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EC1271 Developing Attractive Farmsteads in Nebraska

E. H. Hoppert

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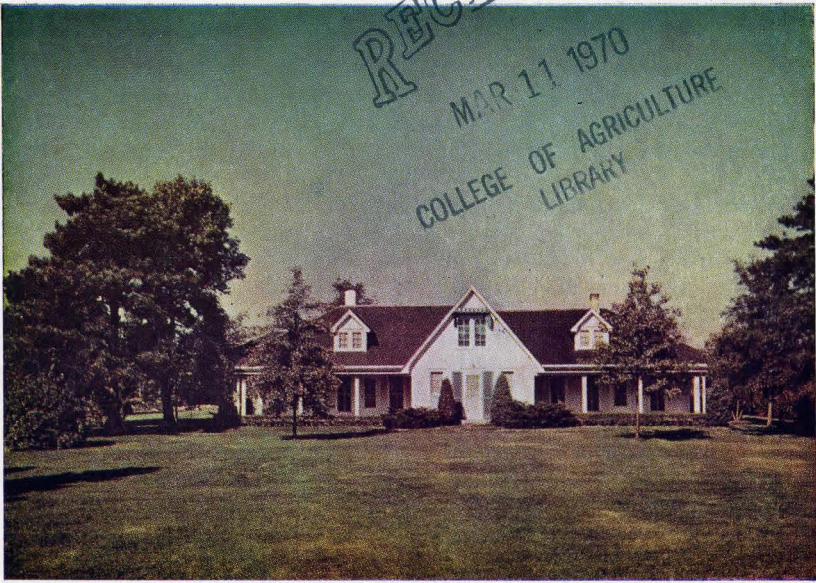
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Developing Attractive Farmsteads in Nebraska

E. H. HOPPERT

The Nebraska farm is a place of business where crops and livestock are grown for a livelihood; but, more important still, it is a place where the farm family lives and future citizens are reared. Truly, the homes of the nation are its very foundation and anything done to improve those homes raises the standards of her citizens.

The grounds surrounding the farm house are certainly a part of that home. No matter how pretentious the house in itself, it is not a real home until made so by the judicious use of trees, lawns, shrubs, vines, and flowers. Money and labor spent on such improvements yield returns in satisfaction, in comfort, and in pleasure out of all proportion to the cost.

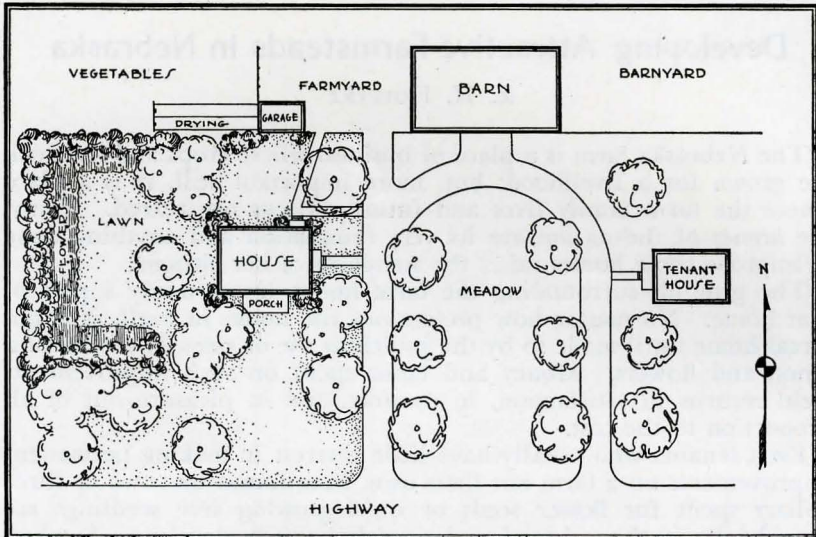
Even tenants who usually have little interest in making permanent improvements on a farm not their own, have found that two or three dollars spent for flower seeds or quick-growing tree seedlings are repaid fully in the satisfaction derived from such plantings. Furthermore, such a beginning may even induce the landlord to add other improvements.

