turns a bronzy red, later a brilliant scarlet. Watch the sumac as a signal for the beginning of the blaze of color that marks a Minnesota fall.

The poplar, birch, bittersweet vine, larch, mountain ash, elm, basswood and silver maple put on a show of brilliant yellow. The red maple, sugar maple, oak and high bush cranberry give the display of red-orange and scarlet that is an especially thrilling sight.

A trip to almost any section of Minnesota will provide a good opportunity to see autumn color. Especially beautiful in fall are the North Shore of Lake Superior, the River Road in Minneapolis and St. Paul, and the areas around Bemidji, Taylors Falls, Park Rapids, Detroit Lakes, Grand Rapids, Duluth and Lake Minnetonka.

There's an old idea that the blaze of color in foliage is the result of frost. The real cause of the autumn show is the disappearance of the green pigment in the leaf, revealing other pigments that have been there during the growing season. Cool nights and sunny days help to intensify the red and yellow pigments.

SEPTEMBER

GOURDS

The interesting colors and shapes of gourds have made them increasingly popular for home decoration.

Usually it's a good idea to leave gourds on the vines until after a light frost. Cut off mature fruits, leaving stems attached. You can usually detect maturity by a browning and drying of the stem. Often the fingernail test is used to determine hardiness of the skin.

However, be cautious about using this test; taking off a bit of the skin with the fingernail may blemish an underripe gourd and destroy its future ornamental value.

After you've harvested the fruits, wash them in soapy water and rinse in clean water to which you've added a household disinfectant. The disinfectant will help control organisms that cling to the shell.

Now spread the gourds out on several layers of newspaper in a warm, dry place to allow evaporation of the surface moisture, to let the skin harden and to set the color. This process will take about a week. During that time rotate the fruits often so they will dry uniformly.

The next step is to wipe the gourds clean, then place them in a warm, dry but dark room to cure for three to four more weeks.

After the gourds are cured, you may want to give them a coat of wax, shellac or varnish. Several applications of water-base wax, each followed by a brushing with a soft cloth, will accentuate the natural color and produce a slight gloss. The waxing is an inexpensive and quick treatment.

SELECTING BULBS FOR SPRING

A good choice of flowering bulbs is available for planting this fall. Select a variety of kinds so your garden will have color from early spring to summer. Tulips, daffodils, hyacinths, snowflake, snowdrop, grape hyacinth, chinodoxas and scillas will give an impressive display.

Choose a sunny or partly shaded area and one that is well drained for planting. If the soil is heavy, add organic matter such as compost, leaf mold or commercial peat. Also add 2 to 3 pounds of a 5-10-5 fertilizer for each 100 square feet of area. Spade in the fertilizer to a depth of 6 to 8 inches.

Be sure to plant the pointed end of the bulb up. Plant smaller bulbs 3 to 5 inches deep and larger ones like tulips, daffodils and hyacinths up to 7 inches deep. As a general rule, bulbs should be planted deeper in light, sandy soil than in heavier soils.

A winter mulch will protect against extreme cold and alternate freezing and thawing. Marsh hay, clean straw and dry leaves make good mulch. Apply the mulch to a depth of 6 to 8 inches after the soil has frozen.

STORE FRUIT AND VEGETABLES

You can be assured of a fresh supply of some of your garden vegetables this winter if you store them properly. Keys to successful storage are keeping only well matured, good-quality vegetables and maintaining proper moisture and temperature conditions for each.

Not all vegetables need the same storage conditions. Squash and pumpkin, for instance, require a warm, dry atmosphere such as the furnace room. Before storing them, cure them at 75°-80° F. for several weeks to harden the shells.

Be sure onions are mature before harvesting them. Remove the tops and store them in shallow trays in a cool, dry storage room where the temperature is 32 to 36° F. Or store them in mesh bags and hang them from the ceiling of the vegetable cellar.

Carrots, beets, rutabagas, turnips, parsnips, potatoes and apples need cool, moist storage conditions and temperatures between 32° and 40° F. To prevent sweetness, store potatoes at temperatures above 36° F.

It's best not to harvest your winter apples too early. Temperatures as low as 26° F. will not injure apples on the tree. If they have a chance to ripen on the tree, they have better color and quality and keep much better. In storage they will keep well in perforated polyethylene bags at 32° to 40° F.

