

LANDSCAPE GARDENING



TEXAS AGRICULTURAL EXTENSION SERVICE • ZERLE L. CARPENTER, DIRECTOR
THE TEXAS A&M UNIVERSITY SYSTEM • COLLEGE STATION, TEXAS

Weather-Damaged Plants Need Special Care

Although not considered common for the Sun Belt area, an occasional ice or wind storm can move through portions of Texas leaving considerable damage in its wake. The most frequent damage is caused by freezing rain leaving an accumulation of ice on trees and shrubs. These ice storms can create havoc with landscape

trees. Little can be done to prevent ice or wind storms. However, with careful pruning and good cultural practices many can be saved, and within a year or two the damage is hardly visible.

Carefully survey the damage and plan needed corrective pruning. Remove damaged limbs at the point of origin or

just above a good side branch. Don't allow stubs to remain unless absolutely necessary.

Sometimes, because of extremely severe damage, it may be necessary to stub back a branch or main trunk. If this becomes necessary, paint the wound with a good tree wound dressing. Continual selective pruning and attention to detail

are necessary at the end of the stub. Corrective pruning over a period of years will overcome this problem.

If the trunk or main scaffold branch has split from excessive weight of the ice or high winds, it is usually best to remove the portion of the trunk that has broken away. Use cables and bolts to pull the

damaged trunk together. Unless this is done by a professional tree man, results are seldom satisfactory and may do more harm than good.

If the bark has pulled loose along the side of a trunk because of a broken limb, smooth the torn area with a sharp knife or chisel. Do not use house paint or similar materials to cover the wounded area as the oils can damage growing tissue. In fact, recent research shows that wound dressing is not necessary but may actually hinder healing. A clean, smooth wound heals with no dressing. If wound dressing is used, be sure it is one especially prepared for this purpose.

On rare occasions a mild fall and early winter is disturbed by a fast-moving Canadian cold front dropping temperatures well below freezing. Under these conditions plants aren't completely dormant and severe cold injury occurs. The extent of injury depends on the duration of the cold temperature as well as the amount of wind accompanying the low temperatures.

Delay pruning damaged wood until late February or early March. If buds are swelling and showing signs of growth, it is easier to distinguish the damaged tissue.

Whether damaged by ice storm or cold temperature, fertilize affected trees and shrubs in late February or early March to help promote new growth and healing of damaged tissue. Broadcast a high nitrogen-type fertilizer beneath the branch spread of the plant and 3 to 6 feet beyond. Apply at the rate of 2 pounds of actual nitrogen per 1,000 square feet and water thoroughly.

It is essential to provide adequate moisture to damaged plants to prevent moisture stress. Use supplemental irrigation during dry periods throughout the spring and summer.

Methods Given for Rooting Plants at Home

The following materials are needed for rooting plants:

Cutting instrument. A sharp knife or pruning shears are needed.

Rooting media. Half peat, half sharp sand or if peat is not available, all sand usually works. Combinations of peat, perlite and vermiculite are also popular.

Containers. Many things can be utilized. Clay or plastic pots work well as do wooden flats, peat pots, etc.

Cuttings. Cuttings from many trees, shrubs, vines, annuals, houseplants and ground covers are easily rooted. Some of the plants you may wish to

try include those listed in the shaded box below:

Plastic film. Cover the cuttings with a plastic film similar to that used by dry cleaners and tie securely. This keeps the humidity high and facilitates rooting.

Containers for potting and rooting. In 2 to 6 weeks or whenever roots have formed, place plants in their permanent place or repot into 2- to 6-inch containers for further growth. A potting medium of one-third sand, one-third peat or compost and one-third topsoil is a good mixture. Dissolve a balanced fertilizer such as 13-13-13 in water at the rate of

1 tablespoon fertilizer per gallon of water as soon as the plants have been transplanted from the original rooting medium. A once-a-week application of this liquid fertilizer is beneficial to most newly rooted plants.

Environment. Place cuttings in an area with considerable light but little or no direct sunlight.

General Information

Taking cuttings. For home rooting of most plants take cuttings that are recent growth but not currently in a flush or fast growth period. Using a sharp knife or pruning shears make cuts on about a 45° angle. Cuttings are best when taken early in the morning or late evening. Prepare and place as soon as possible in the rooting medium. Two- to 6-inch long cuttings are usually best. Remove all leaves that will be buried in the medium. If the cutting is very leafy, remove additional leaves.

Rooting hormones are

generally available and often speed up the rooting process. They are not, however, essential for rooting most plants. If rooting hormones are used, it is helpful to punch holes in the medium with a small stick, then firm the medium around the cutting with your fingers.

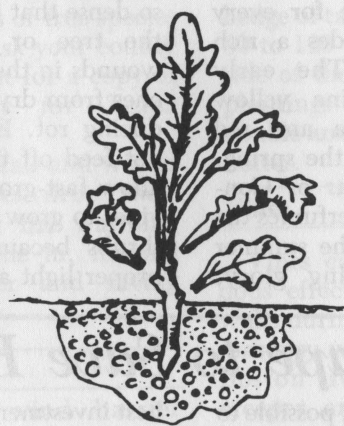
The plastic material covering the cuttings usually makes it unnecessary to water them during the rooting period, but it is essential to keep sufficient moisture available.

Rooting cuttings can save homeowners considerable money and provide a sense of accomplishment. Children, young homemakers and senior citizens are all potentially interested in rooting and growing plants. This is a way citizens can beautify their communities and provide wholesome year-round recreation at the same time. Plant exchanges and sales are potential activities. Stimulating interest in individuals might also lead to part- or full-time careers in the field of horticulture.

Annuals	Woody plants	Houseplants
Coleus	Ligustrum	Arrowhead ivy
Impatiens (sultana)	Viburnum	Philodendron sp.
Begonias	Crape myrtle	Pedilanthus
Marigolds	Pittosporum	Dracena
Tomatoes	Pyracantha	Geraniums
Wandering jew	Photinia	Peperomia
Chrysanthemums	Fig trees	Sansevieria

TYPES OF CUTTINGS

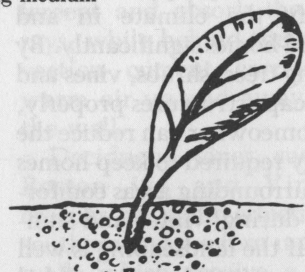
SOFTWOOD CUTTINGS



Softwood cutting properly trimmed and inserted into propagating medium



Leaf cutting



Petiole cutting

HARDWOOD CUTTINGS



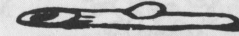
Simple stem cutting



Heel cutting



Mallet cutting



Single eye cutting



Leaf bud cuttings

Landscape Gardening

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Ground Cover Plants Substitute for Lawn Grasses

Although grass is generally regarded as the most desirable ground cover for the home landscape, there are situations where it is may not be the most practical landscape covering.

In steeply sloping or heavily shaded areas where grass does not grow well, other methods of covering the soil must frequently be selected. One of the most satisfactory methods is the use of ground cover plants.

These plants range from woody vines to dwarf shrubs, depending on individual needs.

Some of the more prominent uses of ground cover in typical situations are to cover bare areas of ground, prevent soil erosion, give variety to yard or garden, regulate foot traffic in the yard or garden when used as edging for pathways and to unify unrelated shrubs and flowerbeds in the landscape.

In addition, ground covers are frequently used under or around trees where grass grows poorly or where exposed tree roots make mowing a problem. Ground cover plants eliminate the need for mowing as well as concealing exposed tree roots.

Many possibilities for living ground covers are now available. For shade or partial shade, consider vinca, Algerian ivy, English ivy, monkey grass,

liriope, ajuga and hypericum. Asiatic jasmine, monkey grass, creeping junipers, purple leaf honeysuckle, liriope, day lilies, santolina, sedum, dwarf yaupon and dwarf nandina are good for sunny locations.

Proper soil preparation is needed before planting ground cover plants. Dig the soil at least 6 inches deep. Rake thoroughly to remove grass roots. Spread 2 to 3 inches of organic material such as peat, well-rotted manure or leaf mold over the ground and spade it into the soil.

It is essential to remove all grass to be assured of a weed-free planting area. Once the ground cover is planted, it is

difficult to eradicate undesirable weeds and grass.

On rocky or uneven soil where the entire area cannot be worked thoroughly, dig individual holes deep enough to back fill partially with the soil mixed with organic material before setting plants.

Use a mulch such as pine needles or pine bark to hold the soil in place until the planting is established.

Plant ground covers anytime during the growing season. Fall and spring plantings give best results if potted or canned plants are used. Keep new plantings well watered until they become established.

Try Layering—A Simple, Sure Method of Propagating Plants

Do you have choice shrubs that you would like to share with neighbors or friends? Why not try layering them. This is a simple and sure method of propagating plants that requires no special skill or equipment. Many shrubs with a weeping growth reproduce themselves by tip layering. Others will do so with a little help from the homeowner.

To start, take a pliable shoot of the previous season's growth and bend it to the ground. At a point 8 to 10 inches from the tip, re-bend the shoot into a "U." Don't worry if you injure or even break the wood. Bark wounding hastens rooting.

A cut made partly through the shoot helps in bending. The shoot tip beyond the bent portion becomes the new plant.

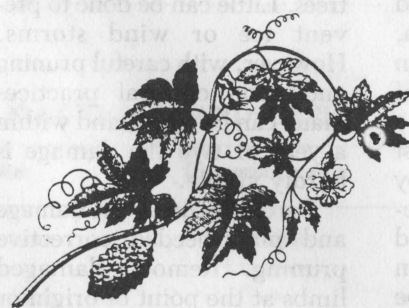
Next, make a shallow hole or slit in the ground. Insert the bottom of the bent shoot into the hole with at least 3 inches of the tip above ground. Anchor the shoot to the ground with a stone or peg, and cover the wounded portion with soil. Firm the soil lightly and keep it moist as with any other new transplant.

The layered shoot continues to grow as though nothing had happened. Chances are good that the leaves won't even droop. Some time must pass,

though, before the new plant develops enough roots to be cut from the parent and moved to a new location.

Forsythias, viburnums, cotoneasters and many others are ready to remove and transplant the following spring. Rhododendrons, azaleas and similar species may require a second growing season before enough roots form to allow transplanting.

Layering has a special advantage over other propagating methods because roots of the parent plant continue to supply the new plant while it develops its own root system.



Use Vines for Summer Accents

Vines have several advantages in the landscape. Most vines, trained on a support, require very little "ground room" because they grow vertically. This is an advantage for the small garden or limited planting area.

Many vines are fast growing and provide a quick effect or accent for the garden. Impatient gardeners should plant vines for lushness usually only achieved after years with trees and shrubs. Annual flowering vines are particularly fast growing. Abundant vine and bloom may result from morning glory, hyacinth bean and cypress vines in one growing season.