Landscaping the home grounds need not necessarily be an expensive undertaking. Native shrubs, listed on the last pages, from nearby pastures or woodlands may be used in the foundation or other plantings. Windbreak trees to protect the home, the feedlots, the orchard, and garden can be obtained at a nominal cost through the County Extension Agents under provisions of the Clarke-McNary act. Some of these trees, like Chinese Elm, Russian Olive, and Russian Mulberry, planted a foot or less apart to make a dense hedge, will not only protect against winds but will also keep chickens out of the garden.

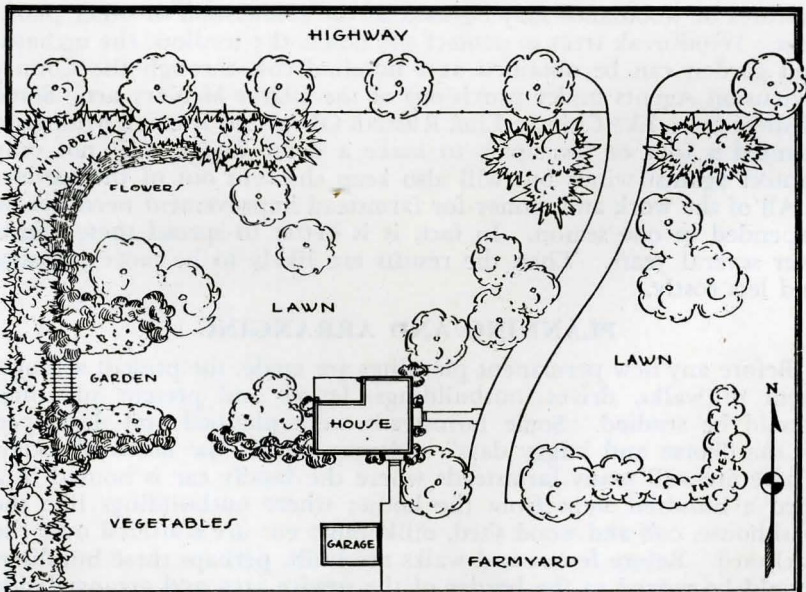
All of the work and money for farmstead improvement need not be expended in one season. In fact, it is better to spread these efforts over several years. Then the results are likely to be more pleasing and less costly.

PLANNING AND ARRANGING

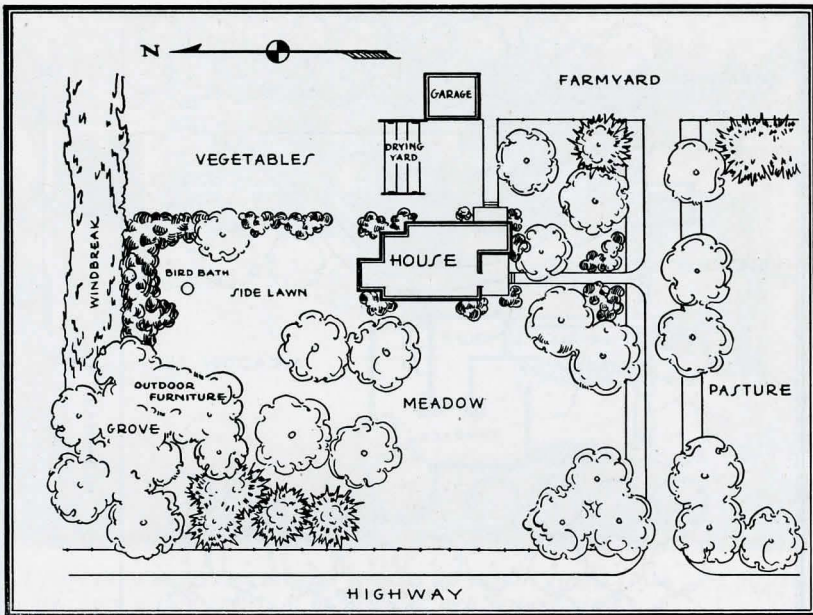
Before any new permanent plantings are made, the present arrangement of walks, drives, outbuildings, fences and present plantings should be studied. Some farmsteads were planned and developed in the "horse and buggy days" and may not fit the needs of today. There are still many farmsteads where the family car is housed in a shed a hundred steps from the house; where outbuildings like the washhouse, cob and wood shed, milkhouse, etc. are scattered over the backyard. Before fences and walks are built, perhaps these buildings should be moved to the border of the service area and arranged side by side so that one walk would serve all of them. In planning changes or improvements of a permanent nature, convenience is considered