COMPOSTING

Instead of burning your leaves this fall, make use of this valuable organic material by putting it in a compost pile.

Composting is a technique for salvaging organic materials like leaves and grass clippings for use as a mulch or soil fertilizer. Compost is a good source of nutrients when applied over the surface of a garden will help to conserve moisture and control weeds.

It's a good idea to locate the compost pile where it will not have to be moved or disturbed during the preparation period. A temporary compost pile can be made in the flower garden at the close of the garden season.

The compost pile is made by piling organic material in a 4-foot square. For each 6-inch layer of leaves, add about 1 inch layer of soil. Along with soil, add 2-3 pounds of a complete fertilizer. Keep the center of the pile lower than the edges so the pile will collect the natural rainfall. Water the pile weekly, if it does not rain. Water is important for the composting process.

A good compost pile should be ready to use after one winter.

O C T O B E R

FALL PRUNING

One gardening chore you can take care of during an October weekend is to prune trees and shrubs.

Not all trees and shrubs should be pruned in fall, however. Evergreens, for example, should be pruned in the spring when signs of new growth are evident. Oaks should be pruned during January and February.

Summer-flowering shrubs may be given a light pruning this fall. Prune to improve the form of the shrub and to remove dead or dying branches and branches which rub against each other.

Some of the shrubs that may be pruned now include dogwoods, hedge cotoneaster, winged euonymus, Snowhill hydrangea, ninebark, buckthorn, sumac, Rugosa rose and Froebel spirea.

Trees which may be pruned this fall are the maples, birch, ash, locust and elm.

WINTER PROTECTION FOR ORNAMENTALS

Winter protection of landscape plantings includes protecting against rodent and mechanical damage as well as the factors of climate.

Actually, winter protection should begin when the border is planted. A shrub background will help break the wind and provide a snow catch. Snow is one of the best materials for winter protection.

A winter mulch will help to insulate the flower border against extremely cold temperatures. Marsh hay, straw alfalfa hay and dry leaves make good mulch materials. They will help control the soil temperatures next spring when the alternate freezing and thawing would damage plants.

After the soil has frozen slightly, apply the mulch to a depth of 8 to 10 inches. Do not pack it. Avoid using wet materials, since a wet mulch can cause severe damage by suffocating the plants. Plants are living and must have air.

Apply a rodent poison to prevent damage from mice.

Protect trees and shrubs from rabbits with a cylinder of hardware screen. Push the cylinder into the soil about 2 inches to hold it in place. Smaller trees can be protected by wrapping the trunk and lower branches with aluminum foil. Rabbit repellents are also available for spraying trees and shrubs.

WINTER PROTECTION OF FRUITS

Minnesota winters are usually too severe for many of our fruits to survive without some form of protection. Apples and pears can suffer from sunscald or damage from rabbits and mice. Strawberries and raspberries may be injured by extremely low temperatures or by alternate freezing and thawing.

To prevent sunscald, fasten boards to the southwest side of the trunk of large apple trees. Wrap the trunk of small fruit trees with burlap to prevent splitting of the bark on the southwest side of the trunk.

To protect young fruit trees from rodents, place a cylinder of old window screening or quarter-inch hardware cloth around the tree, up to the lowest branch. To allow for tree growth, the diameter of the screen should be about 6 inches. Be sure to fasten the overlapped edges securely with wire. Push the cylinder into the soil about 2 inches to hold it in place.

After strawberries have been exposed to one or two frosts, but before freezing weather, apply a mulch of 2 inches of straw or marsh hay over the plants. Fruit buds are injured by temperatures as low as 20° F. It's usually a good idea to apply the mulch around November 1 before cold weather sets in.

Bend the canes of raspberry bushes over and cover the tips with dirt. You can hold the canes in place with pieces of wire shaped into arches and pushed into the ground. Covering the entire cane with soil is insurance against winter injury and rabbit damage.

If you have tender varieties of grapes, prune them, lay them on the ground and cover them with soil. Soak the soil thoroughly before the ground freezes.

UNIVERSITY OF MINNESOTA



3 1951 D03 471687 2