Use evergreen vines for privacy screening and as attractive drapes for often austere chain-link fences. English ivy grows quickly on wire fencing when shade or partial shade is available. Asiatic jasmine drapes a wire fence for screening in sun or shade.

A flowering vine such as Carolina yellow jessamine, autumn clematis or red honeysuckle makes an interesting and colorful accent for a wall or fence where it quickly climbs to the top of its support to cascade down with seasonal blooms.

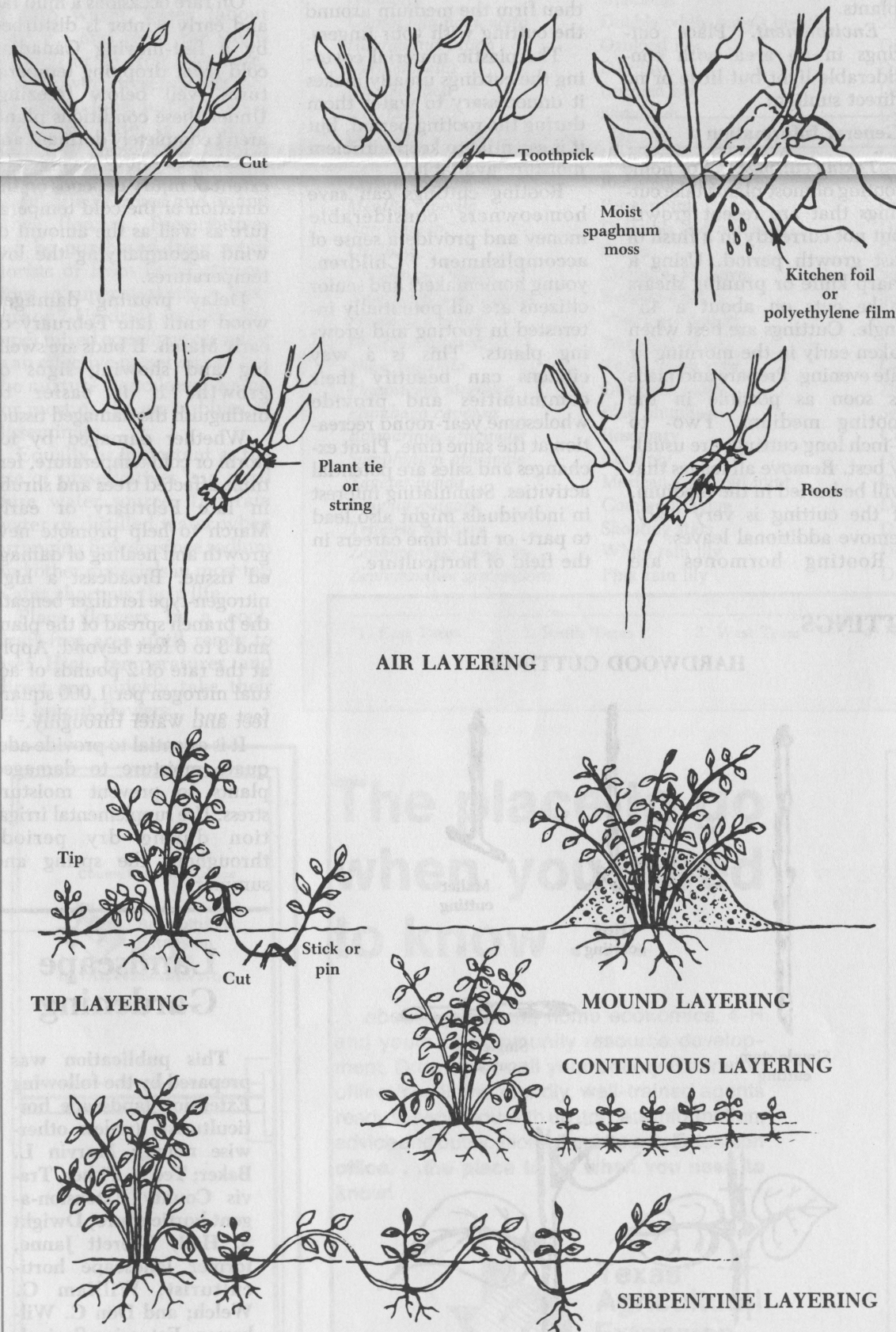
There is a vine for every season that provides a rich seasonal color. The early blooms of Carolina yellow jessamine, wisteria and red honeysuckle greet the spring. Early summer, star or Confederate jasmine perfumes the air, followed by the summer blooms of morning glory,

hyacinth bean, cypress vine and the vivid pink blooms of Rosa de Montana or coral vine. Autumn clematis cloaks its support with white, then fall comes and the vivid red color of the native and abundant Virginia creeper.

Because of their quick growth and seasonal attractiveness, vines are often used for quick shade over sunny patios or at poolside. When a vine is selected for shading purposes, use one that loses its foliage in winter to allow the welcome sun. Popular vines for overhead structures and arbors include wisteria, muscadine grapes, morning glory and Rosa de Montana.

Vines such as wisteria and common honeysuckle, as lovely as they are, are often unwelcome in the garden because of their persistence and rapid growth. Fast-growing vines often demand fast and routine control to keep them in their place.

Some large twining vines such as wisteria may injure a tree by actually choking the tree or cutting off the flow of food from the root area or trunk; therefore, never plant them with desirable trees as support. English ivy will not injure a tree unless it becomes so dense that it blocks light to the tree or prevents open wounds in the trunk or branches from drying out thus inducing rot. English ivy does not feed off the tree. Do not allow fast-growing and dense vines to grow over the tops of shrubs because they cut off proper light and aeration.



METHODS OF LAYERING

Landscape to Save Energy

Although it is not possible to control temperature, wind and other weather elements, certain landscape practices can modify the climate in and around homes significantly. By placing trees, shrubs, vines and landscape structures properly, the homeowner can reduce the energy required to keep homes and surrounding areas comfortable during winter and summer. If the landscaping is well done, one receives the added benefits of beauty and increased real estate values. A well-planned landscape is one of the

best investments a homeowner can make.

Trees

Studies show that trees planted on the south and west sides of a house reduce inside temperatures up to 8°. This can significantly reduce energy use for summer air conditioning or make non-air conditioned homes more livable during the long summer season. Trees placed about 20 feet or more from the house on the south and west sides not only shield

(Continued on page 3)

Landscaping—A Good Investment

One of the most often overlooked aspects of the home is the outdoor living space, particularly the landscape. Selecting the right plants for your home should take as much thought as selecting drapes, wallpaper, furniture or carpeting. Yet, landscaping is often regarded by the homeowner as incidental or of secondary importance at best.

To some homeowners landscaping is for others. It is enough to keep the lawn mowed and occasionally watered so that it doesn't die completely. Plants around the house become a nuisance. Remember your home landscaping reflects the kind of person you are. A neat, well-groomed, functional outdoors reflects a person's pride and well-being. It usually means that the homeowner enjoys his home both inside and out, and living is meaningful and fun.

What about the cost of plants? While \$30 may seem like a big price to pay for a tree, just consider the worthwhile investment you have made. While many things depreciate in value, plant

materials in the home landscape increase in value. A \$30 live oak or pecan tree may be worth ten times the purchase price after 10 to 15 years.

Landscaping, however, does not stop with the purchase of a tree. Good landscaping is expensive even for the "do-it-yourselfer."

A well-planned home should reflect a minimum investment of 10 percent of the value of your home. For example, if you have an \$80,000 home, approximately \$8,000 should be invested in the outdoor landscaped living area. The average homeowner is probably shocked at such a figure; however, this investment includes many facets of the landscape, such as fencing and paving for patios, etc., and not just plant materials.

Home landscaping need not be a burdensome chore. One doesn't have to be a hobbyist or even a weekend gardener to have a nicely landscaped home. The secret is in the planning. Design your home grounds so that one is not a slave to the yard.

You may wish to consult a professional landscape architect for planning the total landscape. Or you may wish to talk to a local nurseryman about your landscape needs and let him suggest ideas for planting. If you can't afford a complete landscape job all at once, tell him, and he can suggest a few plants for this year, some for next.

Regardless of how simple or extravagant your home is, landscaping not only beautifies the structure and enhances its value but it also gives you a sense of pride and satisfaction in knowing you are doing your part to improve the environment of your town and country. Above all, good landscape design provides maximum usefulness as well as beauty in the out-of-doors.



Landscaping can add beauty as well as value to your home.

Weed Control Frustrating Task

Home lawn weed control can be very frustrating. Following a good maintenance program helps build a dense turf that discourages the invasion of weeds. On the other hand, a weak, thin turf allows weed seed germination and establishment.

Once a weed is established, it can be removed physically by digging or chemically. Digging is fine if the weeds are few and if they do not have underground reproduction organs. Dallisgrass is an example of a plant with this type of reproductive system. After digging up the plant it regrows from underground parts that reproduce.

When considering chemical weed control, remember you are trying to remove an undesirable plant that is grow-

ing among desirable plants. Many times this is not an easy task.

Generally, lawn weeds may be divided into two groups—those that have broad leaves such as chickweed, henbit, spurge, etc., and those with grassy-type leaves such as dallisgrass, crabgrass, goose grass, etc.

Control grassy-type weeds in bermuda lawns with MSMA (monosodium methanearsonate) or DSMA (disodium methanearsonate). Several applications may be necessary and the bermuda may turn yellow, but it should recover. Grassy-type weeds cannot be selectively controlled in a St. Augustine lawn. They may be removed by spot treating the individual weed with either of the above chemicals or with

glyphosate (trade name - Roundup or Kleenup).

Broadleaved weeds are usually controlled with products containing 2, 4-D, MCPP and dicamba. These chemicals are not safe for every lawn or for every situation. To be sure, check the label on the container. Be sure the chemical will control the weed you have, is safe to use on your type of lawn and will not injure nearby ornamental plants.

For best results, apply the herbicide only when weeds are actively growing. The most difficult time to kill a weed is when it is hot and dry and the weed is under moisture stress. Try to pick a cooler day with little wind movement when soil moisture levels are fairly high.

Fertilizer Program Basic Part Of Home Lawn Maintenance

A good, reasonable fertilizer program is a basic part of any turfgrass maintenance program, and the home lawn maintenance program is no exception. Underfertilized lawns usually are thin and have poor color, while overfertilized lawns, especially with high levels of a soluble nitrogen fertilizer, may develop excessive thatch and be more prone to insect and disease damage.

Fertilizer Ratios and Analysis

Several factors are used to consider the best ratio between nitrogen, phosphorus and potassium for a turf fertilizer. These include the functions of each nutrient in the plant, the amount of each nutrient required by the plant and the relationship between each nutrient in the growth of the plant.