Plan for farm home and tenant house facing south. Main windbreak (not shown) is north of barnyard, but the house and private lawn is well protected from hot southwest winds and cold northwest winds.



Plan for farm home facing north. The pine windbreak extends east only as far as the west side of the house so the house can be seen from the highway



Here the highway is on the west but the front entrance of the house faces the driveway just as in the plans on page four.

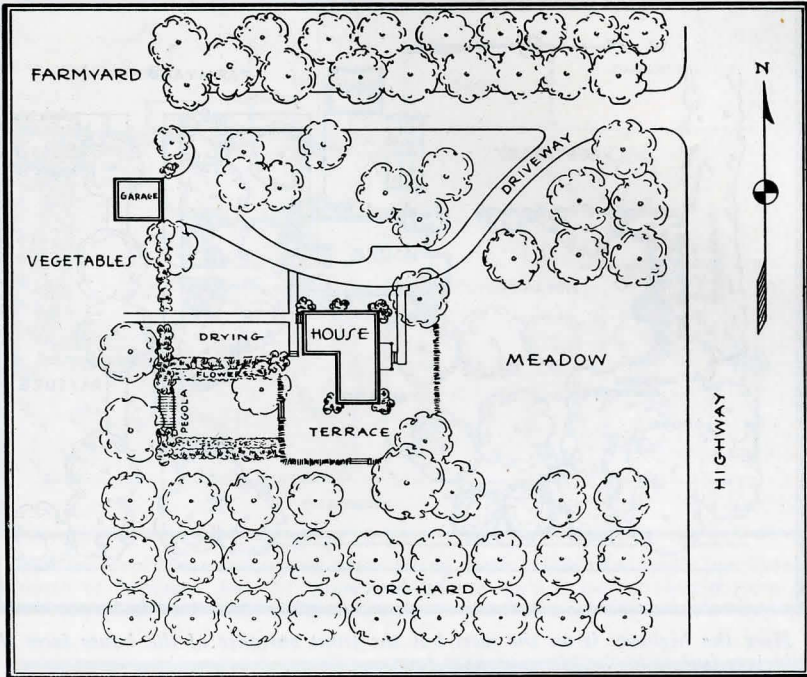
first of all; appearance is secondary. Plantings can usually be made to improve the appearance of the buildings.

Perhaps the present yard is too small to provide a proper setting for the house. A minimum of a hundred feet frontage is needed for a cottage or bungalow type farmhouse; whereas, a two-story house requires at least 150 feet; more is better.

All of these factors and many more will enter into the planning. The whole family should take part in it since every member ought to cooperate in developing the plans and maintaining the plantings. Youngsters of 4-H club age can be helpful and can receive suggestions and inspiration by joining a forestry club or a farmstead beautification club.

The Home—the Center of Interest. There can be no argument about the fact that the house, though it may not and usually should not be the largest, should be the most important building on the farm. The location of the other buildings, of the trees, shrubs, and flowers should be such that they emphasize that idea.

Too often in the past, little thought has been given to these matters. Trees and shrubs have been planted promiscuously all over the yard and when they grew up, the farm family could not see beyond the yard and passersby could not see the house. In fact, there are some



Plan for farm home with driveway to the east. The main driveway leads directly to the barnyard. A secondary drive leads to the front entrance and visitors can turn around without entering the barnyard.

places in the Platte Valley where the shade from close planted cottonwood trees makes artificial light necessary in the house during the day throughout the summer. Once trees are established and growing well, farm folks are reluctant about removing them until the trees die. Intelligent planning will provide for windbreak, shade, framing and background, and will make the house the center of interest—a real home.