Considering these factors,

research shows that the best N-P-K ratio for turf establishment. (Continued on page 4)



Plan Your Landscape for Easy Care

The downfall of most home landscapes is the lack of maintenance. It is practically impossible to maintain an attractive landscape without a few hours of care each week. Yet, too often the homeowner plants and then forgets, think-

ing that everything will somehow turn out looking OK.

Good landscapes don't just happen. Leaving landscapes to Mother Nature's care doesn't usually work out, particularly in Texas where summer alone can take a scorching toll.

Becoming a "Saturday slave" to your landscape is not necessary. The trick is in the planning. If possible, plan your landscape in advance. Have a definite purpose and place for every plant, tree, shrub or other feature you use. Plant with minimum maintenance in mind.

Here are some things to consider in establishing a minimum-maintenance landscape:

- Eliminate as many "frills" as possible. A good landscape design is based on simplicity, so use only things that do a definite job in the landscape. Don't just plant for the sake of variety.
- Avoid a scattered arrangement of flower beds and shrubs. A cluttered yard with many beds and shrubs requires a lot of hand edging and clipping. That in itself can become a maintenance nightmare.
- Don't try to grow grass in areas too shady, too dry, too wet or too steep to be mowed safely. Even St. Augustine must have 40 percent sunlight to do well.
- Don't fight a losing battle. Use ground cover plants in these areas; there are several excellent ones to select from.
- Don't line walks and driveways with unnecessary plantings or place foundation plants so close to the house that they can't be maintained.

Select your plants carefully, considering their ultimate size (height and width) and plant accordingly.

Don't use large, fast-growing shrubs which require constant pruning. Consider, instead, some of the easy-care, dwarf-type plants to fill your basic landscape needs.

Consider the use of native plants since they are adapted to the climate and soil and usually have few insect and disease problems.

Use mowing strips or edges along walks, flower beds and around trees and shrubs. These reduce mowing and edging problems and create a neater landscape.

Use mulches to minimize watering and reduce weeds in flower and shrub beds. Don't over fertilize. Keep plants at minimum fertilization levels, thus mowing, pruning and trimming are minimized.

Don't confuse low maintenance with no maintenance. Plants need water, fertilizer and care, and the grass must be mowed. The idea is to find the easiest way to do the necessary maintenance jobs.

One good way to keep from becoming that slave to your landscape is to set aside an evening or two during the week for doing landscape chores. Allow gardening to be a joy, a time for relaxed work or just being out-of-doors.

Landscaping Saves Energy

(Continued from page 2) the sun's rays but also contribute refreshing humidity. For suggestions of tree species in your area, ask your county Extension agent for a copy of B-1237 *Trees for Texas Landscapes*.

During late fall and winter deciduous trees drop their leaves and let the warming rays of sunshine in, making homes warmer and saving heating energy.

Windbreaks

Evergreen wind barrier plantings on the north and west sides of the house can cut 10 to 40 percent off winter fuel bills. Place plantings on those sides with an extension on the eastern side if space permits. Experiments show that maximum wind reduction occurs at a distance of four to six times the height of the windbreak, so establish plantings at this distance from the house. Select rapid-growing species which will reach from one to one-and-a-half times the height of the house at maturity.

Based on these recommendations, a 20-foot tall house would benefit most from a hedge of tall evergreens located 80 to 120 feet from the north side of the house. Single row plantings are effective but double and triple rows are even better.

Vines

Vines can have a tremendous effect in cooling house walls during the summer. For masonry walls such species as Boston ivy and Virginia creeper are excellent. Their leaves are borne in an orderly shingle pattern on 4- to 6-inch petioles. The leaf blades intercept and absorb the sun's rays, while behind them convection current carries the warm air up and away from the wall.

Deciduous vines such as Boston ivy and Virginia creeper are most effective on southern and western masonry walls which receive a great deal of direct sun. Evergreen species such as English ivy are effective on sunless walls where

their persistent foliage deflects winter winds and their stems provide an insulating effect.

All the vines mentioned are clinging types and are not good for wooden walls since their stems and tendrils hold moisture and can cause wood to deteriorate. The same cooling effect can, however, be achieved by training twining vines such as wisteria, Carolina jessamine and muscadine grapes on trellises near these walls or overhead structures over terraces.

Fast-growing vines such as morning glories can be trained to grow on such structures and provide relief from the heat the same season in which they are planted.

Whether planting trees, windbreaks or vines, living plants can indeed be an energy-saving gift from nature. For additional information on how landscaping can reduce energy consumption in your home, ask your county Extension agent for a copy of L-1709 *Landscaping for Energy Conservation*.

Maintain Home Lawns with Fertilizer Program

(Continued from page 3)

ment is 1-1-1 or 1-2-2. For a mature established turf, the best N-P-K ratio seems to be 3-1-2 or 4-1-2. Table 1 defines examples of fertilizer analysis that fit the suggested ratios.

Yearly Fertilizer Needed

Grasses used for lawns vary in the amount of fertilizer needed for optimum growth during the year (table 2).

Application Rate and Timing

The rate at which a fertilizer is applied to a lawn and the interval between applications have a great deal to do with the form of nitrogen used in the fertilizer (table 3).

Table 1. Examples of fertilizer analysis.

Fertilizer analysis	Fertilizer ratios			
	1 - 1 - 1	1 - 2 - 2	3 - 1 - 2	4 - 1 - 2
	8 - 8 - 8	5 - 10 - 10	15 - 5 - 10	16 - 4 - 8
	12 - 12 - 12	10 - 20 - 20	12 - 4 - 8	20 - 5 - 10

Table 2. Fertilizer requirements.

Turfgrass	Pounds of nitrogen per 1,000 sq ft per year
Hybrid bermudagrass (Tifway, Tifgreen)	5-7
Common bermudagrass	4-6
Bluegrass	
Ryegrass	
Zoysiagrass	3-5
St. Augustinegrass	2-4
Tall fescue	
Centipedegrass	1-2
Buffalograss	1
Carpetgrass	

It is generally recommended that a quickly available nitrogen fertilizer not be applied at a rate any greater than

Table 3. Forms of nitrogen.

Quickly available	Slowly available
Urea	Ureaformaldehyde (UF)
Ammonium sulfate	Sulfur-coated urea (SCU)
Ammonium nitrate	Isobutylidene diurea (IBDU)

1 pound of actual nitrogen per 1,000 square feet per application. The slowly available material may be applied at higher rates. The relative difference in growth rates that results from the same amount of nitrogen as a function of the form of nitrogen is illustrated in figure 1.

The best time to fertilize a lawn is when it needs it. Generally, a fertilizer containing one of the quickly available nitrogen sources should be applied about every 4 to 6 weeks, but if the nitrogen source is

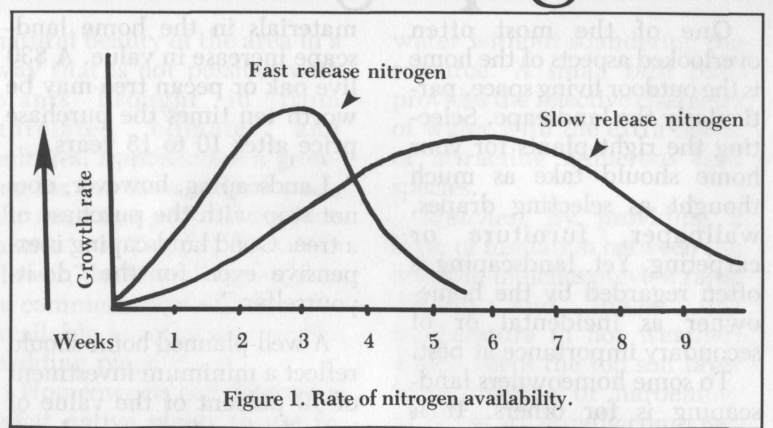
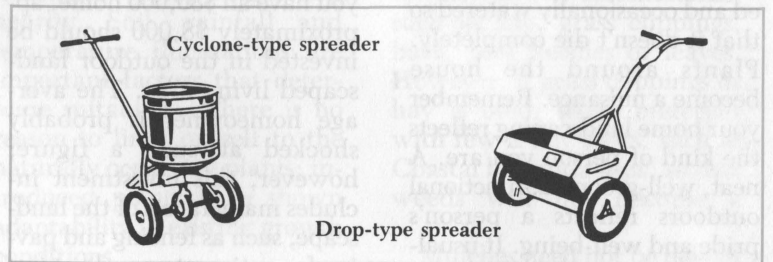


Figure 1. Rate of nitrogen availability.



slowly available, the interval between applications can be extended to every 6 to 8 weeks.

Do not fertilize lawns during periods of dormancy or during stress periods. Dormancy occurs during the winter for the warm season grasses such as bermudagrass, St. Augustinegrass, buffalograss, centipedegrass and carpetgrass. Make the first fertilizer application on these lawns in the spring after they have "greened up." Make the last application in North Texas about September 1 and about October 1 in the south.

Use slowly soluble fertilizer on St. Augustinegrass during the summer months to reduce the chance of disease or insect damage. St. Augustinegrass may, from time to time, suffer from iron chlorosis. Applications of iron sulfate or an iron chelate at the manufacturer's direction should eliminate the problem.

Fertilize the cool grasses such as tall fescue and bluegrass during their active growth periods in the spring and fall but not when they are under stress such as during hot weather.

Application Methods

A fertilizer can be effectively applied with either a

"cyclone" type spreader or a drop-type spreader. Dark and light stripes may appear in the lawn as a result of uneven fertilizer application. To prevent this problem, divide the total amount of fertilizer needed for the lawn into two equal amounts. Apply one-half of the fertilizer using either type of spreader in one direction and the rest at right angles to the first application (figure 2).

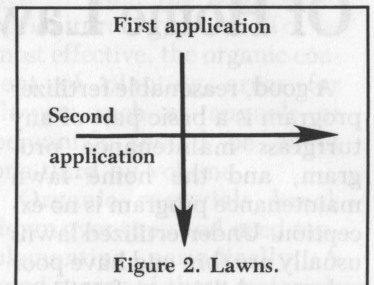


Figure 2. Lawns.

Summary

For a successful lawn fertilization program, remember the following points:

- Use a fertilizer with a nutrient ratio of 3-1-2 or 4-1-2.
- Do not apply a quickly available fertilizer at rates any higher than 1 pound of actual nitrogen per 1,000 square feet.
- Do not fertilize a lawn during dormancy or environmental stress.
- Apply a quickly available fertilizer every 4 to 6 weeks and slowly available fertilizer every 6 to 8 weeks during periods when the lawn is actively growing.

Soil Is Key to Successful Gardening

The soil in your garden is the key to successful gardening. Spring days allow one to prepare soils in anticipation of planting.

The success or health of any plant depends directly on the soil in which the plant is growing. Basically, the soil holds the plant in place in an upright position and provides necessary moisture, oxygen and food. As simple as this may seem, many backyard soils do not supply these essentials for proper production.

The best method of assuring plants of adequate moisture is to incorporate generous amounts of humus or organic materials into the soil. Organic materials such as peatmoss, leafmold, compost, processed bar and animal manures are a coarse texture which insures good soil aeration or oxygen, proper drainage or water movement through the soil and proper water retention as well as prevention of soil compaction and oftentimes food for the plant.

Spade and work proposed planting areas well before adding organic or humus materials to remove undesirable weeds and grasses and to work organic additives into the bed area. Spread organic material evenly over the surface of the cultivated soil, then turn into the soil.

The amount of organic material required for a garden bed depends on existing soil conditions. Heavy clay-type soils or very sandy soils demand greater amounts of humus or organic materials to insure proper aeration, drainage and water retention. The amount depends on the depth and size of the proposed planting area. With experience, the gardener can feel the soil and recognize the desired tilth and soil texture for plant growth. The soil should appear and feel "fluffed" and loose in texture.

Perhaps the most popular and best organic material for soils is sphagnum peat. This material is loose, coarse textured and long-lasting in the soil. Normally, peat comes in a compressed bale or block. Because of its dry, compressed condition, it should be spread and fluffed over the bed area, moistened and then worked well into the soil. The average soil requires 2 to 4 inches of peat over the soil surface to be spaded in to provide a desirable soil texture.

Animal manures, compost and leaf mold not only provide organic matter but slowly available food for the plant as well. Because these materials are not as coarse as peat, more is usually required for a good soil mix. Oftentimes, when available, well-rotted manures, compost or leaf mold are added to a peat and soil mixture.

Processed barks are available in a number of grades or sizes and are popular and useful as long-lasting soil conditioners and decorative mulches.

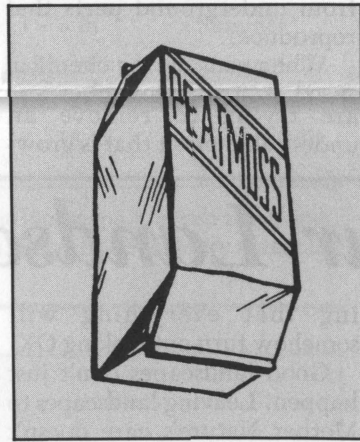
Commercial fertilizers may also be added when preparing soils, if they are applied at least 2 weeks before planting. The best formula is a complete and balanced fertilizer such as 8-8-8, 10-10-10 or 12-12-12 at a rate of approximately 1/2 cup per square yard of soil area. Fertilizers, like organic materials, should be well worked and distributed into the prepared soil.

If time does not allow for a fertilizer treatment before planting, wait until plants are well established and growing

before applying raw fertilizer at the same rate.

Dig beds for annuals, perennials and vegetables to a 12- to 18-inch depth. Prepare areas for trees and shrubs 8 to 12 inches beyond the width of the plant's existing root area. Slightly raise all planting beds above normal ground level to allow for settling and to insure surface drainage.

The extra time, expense and labor of properly prepared soils are worth the effort in good plant growth and production, less soil compaction and less summer watering.



Espaliered Plants Add Appeal to Home Landscape

Training trees and large shrubs to grow on a trellis or wall is a hobby which appeals to the advanced gardener. It requires many years of care to develop a large espaliered tree or shrub. Fruit trees are

especially adapted for use as espaliers; however, many ornamental plants with colorful fruit such as the pyracantha are also effective.

The espaliered plant requires much less area than a

free-standing tree or shrub and is an effective way to screen or protect a wall from the sun's full heat. The plant can be fastened directly to a masonry wall; however, it is better to use a wood trellis to hold the

plant 4 to 6 inches from the wall. This provides better air circulation and results in less heat damage to the plant. An east or north exposure is usually best for espaliered plants except those with colorful fruit. Espaliered fruit trees need full sun for best fruit color.

A relatively simple method of supporting espaliered plants against masonry structures is the use of galvanized or aluminum wire strung between eye screws anchored in plastic or lead plugs inserted in holes drilled into mortar joints. The desired pattern is established in wire, and the plant is fastened to the wire using plastic plant tie.

There are many forms for training espaliers; however, in most cases they are trained to grow so all branches are in a vertical plane. The plant may be trained to a single shoot or to two shoots lying in opposite directions, mostly horizontal, in which case it is called a cordon (figure 1b). The cordon usually is trained along a horizontal wire or low wooden fence. Other methods include

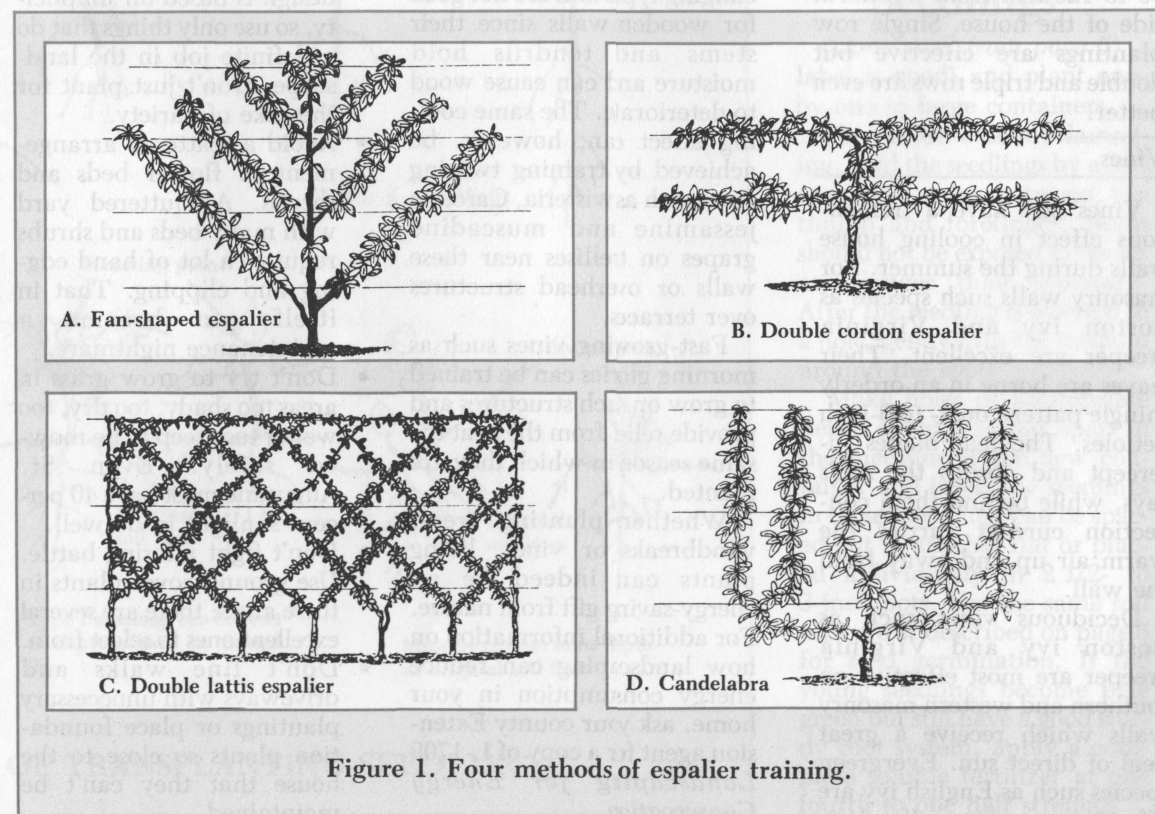


Figure 1. Four methods of espalier training.

(Continued on page 5)

Follow Simple Procedures When Starting Transplants

Growing plants from seed is the most universal propagation method. All horticulturists, both amateur and professional, have at one time or another sown seed. When preparing to grow plants from seed, remembering a few simple procedures saves time, avoids wasted effort and helps bring success.

Seed source. Seed propagation is typically used to propagate large numbers of plants inexpensively. Generally, plants grown from seed take longer to reach maturity but the low production cost may offset the extra time involved. Some plants produce sufficient seed for one's needs; however, if purity and freshness are important, it is best to purchase from a reliable commercial source.

The fact that plants do not always come true from seed

can actually add interest to this propagation method. Remember, however, that if uniformity is desired in new plants, seed propagation may not provide it.

Germinating medium. Seeds may be sown in various materials including mixtures containing sand, sphagnum peat, vermiculite, peat moss, perlite and soil. Any prepared medium should be well drained and sterile. A mixture of equal parts of sand, sphagnum moss and loam soil or sphagnum moss and vermiculite are equally effective. When sowing fine seed such as petunias, a medium which has been screened to give a fine-textured surface is recommended.

Fill the germination container to 1/4 inch of the top with the prepared germination medium. Moisten with water

until wet but not soggy. If the germination medium has been prepared with non-sterile components, sterilize by placing the medium and container in an oven for 1/2 hour at a temperature of 180° F. (This step is not necessary for pre-packaged germination media.)

After the germination medium has cooled, level and tamp lightly to make a firm seedbed.

The bottom half of a waxed milk carton with holes punched in the bottom makes a suitable container for germinating seeds but do not place it in the oven.

Sowing seeds. Broadcast seeds over the soil surface or sow in rows. Very fine seeds, i.e., petunias, begonias and snapdragons, are often broadcast over the surface of the soil but sowing in rows is preferred.

After seeds have been carefully sown, cover lightly with a growing medium. Fine seeds are usually not covered but are watered lightly with a fine mist which washes them down into the medium. As a general rule for judging planting depth, plant seed at a depth of about two to three times its diameter. Thus, for fine seeds a thin covering or no covering will suffice.

When sowing seeds, do not sow too thickly. Crowded seedlings grow rapidly but become tall and spindly making them less desirable. In addition, thickly sown seeds increase the chances for the fungal disease, damping-off. Damping-off is a seedling disease that grows at or near the soil surface causing young plants to rot. As a further precaution against damping-off, treat seed and soil with fungicides, but good cultural practices, i.e., light, watering and good air drainage, usually help prevent this problem.

Now place the container in a polyethylene bag and seal the end with a rubber band. Large freezer bags are ideal since polyethylene keeps moisture in but allows air to be exchanged.

No further watering should be necessary until seedlings are removed from the bag.

Watering. Watering is one of the main reasons for success or failure with seedlings. Soil should be moist but not wet at the time of planting and throughout the growing season. Small seedlings dry out very quickly so check often to avoid damage.