Walks and drives are necessary about the farm, but they are not particularly attractive, therefore, avoid putting them in conspicuous places like the area directly in front of the house. Short walks and drives ought to be straight; whereas, long ones may have easy, graceful curves to make them more pleasing. Then groups of trees or shrubs may be used at the curves.

The driveway from the highway into the barnyard is the main drive and should be wide enough to take care of necessary farm machinery. Preferably, this drive should be 50 to 70 feet from that side of the house which best serves the front and rear entrances. Then a branch drive eight or ten feet wide could be built to serve the house. This branch would rejoin the main driveway and make it possible for visi-



A farm drive with "turn around" planted to junipers on the Urich farm in Dodge county. Such a turn around is attractive as well as convenient.

tors to return to the highway without driving into the barnyard. The driveway should be graded to provide drainage. A dead furrow can be plowed on each side of the roadway to help drain off the water and also to keep the travel on the road. Gravel driveways are not only more serviceable but also more attractive. In some parts of the state, gravel is available for the hauling. A few hours spent each year on driveway maintenance can save much inconvenience and annoyance. If snowdrifts pile up in the drive, a properly placed snow fence or a hedge planting can be used to deposit the snow where it will do some good in the garden, yard, or fields.

The entrance way from the highway can be set off by simple plantings. One erect juniper can be placed on each side together with a group of three or five low-growing Pfitzer or Savin junipers or a single elm or hackberry could be planted on each side. In no case should these plantings be tall-growing shrubs or low-branching trees that obstruct the view of the highway.

Walks are needed around the farmstead, particularly in the service area at the back of the house. It is much more important to have a walk from the back door or grade entrance to the driveway and outbuildings than from the front entrance to the highway or even to the driveway. Walks that are used a great deal should be made of concrete, but they are rather expensive and not particularly attractive. Therefore, make them only as wide as needed. The walk from the back entrance to the outbuildings and barnyard need not be over

eighteen inches wide and the one to the driveway not over two and one-half or three feet wide. The walk from the front entrance to the driveway, if used a great deal, could also be of concrete, but stepping stones laid flush with the sod, twenty inches center to center, may serve the purpose and are less conspicuous.

Chickens are raised on nearly every farm in Nebraska. Where they are allowed the run of the farm, it is rather difficult to have good lawns and flowers unless a chicken-tight yard fence is built and the gates are kept closed at all times. To be sure, it helps to keep them away from the house if all the feeding is done near the chicken house, but this method does not always get the desired results. Poultry authorities say the way to solve this problem is to keep the chickens penned up and then feed them balanced rations. Then they will not bother the lawn, shrubs, trees, and flowers, and better financial returns are secured from the flock.

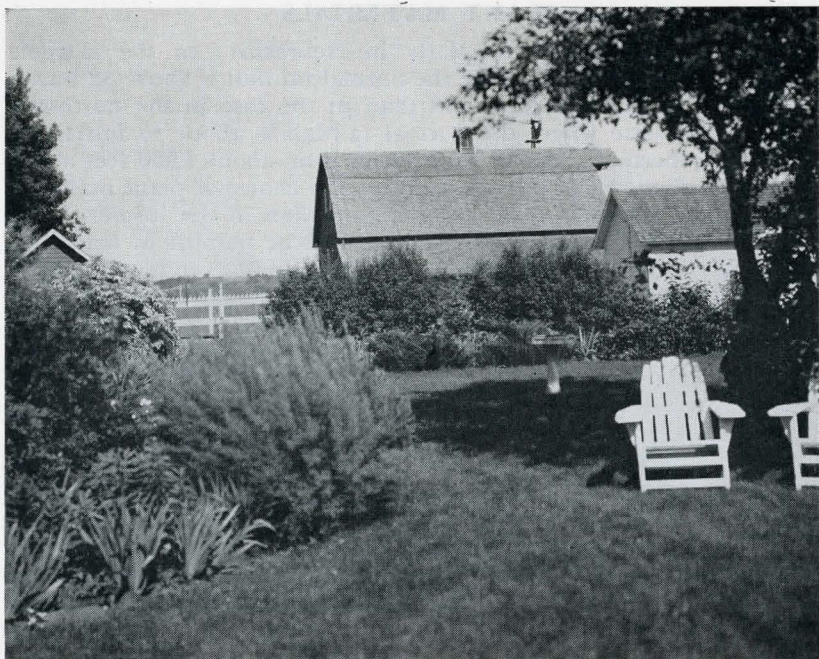
Lawn Areas. The grounds about the farm home fall naturally into at least two distinct areas, the public area between the house and the public road, and the service area between the house and the barnyard. In the course of time, a third area is usually developed, namely, the private lawn area or the outdoor living room. Each of these areas has a purpose of its own and is treated accordingly.

The public lawn area is that part of the grounds facing the highway, the front yard so to speak. This area should be open lawn so that an unobstructed view may be had of the entire house from the highway. Plantings in this area are therefore, confined to the borders and to the area near the foundation. The front lawn should not be cut up by walks or drives, clumps of shrubs or flower beds, and it certainly is not the place for farm machinery, playthings, movable hoghouses, or chicken brooders. It should be neat and attractive the year round and so planned that a minimum of hand work will be needed to keep it so. There need be only two trees or tree groups inside this lawn area, one on each side of the house for framing purposes and shade. These will not seriously interfere with the operation of a tractor-drawn or horse-drawn mower.

The service area is usually at the rear of the house between the kitchen entrance and the barnyard. The outbuildings (garage, woodshed or cobhouse, milkhouse, washhouse, etc.), can usually be placed somewhere around the border of this area. Here, too, a place for rubbish, tin cans, ashes, etc., can be screened off with shrubs on the service area side.

If the house is equipped with a furnace, coal or wood will be stored in the basement and provision must be made for driving into this area. Perhaps a cave for storing fruits, vegetables, and canned goods needs to be considered, and a suitable place must be selected for drying clothes. If there are small children, a shady place is needed for a sand pile and possibly a swing.

A third area that may be developed after the first two areas are well under way is the private lawn or outdoor living room. This is the



The outdoor living room on the Gus Summick farm in Douglas County. The mixed shrub border screens out the farm yard and serves as a back ground for annuals and perennials.

place where interesting garden scenes may be created with flowers, shrubs, and trees and such special features as a pool, rockgarden, bird-bath, arbor, garden furniture, etc., are placed. Here, too, an outdoor fireplace may be built for the enjoyment of the family and its friends. For further details see Extension Circular 1261.

It is usually on the side of the house opposite the drive, but it may also include that part of the area at the rear that is not needed as service area. If it can be entered directly from the living room or a porch, so much the better. Still another area that could be used if only a small outdoor living room is wanted is that area between the house and the drive.

Usually the outdoor living room is separated from the other two areas by a border of some sort. If the area is large, an informal shrub border is appropriate but for small areas a formal sheared hedge or a vine-covered picket fence would be preferable. Each of these borders would serve as a background for flower beds, as a screen to hide objectionable views of the barnyard, as a windbreak to protect tender flowers, and to provide privacy.