Roots need oxygen as well as water, and if the soil remains soaked for very long, plants literally drown. There are no set rules on when to water — the soil condition determines when water is needed. Water seed flats only when the soil has visibly begun to dry out.

Transplanting. Seedlings can be transplanted when the first true leaves appear. When first germinated, most seedlings have two small "seed leaves" or cotyledons which are characteristic of the plant. The transplanting operation temporarily checks the growth of seedlings, making them grow into more compact plants. Lift the seedlings a few at a time from the seed flat with a pencil or small, flat stick (a pot

(Continued on page 6)

Plant Full Beds of Annuals For Rapid Splash of Color

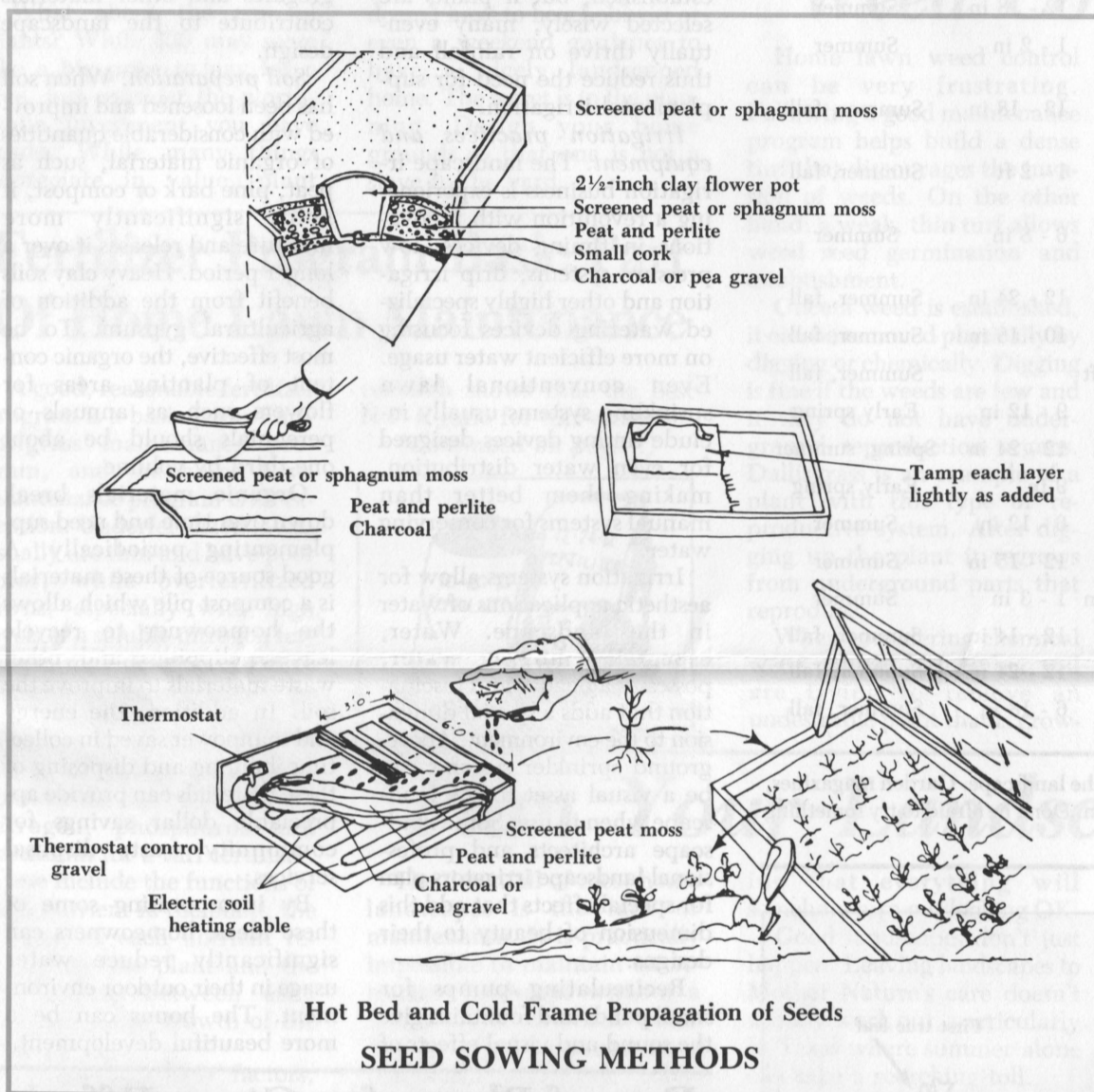
For rapid color in the home landscape, nothing outperforms a bed or two of petunias or marigolds planted where they can be seen from the interior of the home. You may want to locate a bed of periwinkles to view from the patio or deck. To be effective use enough plants of a single species or variety to make a splash of color. Use at least a dozen or more in a bed so they can be seen readily.

The apartment dweller or others having limited space can still enjoy color on their balcony or deck by growing a few plants in tubs or containers filled with prepared potting soils available at nursery or garden centers.

Because of the exacting care needed to produce these annuals from seed most gardeners rely on plants available at

nursery or garden centers. These small plants can be readily transplanted to a well-prepared bed or container. Most of these plants have a label telling whether they require full sun, partial shade or full shade for best results. The label should also provide information about the height and spread of the mature plant or the spacing needed between plants for optimum flowering. If the information is not on the label, ask the sales person to provide you with the answers.

The annuals listed on page 6 are classified according to the amount of light needed as well as whether they are cool season or warm season plants. The size is determined by the variety selected within a species. The available range is given in the chart on page 6. Select a size that fits your needs.



Hot Bed and Cold Frame Propagation of Seeds
SEED SOWING METHODS

Espaliered Plants Add Interesting Landscape Accent

(Continued from page 4) the fan-shaped espalier (figure 1a) and the candelabra espalier (figure 1d) which are both suitable for growing against a wall.

Begin training when the plant is very young, preferably a 1-year-old whip or at more a 2-year-old budded or grafted fruitstock. It is important to start before the plant has produced a stiff trunk and large side branches. Prune the whip back to within a foot or two of the ground. Allow only those side shoots to develop which are growing in the proper position and direction to produce the desired effect (figure 2).

Tie selected lateral shoots to the support as they grow, and pinch off the side shoots developing from these except those wanted for additional arms in the framework or those retained for fruiting spurs.

The espalier form most frequently used is the candelabra in which three buds are allowed to develop from the cut-back whip. One continues as a

leader the the other two are trained as horizontal cordons until they reach the point where the outside verticals are desired. Allow the tips to turn upward and form two outside verticals. If the seven-branched candelabra is desired, pinch the leader to develop side branches at two more levels before

the leader is allowed to develop as the central riser. Allow each of the other horizontal pairs to develop until they reach the point where the vertical branches are desired. It may require 2 to 3 years to obtain the desired structure. Continuously pinch back the side shoots on the lateral canes to form

fruiting spurs over the entire framework. Another name for the candelabra system is the gridiron system.

It is frequently necessary to resort to root pruning once the general framework is developed. This is especially true where the soil is unusually fertile and it sometimes becomes

difficult to control the growth of side shoots. To root prune, use a spade and push the full depth of the blade into the soil in a circle about 3 feet from the trunk. This reduces the size of the root system thereby slowing the top growth.

To be effective a uniform balance of growth must be maintained over the entire plant. This requires constant observation and careful pruning. When tying the branches in the desired position use cloth or plastic strips to avoid girdling. These ties must be observed carefully and when they become tight, cut and retie them.

While the training of an espaliered plant is not considered low maintenance the end results are rewarding and can provide an interesting accent or conversation piece in the landscape. Keep a pair of pruning shears handy and use them almost every time you walk by the plant to remove any shoots growing where they are not wanted.

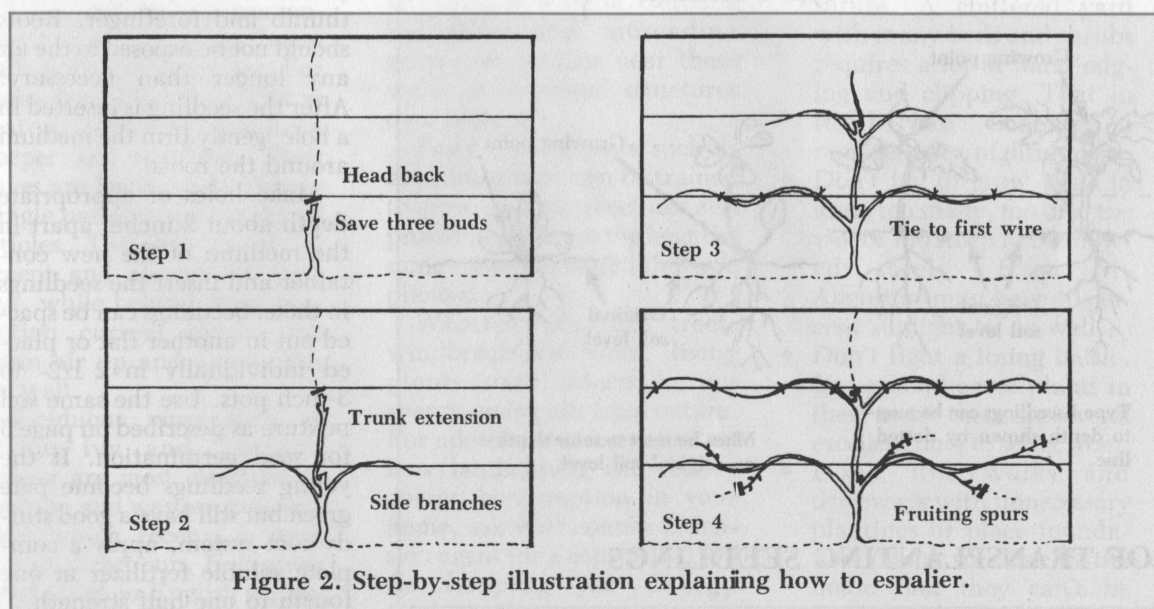


Figure 2. Step-by-step illustration explaining how to espalier.

Landscape Development for Water Conservation

Experts on water quality and availability warn that, at present usage rates, readily available water in Texas and many other parts of the world is becoming seriously depleted. Unless major changes occur, lack of water may inhibit the continued development and prosperity of much of the Sun Belt region. In urban areas such as Houston, it is estimated that roughly three-fourths of the residential water usage is

for irrigation of home, community and industrial landscape developments

Concern over impending water shortages stimulates increased interest in reducing water usage for turf and garden areas. Water conservation can encompass all areas of the landscape development and maintenance from plant selection to irrigation practices and equipment to mulches and soil preparation. While these

applications are practical, they can also be aesthetic, enhancing the natural beauty of the landscape.