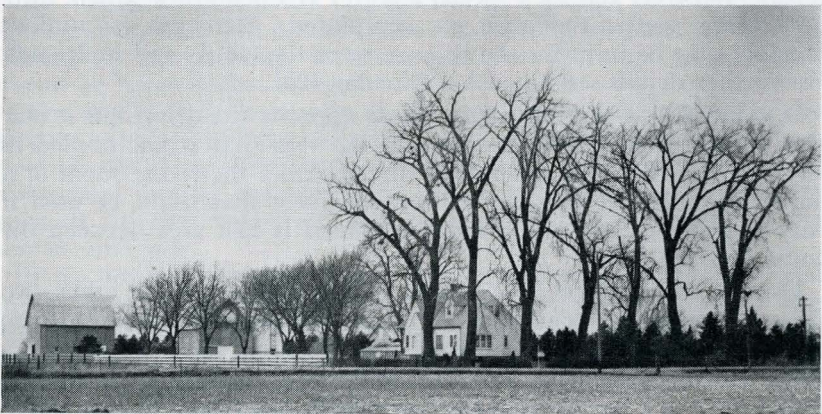
PLANT MATERIALS

Climatic conditions vary greatly in Nebraska. In the extreme southeastern section of the state the normal rainfall is above 32 inches and the air is much more humid than in the case in the northwest corner of the state where the normal rainfall is about 15 inches annually. Furthermore, the altitude varies from about 1,000 feet above sea level to about 5,000 feet. Naturally, the choice of plant materials is much more limited in the latter region than in the former. The tables on the last pages of the circular will be helpful in making a choice. The experiences of local planters should be even more helpful.

In the Platte Valley from Central City west to the state line and in other sections of western Nebraska, the soil is so heavy in lime that some plants are unable to obtain enough iron salts for normal green leaves. This yellowing of the leaves is called "chlorosis." Some of the roses, spireas, privets and trees like pin oak, soft maple, and sycamore are susceptible to this trouble while others like lilac, tamarix, Russian olive, and junipers are seldom affected. Folks living in areas where chlorosis is serious should consult the table near the end of this circular before making their selections.

Trees—Where and what to plant. Trees are the most important of the many plant materials available for use in developing attractive and comfortable farmsteads. They last a lifetime and may develop into huge specimens. Therefore, it is essential that considerable thought be given to the selection of adapted species and to their location. If a farm is entirely devoid of trees, (we still have many such in Nebraska) the first step in its development is to provide windbreaks.

Every farmstead should have windbreaks to protect the farm home, the livestock, and the fruit, flower, and vegetable gardens. On some farms, a single belt of trees may serve all these purposes. The plant-



Good evergreen windbreak and foundation make this farm home in Dodge County attractive and comfortable.



New windbreak on a Douglas county farm being started north of the old windbreak while the old one is still of some value.

ings on the north and west of the house and barnyard which protect against the cold winter winds could likewise protect the vegetable gardens and orchard from destructive hot winds from the south and west. If, however, the area north of the windbreak is not suitable or convenient for growing fruits and vegetables, additional plantings would be required on the south and west sides of areas that are used for such purposes.

The distance between the house and the first row of trees should be at least 65 feet and may be as much as 200 feet. If tall growing species like cottonwood or soft maple are chosen for one of the rows, these should be at least 100 feet from the house.

A single row of cedars or pines will provide good wind protection in 12 to 15 years. A multiple row of windbreak trees consisting of mixed species may be a more suitable arrangement if sufficient space is available. In either case it is important that sufficient space be left to use the common farm tools for controlling weeds. For further details, see Extension Circular 1721 "Tree Planting on the Farm."

Trees are needed to frame the house from the highway and also to provide shade for the house in summertime. They should be so placed that they will not shut off good views from the living room or porch or obstruct the view of the house from the highway. When

tree locations are such that they do obstruct the view to or from the house, the lower limbs may be removed so as to raise the head of the tree. Usually this means that a single tree is located 25 or 30 feet from each corner of the house proper.

Since most of the desirable trees will not provide shade for the house for 10 or 12 years, quick growing kinds like lombardy poplar, boleana poplar or even Chinese elm may be planted 6 or 8 feet from the corners of the house to serve this purpose temporarily. They should be removed when they begin to interfere with normal development of the more permanent trees.

The more permanent trees should be hardy, long lived and not subject to breakage in strong winds, nor attractive to bugs or flies. Such species as box elder, mulberry, Chinese elm, sycamore, catalpa, soft maple, black walnut, poplar and cottonwood are certainly not worthy to occupy these locations. For large homes a choice may be made from hackberry, American elm, moline elm, red oak and green ash. For homes of the cottage or bungalow type, a smaller type of tree such as hawthorn, hoba crab, Dolgo crab, Kieffer pear, and in the eastern third of the state, Norway maple and Schwedeler maple would be in better proportion.

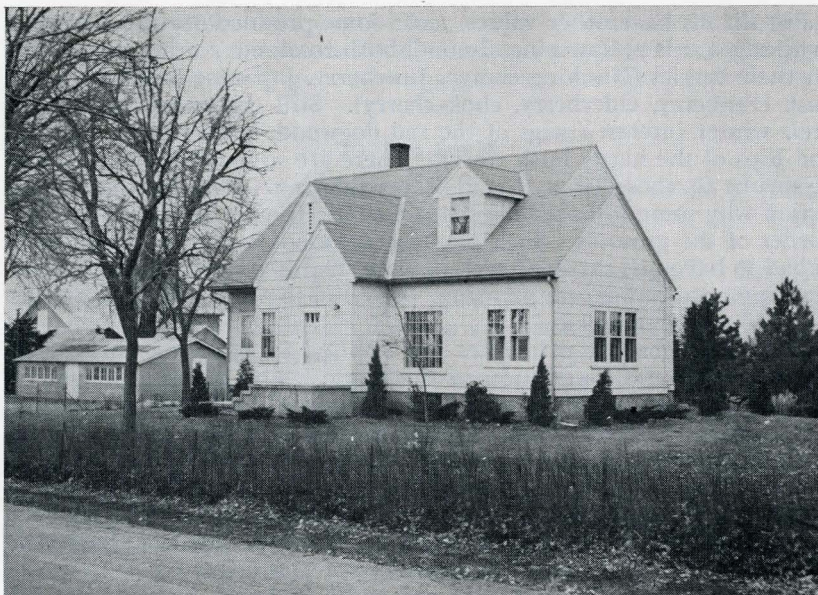
Additional trees may be planted at the corners of the public lawn area beside the driveway and around the borders of the outdoor living room and the service area. Along a driveway, particularly if it is a long straight one, trees of one species may be planted in a straight row on each side. Upright growing trees like moline elm or green ash spaced 35 to 45 feet apart are very desirable. Evergreens are objectionable because they tend to trap drifting snow in winter and in summer they retard drying out of the roadway following a rain.

Elsewhere about the home grounds, more interesting effects are obtained from informal plantings of trees and combinations of trees and shrubs. Instead of a row of trees all of the same kind and spaced regularly, groups of 3 to 5 trees are used when space permits. For example, in the corner of the public lawn area next to the highway, a tall spreading elm or hackberry may be combined with two green ash set 35 or 40 feet from it, one on each boundary line. For a better winter effect, an evergreen tree or group of trees could be planted in front of the deciduous species.

Foundation plantings of evergreens have certainly become popular in the last decade. The principal reason for this is that they are attractive the year round, whereas shrub plantings are rather bare looking through 5 or 6 months of the year. Furthermore, many shapes, types, and colors are now available to satisfy any need.

As a rule the upright varieties of juniper are placed 2 to 4 feet from the corners of the house and at the front entrance, and dwarf junipers are placed elsewhere around the foundation wherever they do not interfere with basement windows.

In choosing varieties of junipers the color of the house should be considered. If the house is white, select a dark green variety to provide



Tall growing type of juniper are used as corners and at each side of entrance way. Low growing types elsewhere around the foundation where they do not obstruct basement windows.

contrast. If the house is red or brown, a bluish variety is preferable. The dwarf junipers can also be used on steep slopes or terraces. They are particularly valuable for south and west exposures where it is difficult to maintain bluegrass. They may also be planted in the rock garden, near the pool or in the perennial border to add winter interest in the outdoor living room.

Quick growing trees like poplars, cottonwoods, soft maple, and Chinese elm have a definite place in the windbreak and perhaps as temporary shade trees at the border of the service area, but they are objectionable in the outdoor living room because it is difficult to grow flowers near them. Small flowering trees like the ornamental crabs, red bud, western mountain ash, hawthorn, or fruit trees like pears, sour cherries, or apricots are more appropriate.