A closer look reveals some specific things homeowners can do to lower landscape water usage:

Native and adapted plants. Native plants often thrive on existing growth conditions and reduce the need for supplemental irrigation. Repeated plantings of natives amplify the

natural beauty of the area in a way that is not possible with plants brought in from unrelated climates and cultures. Appreciation is growing for the thousands of trees, shrubs, vines and wildflowers native to Texas. The state flower, the bluebonnet, is now in commercial production and available as a fall and winter bedding plant.

Homeowners can determine what native plants to use by looking at what is growing nearby. Soil, rainfall and temperature fluctuations are important factors that determine suitability. There is no reason to limit oneself to the naturally occurring plants; introduced plants have shown adaptability to existing growth conditions.

Even so, native and adapted plants require extra water and attention while becoming established, but if plants are selected wisely, many eventually thrive on rainfall and thus reduce the need for supplemental irrigation.

Irrigation practices and equipment. The landscape irrigation business is experiencing a revolution with innovations in timing devices, low pressure systems, drip irrigation and other highly specialized watering devices focusing on more efficient water usage. Even conventional lawn sprinkling systems usually include timing devices designed for even water distribution, making them better than manual systems for conserving water.

Irrigation systems allow for aesthetic applications of water in the landscape. Water, especially moving water, possesses a beauty and fascination that adds a special dimension to the environment. Above-ground sprinkler systems can be a visual asset to the landscape when in use. Some landscape architects and professional landscape irrigators plan for special effects that add this dimension of beauty to their designs.

Recirculating pumps for small ponds and fountains give the sound and visual effects of

water without squandering the resource. A small bird bath provides the relective character of water with the extra bonus of attracting numerous bird species.

Mulches. By providing a layer of insulation between sun and soil, mulches prevent rapid drying and lower soil temperature in hot weather, which keeps the top soil layer from crusting or hardening. Mulches are usually composed of relatively low cost materials, such as hay, grass clippings, bark, pine needles or leaves. However, if grass clippings or hay is used, select materials with few if any seeds, such as Coastal bermudagrass, so that weeds will not become a

Mulches need not be devoid of aesthetic appeal. The texture and color of pine bark, pecan shells, pine needles, certain aggregates and other materials contribute to the landscape design.

Soil preparation. When soil has been loosened and improved with considerable quantities of organic material, such as peat, pine bark or compost, it holds significantly more moisture and releases it over a longer period. Heavy clay soils benefit from the addition of agricultural gypsum. To be most effective, the organic content of planting areas for flowers such as annuals or perennials should be about one-third by volume.

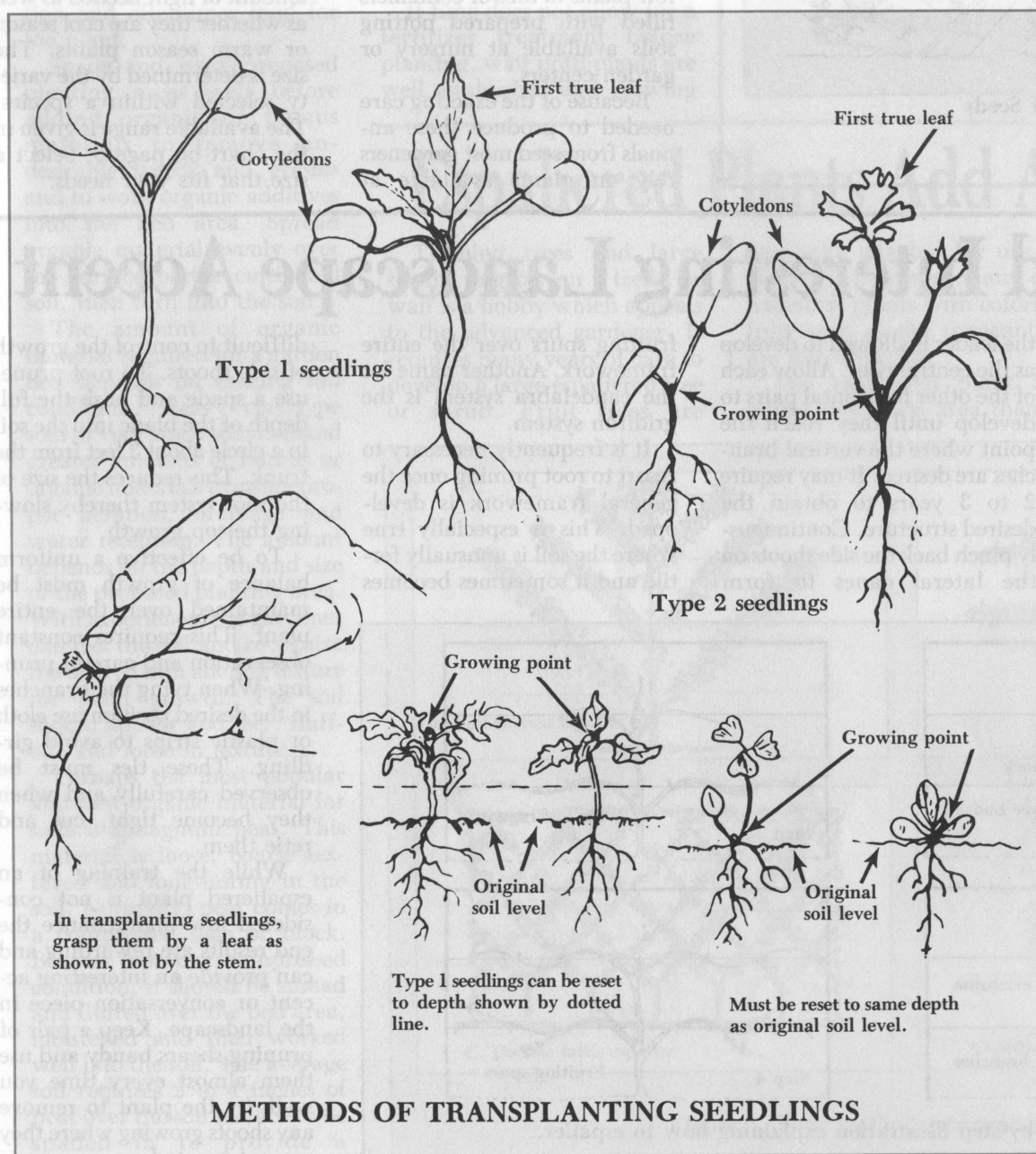
Organic materials break down over time and need supplementing periodically. A good source of these materials is a compost pile which allows the homeowner to recycle leaves, clippings and other waste materials to improve the soil. In addition, the energy and manpower saved in collecting, hauling and disposing of these materials can provide appreciable dollar savings for community waste disposal services.

By incorporating some of these ideas, homeowners can significantly reduce water usage in their outdoor environment. The bonus can be a more beautiful development.

PARTIAL LISTING OF RECOMMENDED FLOWERING ANNUALS FOR TEXAS

Common and botanical names	Sun	Partial shade	Shade	Height	Spread	Flower season
Ageratum or flossflower (<i>Ageratum houstonianum</i>)	X	X		5 - 18 in	6 - 10 in	Spring, summer
Sweet Alyssum (<i>Lobularia maritima</i>)	X	X		3 - 9 in	12 in	Spring
Spider Flower (<i>Cleome spinosa</i>)	X			3 - 4 in	18 - 24 in	Summer
Cosmos (<i>Cosmos bipinnatus</i>)	X		X	18 - 24 in	12 - 18 in	Summer
Gloriosa Daisy (<i>Rudbeckia</i>)	X	X		2 - 3 in	1 - 2 in	Summer
Gaillardia or Blanketflower (<i>Gaillardia pulchella</i>)	X			8 - 24 in	12 - 18 in	Summer, fall
Geranium (<i>Pelargonium hortorum</i>)	X	X		1 - 2 ft	1 - 2 ft	Summer, fall
Globe amaranth (<i>Gomphrena globosa</i>)	X			9 - 16 in	6 - 8 in	Summer
Impatiens or Sultana (<i>Impatiens hybrida</i>)		X	X	6 - 24 in	12 - 24 in	Summer, fall
Marigold (<i>Tagetes</i> sp.)	X			7 - 48 in	10 - 18 in	Summer, fall
Morning Glory (<i>Impomea</i> sp.)	X			Vine to 10 ft		Summer, fall
Pansy and Viola (<i>Viola</i> sp.)	X			6 - 9 in	9 - 12 in	Early spring
Petunia (<i>Petunia hybrida</i>)	X			10 - 15 in	12 - 24 in	Spring, summer
Annual Phlox (<i>Phlox drummond</i>)	X			7 - 12 in	9 in	Early spring
Moss Rose (<i>Portulaca grandiflora</i>)	X			5 - 7 in	6 - 12 in	Summer
Salvia (<i>Salvia splendens</i>)	X	X		7 - 24 in	12 - 15 in	Summer
Sunflower (<i>Helianthus annus</i>)	X			1 1/2 - 10 in	1 - 3 in	Summer
Verbena (<i>Verbena hybrida</i>)	X			8 - 10 in	12 - 14 in	Summer, fall
Periwinkle (<i>Lochnera rosea</i>)	X			6 - 10 in	12 - 24 in	Summer, fall
Zinnia (<i>Zinnia elegans</i>)	X			6 - 8 in	6 - 18 in	Summer, fall

This is only a partial list; there are many other species that perform well in the landscape. Garden magazines, seed catalogs and reference books are excellent sources for additional information. Don't be afraid to try something new occasionally. You may be pleasantly surprised with the results.



METHODS OF TRANSPLANTING SEEDLINGS

Dwarf Plants for Giant Effects

After many years of pruning the arborvitae and spreading juniper from the front door welcome mat, homeowners

Transplanting Seedlings

(Continued from page 5) label is good) and plant one-by-one in large containers.

To handle without damaging, hold the seedlings by a leaf (not the stem) between the thumb and forefinger. Roots should not be exposed to the air any longer than necessary. After the seedling is inserted in a hole, gently firm the medium around the roots.

Make holes of appropriate depth about 2 inches apart in the medium of the new container and insert the seedlings in these. Seedlings can be spaced out in another flat or placed individually in 2 1/2- to 3-inch pots. Use the same soil mixture as described on page 5 for seed germination. If the young seedlings become pale green but still have a good sturdy root system, apply a complete soluble fertilizer at one fourth to one half strength.

appreciate the advantages of dwarf plants. In search of replacements for the overly large doorway plants, plant breeders have introduced many new, exciting and useful dwarfs compared with the larger, more common shrubs which reach 6 and 8 feet high and wide.

In the nursery trade, a dwarf plant is 3 feet or less in ultimate height. The homeowner, or grower, must plant with the ultimate size in mind to allow ample growing room and eliminate the constant chore of pruning to keep the plant in its proper place.

Dwarf plants are best used in small, detailed areas where they can be observed at close range, such as patios and entrance areas. The small sizes are not significant in back borders or distant plantings. The popular dwarfs are in demand along walk areas, beneath low windows and near detailed gardens, such as rock gardens, pool gardens and planter box plantings.

The wide versatility and adaptability of dwarf plants

(Continued on page 7)

Roses Versatile in Wide Variety of Growing Conditions

Roses are amazingly versatile plants that respond favorably to a wide variety of growing conditions. A number of characteristics are known to produce healthy plants and prolific blooming.

Site or location. Plants are sturdier and produce more flowers in full sun. At least 5 or 6 hours of direct sun is desirable. Early morning sun is especially good since it quickly dries any moisture on the plants, reducing disease problems.

Good drainage is essential for all but a few varieties. If water stands in the root zone for extended periods, either choose another location or raise the planting bed enough to improve drainage.

Good air circulation is helpful to prevent disease. Extremely windy sites may, however, require windbreak protection for good flower and foliage quality.

Soil. Roses thrive in a wide variety of soils, although some may require modification. Heavy clay soils are preferred. These can be improved by incorporating 4 to 6 inches of compost, pine bark, peat moss or similar material into the upper foot of soil. Agricultural gypsum incorporated into heavy clay also improves soil texture. Sandy soils require even larger amounts of organic material to help hold water and nutrients necessary for good growth and flowering.

Roses prefer a slightly acid soil (pH 6.0 to 6.8). Soil pH can usually be raised about one point by adding 5 pounds of ground limestone per 100 square feet of soil area. To lower pH or make the soil more acid, incorporate 3 pounds of iron sulfate or 1 pound of ground sulfur per 100 square feet. It is highly desirable to prepare beds or holes several months before planting. This allows organic materials and nutrients to become more available to the plants.

Planting. If planting only a few roses, dig individual holes at least 12 inches deep and 18 inches wide. Mix about one-third organic material (peat, pine bark or compost) with some of the soil from the hole, along with a gallon or two of well-rotted cow manure, if available. A half cup of bonemeal or superphosphate thoroughly mixed with the soil is also a good idea. A similar amount of agricultural gypsum is beneficial for heavy clay soils.

Plant spacing varies with varieties. Most Polyanthas can be planted as close as 18 to 24 inches, while Chinas, Bourbons, Teas, Hybrid Perpetuals, Hybrid Teas and Hybrid Musks are best at 3- to 5-foot spacing, depending on the variety. Climbers and ramblers need more space to develop to their potential. Eight to 10 feet is appropriate for most, but under good growing conditions, Banksias, Cherokee and certain others can be spaced at 15-foot intervals.

Set out bare root plants as soon after receiving them as weather and time allow. If a delay of more than a few days is necessary, remove the plants from the shipping bag and "heel them in" by covering the roots and part of the top with loose soil.

Container-grown plants may be set out at any time, but most rose growers avoid the

hot summer months when extra irrigation and care may be necessary to insure success.

Prune tops back an inch or two to just above a live and healthy bud on each cane. Cut back canes or roots damaged in shipping or handling to healthy tissue. Dig the hole large enough to accommodate the natural root spread and fill

specially designed automatic sprinkling devices. Most rose varieties are less disease prone if their foliage remains dry. Deep watering at weekly intervals is far superior to frequent light sprinkling.

Mulches help conserve water while moderating soil temperatures during extremely hot weather. Bark, pine needles or

a fungal disease called black spot. On susceptible varieties, if left unchecked, it causes the plant to lose most of its leaves. The disease appears as circular black spots frequently surrounded by a yellow halo. Infected leaves turn yellow and drop off prematurely. Benomyl, Funginex or Maneb used according to label instruc-

Shaping the plants and cutting back vigorous canes one-fourth to one-third of their length results in more attractive plants. Prune most climbers and one-third bloomers after they flower in the spring so as not to reduce their seasonal show.

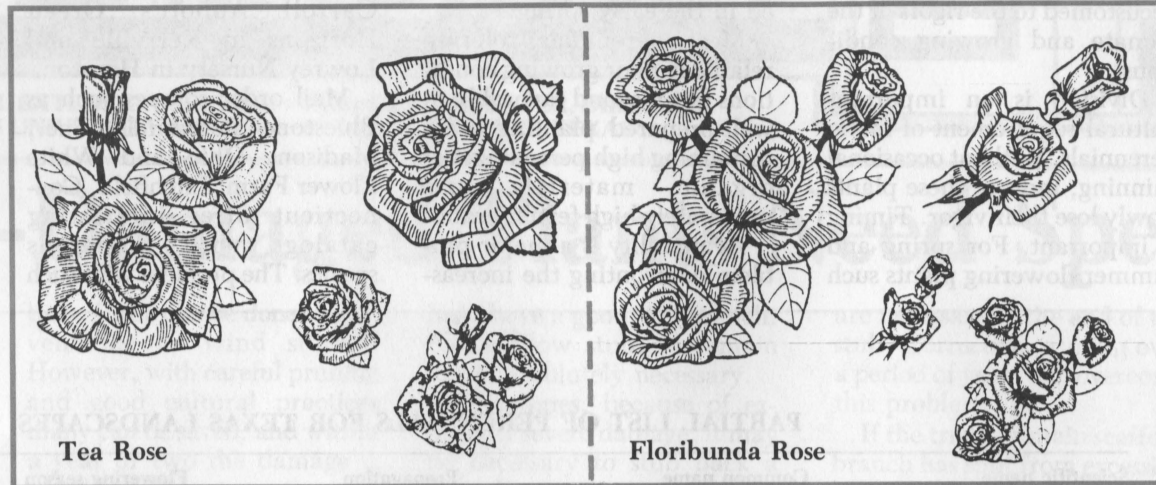
Keep in mind that most old garden roses are attractive landscape plants with a pleasing natural form. This form should still be apparent after pruning. In addition to pruning in late winter, some rosarians cut plants back moderately in mid-August. This practice along with a light fertilizer application and thorough watering, if needed, can promote an excellent fall floral display with many varieties.

Hybrid Teas, Floribundas and Grandifloras are usually pruned heavily in late winter (down to 18 to 24 inches from the ground). Miniatures are pruned to a few inches above the ground also in late winter.

Cutting flowers. Improper cutting of flowers can injure the plant and decrease its vigor. It is best to cut only a few, if any, flowers during the first blooming season. By removing only the flowers and not the stem, plants develop into larger bushes by fall, at which time some flowers may be cut. Early removal of foliage and long stems reduces the food-manufacturing capacity of the plant and subsequent flower yield.

When cutting, use sharp tools and leave at least two leaves between the cut and the main stem. Use sharp shears or a knife just above the topmost leaf. Roses that are cut just before petals begin to unfold open normally and remain in good condition longer. Late

(Continued on page 8)



with soil mixture described earlier. Firm the soil well around the roots and water thoroughly to remove air pockets and settle the soil firmly around the root system. Set plants at approximately the same level at which they had been growing or slightly deeper.

Do not apply fertilizers until the first set of flowers begins to fade for everblooming types, or in the case of once blooming roses, 8 to 10 weeks after planting. Apply a heaping tablespoon per plant of a complete fertilizer such as 6-10-4 or 8-8-8 every 4 to 6 weeks until about September 1. Application after that time can promote soft fall growth that may result in freeze damage.

Fertility. Roses are heavy users of nutrients and require frequent fertilizer applications. To determine fertility of existing soil, contact your county Extension agent for instructions on submitting a soil sample.

The time-honored fertilizer for roses is well-rotted cow manure. Since manure may not be available, commercial fertilizers have become popular. Phosphorus helps plants develop strong, healthy roots and prolific flowering. Superphosphate is usually available and can be applied at a rate of 3 to 4 pounds per 100 square feet. Since phosphorus is not very mobile in the soil, mix it well during preparation.

Nitrogen is easily and quickly depleted from the soil and needs to be applied periodically during the growing season. It is necessary for more and bigger canes, stems and leaves.

Potassium is needed for promotion of new growth, disease resistance and cold tolerance. All three nutrients (nitrogen, phosphorus and potassium) are included in balanced fertilizers. Many rose growers apply a balanced fertilizer every 4 to 6 weeks during the growing season. Do not fertilize newly set out plants until late in spring or after the first flush of flowers.

Watering. Many old roses are drought resistant and can exist on rainfall in much of Texas and the South. Most modern roses require watering. Supplemental irrigation is encouraged, however, to develop more attractive plants and much greater volume and quality of blossoms. Apply water efficiently with soaker hoses, drip irrigation or

even Coastal bermuda hay applied several inches deep to beds or individual plants is an excellent practice.

Supplement mulch with well-rotted cow manure during the winter, thus adding organic materials as well as some fertility to the soil.

Insects and diseases. Some gardeners grow old roses because they are often more resistant to insect and disease problems. This resistance varies considerably among varieties. Roses grown in open, sunny areas with good air circulation have fewer insect and disease problems.

Insecticides such as Malathion, Diazinon or Orthene are effective for controlling aphids, thrips and other insect pests. Use miticides to control spider mites.

The major pest of roses in most of Texas and the South is

tions are effective in controlling black spot disease.

Powdery mildew is another disease that is a problem on some varieties, especially in the fall. This disease, which appears as white powdery spores similar in appearance to flour on young shoots and buds, distorts foliage and flowers. Materials such as Funginex applied according to label instructions usually control the problem.

Pruning. The traditional heavy pruning practices may be appropriate for Hybrid Teas, but most old roses require less severe methods. Remove or shorten weak or dead canes down to healthy tissue any time during the year. Weak growth along with canes that cross and some general thinning is recommended in February or early March in most of Texas and the South.

Consider Dwarfs for Accent

(Continued from page 6) add to their popularity. Dwarfs are adaptable to fully shaded areas, open sun, pot and tub plantings, clipped borders, ground covers and for formal and informal plantings. Because of their size, they mix well in group or mass plantings or in combination with other plants. The dwarf plant, too, can be used as a single specimen or accent plant.

Many of the larger old standards now come in "dwarf models." Dwarf junipers, dwarf pyracantha, dwarf nandina, quince, bamboo, barberry, sasanqua, crape myrtle, pomegranate, yucca, pittosporum and a number of dwarf hollies are now available.

Some dwarfs prefer dense shade, such as holly fern, fatia, aucuba, dwarf azalea, mahonia and vinca, while others prefer a sunny exposure, such as junipers, hollies, barberry, pomegranate, crape myrtle, pyracantha, lantana and senecio. Some dwarfs which grow in sun or partial shade include the popular dwarf yaupon, many hollies, nandina, Japanese black pine, Japanese purple honeysuckle, Indian hawthorne, or raphiolepis, boxwood and dwarf sasanqua.

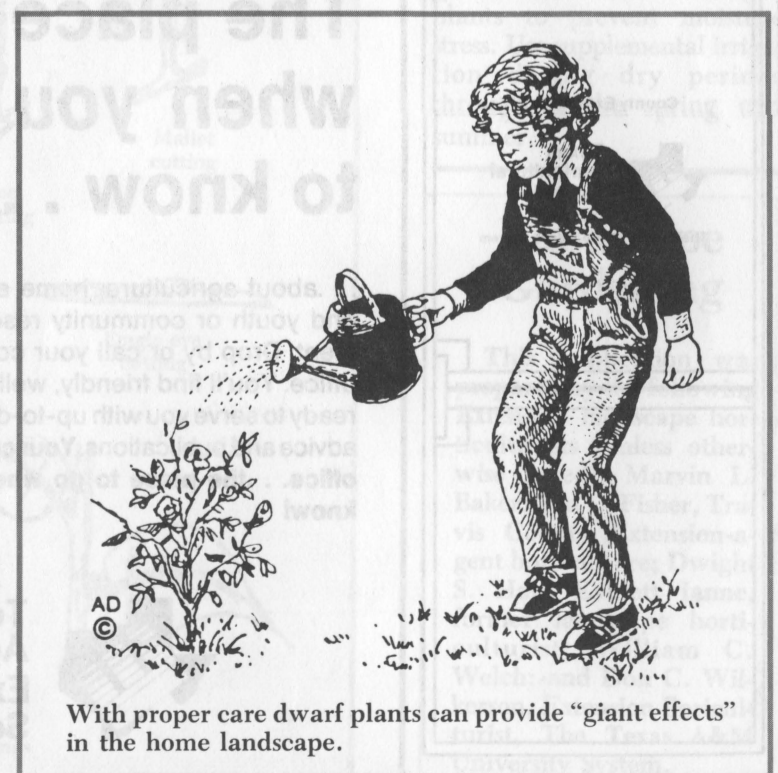
For the special accent or specimen planting, there are dwarfs which make excellent tub or pot plants for entrance,

poolside and patio areas. The most adaptable ones include holly fern, fatia, dwarf yaupon, dwarf nandina, dwarf pittosporum, Japanese black pine, dwarf yucca and dwarf bamboo. Hardy dwarfs in pots or tubs tolerate winter conditions out-of-doors and do not require being moved to protected areas during the winter.

Some dwarfs which reward the grower with seasonal bloom include the dwarf azalea, dwarf sasanqua, dwarf crape myrtle, pomegranate, lantana, Japanese purple

honeysuckle, Indian hawthorne and quince. Others produce attractive fruit or berries, such as some of the dwarf hollies, mahonia and pyracantha. Many of those which do not flower or fruit display rich, colorful foliage as does variegated aucuba, senecio, dwarf nandina and some of the dwarf junipers.

During the planting season is an ideal time to look at some of the dwarfs. Even though small these plant selections offer giant effects in the landscape.



With proper care dwarf plants can provide "giant effects" in the home landscape.

Perennials Useful, Attractive in Home Landscape

Perennial plants may be defined as those which endure or persist from year to year. Although once a prominent part of nearly every Texas landscape, perennials are often overlooked by today's gardeners and nurserymen. Although many species are still found in Texas gardens, their availability is often restricted to sharing among friends and neighbors.

Most perennials are easily propagated by division, seed or cuttings. Division is particularly successful since it not only provides new plants but is often necessary for continued plant vigor.

Perennials are highly useful and attractive in the home landscape. They often persist for many years and usually require less maintenance than annuals. The perennial border is an important gardening concept in England and many other areas of the world. It provides long seasons of color and cut flowers while enhancing the overall landscape development.

If a perennial border is not what you want, try adding a few to existing plantings. Many perennials have attractive

foliage and are an asset even when not in bloom.

Among the most interesting and useful perennial plants are Texas natives. *Salvia gregii*, *Gaillardia*, *Coreopsis* and *Penstemon cobaea* are notable examples. All of these thrive in sunny locations with average, well-drained garden soils. Insects and diseases are rarely a problem since these plants are accustomed to the rigors of the climate and growing conditions.

Division is an important cultural requirement of many perennials. Without occasional thinning, most of these plants slowly lose their vigor. Timing is important. For spring and summer flowering plants such

as iris, day lilies, penstemon, phlox and coreopsis late summer and fall are the best times to divide and reset plants. Some species such as bearded iris only need dividing every 3 to 5 years while others such as garden mums respond favorably to an annual division. Fall flowering plants such as asters, chrysanthemums and physostegia respond best when divided in the early spring.

Most perennials tolerate relatively poor growing conditions but respond favorably to well-prepared planting areas containing high percentages of organic materials and moderately high fertility rates.

Availability is a major problem confronting the increas-

ing use of perennials. Many gardeners gladly share cuttings, divisions or seed of their plants, if asked. Garden centers are handling more of the common perennial species such as bearded iris, garden mums and adapted spring flowering bulbs. Some native perennials are now available from nurseries specializing in native Texas plants such as Carroll Abbott's Green Horizons in Kerrville and Lowrey Nursery in Houston.

Mail order sources such as Bluestone Perennials, Inc., Madison, Ohio and White Flower Farm, Litchfield, Connecticut offer interesting catalogs with numerous species. The problem with such

sources is that there are numerous species offered that are not adaptable to Texas growing conditions, and late spring delivery often reduces the chances of success.

One of the best ways to increase your awareness and success with these plants is to notice which species are growing well in your vicinity. Some of these plants have been handed down for several generations and are interesting from a historical point of view. Many medicinal and culinary herbs are perennials and offer still another dimension to the home landscape.

Following is a partial list of perennials worthy of consideration.

PARTIAL LIST OF PERENNIALS FOR TEXAS LANDSCAPES

Scientific name	Common name	Propagation	Flowering season	Adaptability	Approximate height
<i>Achillia</i> sp.	Yarrow	Seed, division	Summer	6	1 ft
<i>Allium</i> sp.	Garlic chives	Division	Summer	6	1 ft
<i>Aquilegia</i> sp.	Columbine	Seed, division	Spring	1,5	18 in
<i>Artemisia</i> sp.	Southernwood	Cuttings, division		6	2 ft
<i>Aster</i> sp.	Michaelmas daisies	Cuttings, division	Fall	6	3 ft
<i>Beloperone guttata</i>	Shrimp plant (gold and red brown selections)	Division, cuttings	Summer, fall	1,2,5	3 ft
<i>Chrysanthemum maximum</i>	Shasta daisy	Division, seed	Spring	6	3 ft
<i>Chrysanthemum</i> sp.	Garden mums	Cuttings, division	Fall	6	3 ft
<i>Dianthus caryophyllus</i>	White carnation	Cuttings, division	Spring	6	1 ft
<i>Dianthus</i> sp.	Perennial pink	Cuttings, division	Spring	6	1 ft
<i>Eupatorium caelestinum</i>	Perennial ageratum	Division	Summer, fall	6	3 ft
<i>Gaillardia</i> sp.	Indian blanket	Seed, division	Spring, summer, fall	6	18 in
<i>Gerbera</i> sp.	Gerbera (transvaal) daisies	Seed, division	Spring, summer, fall	1,2,5	18 in
<i>Gladiolus</i>	Gladiolus	Division of corms	Summer	6	3 ft
<i>Gypsophila paniculata</i>	Double white baby's breath	Seed, division	Summer	6	1 ft
<i>Habranthus bifida</i>	Oxblood lily	Division	Fall	6	1 ft
<i>Hermerocallis</i>	Day lily	Division	Spring, summer	6	1 ft - 3 ft
<i>Iris</i> , Bearded	Bearded iris	Division	Spring	6	1 ft - 3 ft
<i>Iris</i> , Dutch	Dutch iris	Division	Spring	6	18 in
<i>Iris, fulva</i> x <i>I. giganticaerulea</i> x <i>I. foliolosa</i>	Louisiana iris	Division, seed	Spring	6	3 ft
<i>Lycoris radiata</i>	Red spider lily	Division	Fall	6	1 ft
<i>Mentha piperita</i>	Peppermint	Cuttings, division	-	6 1 ft	
<i>Narcissus</i> sp.	Daffodils and narcissus	Division	Spring	1,3,4,5	1 ft
<i>Oxalis</i> sp.	Oxalis	Division	Spring, summer	6	8 in - 10 in
<i>Penstemon cobaea</i>	Common foxglove	Seed, division	Spring	6	2 ft
<i>Penstemon murrayanus</i>	Red penstemon	Seed, division	Spring	1,5	2 ft
<i>Penstemon tenuis</i>	Violet penstemon	Seed, division	Spring	6	2 ft
<i>Phlox paniculata</i>	Perennial phlox	Cuttings, division	Summer	6	2 ft
<i>Phlox subulata</i>	Thrift, moss pink	Cuttings, division	Spring	6	8 in - 10 in
<i>Physostegia virginica</i>	Obedient plant	Division	Summer	6	3 ft
<i>Plumbago capensis</i>	Blue plumbago	Seed, division	Summer, fall	1,2,5	3 ft
<i>Rosmarinus officinalis</i>	Rosemary	Cuttings, division	Summer, fall	1,2,3,5	2 ft
<i>Symphytum officinale</i>	Comfrey	Division	Summer	6	3 ft
<i>Tagetes lucida</i>	Mexican marigold mint	Cuttings, division	Summer, fall	1,2,5	2 ft
<i>Thymus vulgaris</i>	Common thyme	Division, cuttings	-	6	6 in
<i>Triteleia uniflora</i>	Shooting stars	Division	Spring	6	6 in
<i>Zephyranthes candida</i>	White rain lily	Division	Summer	6	1 ft
<i>Zephyranthes grandiflora</i>	Pink rain lily	Division	Summer	6	1 ft

*1. East Texas 2. South Texas 3. West Texas 4. North Texas 5. Central Texas 6. Adapted to most areas of Texas

Rose Culture Highlighted

(Continued from page 7) afternoon is the best time of day to cut roses.

Plunge the stems immediately into warm water (about 100° F.) and recut the stems an inch or so from the base. Add flower preservatives according to label instructions if maximum life is desired. Research shows that floral preservatives often double the useful life of roses and many other flowers. Preservatives can be purchased from retail florists or from floral concessions in supermarkets. A mixture of 7-Up drink (not the diet type) mixed equally with water is an effective preservative. Let the mixture stand long enough for most of the air bubbles to disseminate.

Equally as important as the use of preservatives is a good pure water source. Use rain water or distilled water when arranging flowers since sodium and other materials in most tap water shortens their life.

Place flowers in a cool, draft-free area until ready to use. High temperatures and direct sun quickly take their toll on cut flowers.

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