Shrubs. Shrubs are next in importance to trees as planting materials. Trees provide the general effect but shrubs give the finishing touches. Planted as an outside row in the windbreak they trap snow and leaves. In the home grounds they are used in the borders to provide background for perennials and annuals and they may at the same time protect these tender plants from hot winds. Groups of large shrubs can also serve to screen undesirable views and small ones can be used as ground cover on steep terraces where grass is hard to establish. Still another use for shrubs is in the foundation plantings to tie the buildings to the grounds.

But shrubs have other values, too. Some produce beautiful blooms (hydrangea, lilacs, flowering almond, bush roses, etc.); others are noted for their berries (Nanking cherry, Juneberry, Japanese barberry, high-bush cranberry, elderberry, chokecherry). Still others are valued for their winter interest (twigs of the red dogwood, berries of the wahoo, and hips of the hardy bush roses). There are so many different kinds of shrubs to choose from that it is bewildering. Perhaps that is the reason why some folks simply plant a single row of spirea around the border of the grounds. Such planting is monotonous; but it is nearly as bad to have one shrub of each of 30 or 40 different kinds in a border planting or a foundation planting. It is best to plant shrubs in groups of 3 to 5 of the same kind.

The same general principles are applied in choosing shrubs for planting near the foundation of the house. The ultimate height of the shrubs must not be so great so as to dwarf the house, or shut off light and air circulation from the windows on the ground floor. Neither should they be set so that the branches extend over the sidewalks. In addition the texture of the leaves should also be considered. Coarse shrubs like sumac or elder may be suitable for a screen planting but *Viburnum* *lantana*, beauty-bush, cotoneaster, Japanese barberry, and spirea are better suited for foundation plantings.

Shrubs vary in ultimate height and width and are, therefore, spaced and arranged accordingly. Tall, spreading sorts like wahoo, Tatarian honeysuckle or Persian lilacs are placed at the rear of a screen planting or in a fence corner and spaced 6-8 feet apart. Medium-sized shrubs like cotoneaster, rugosa rose, and spirea *van houtii* are planted 3 to 5 feet apart and low shrubs like Japanese barberry, coral berry, garland spirea, etc., are used at the front and spaced 2 to 3 feet apart. For a more complete list of each type, consult the tables in the back.

Vines. There are a number of important uses for vines about the house and grounds. They can help change a bleak porch into an attractive, comfortable addition to the home. A vine on each side of the grade entrance adds a touch of beauty to this part of the house. Vines can be trained over an arbor to provide shade for garden seats or lawn chairs. They can also be trained on a lattice or wire fence to cut off unsightly views or to give privacy to the outdoor living room. Vines can be used as a ground cover on the roof of a root cellar or on a steep bank along the roadside where it is difficult to maintain grass. Hall's honeysuckle or the flame honeysuckle is very good for this purpose.

Boston ivy and Engelman's ivy will cling to brick, stucco, or stone. Neither of these nor the native virginia creeper should be used near the kitchen entrance, however, because they attract leaf hoppers which may become quite annoying.

Roses are probably the most striking of all the climbers but they require winter protection. Therefore, they should be planted only where it is convenient to lay the canes on the ground and cover them with 2 or 3 inches of dirt.

Where a quick but temporary effect is desired, one may choose from the following list of annuals: Maderia vine, cucumber vine, climbing bean, gourds, heavenly blue morning glory, moon vine, and cardinal creeper.

THE LAWN

A good lawn is an essential part of the attractive home grounds. That is especially true of the public area since that open area is the foreground of the landscape picture.

Kentucky blue grass is still the most popular lawn grass. On sites too difficult for it, one of the native grasses, like buffalo grass is usually started by planting small clumps of the sod about 16 inches apart. The others are started from seeds.

In grading the area preparatory to seeding, the level of the ground near the foundation should be 4-6 inches higher than the adjacent area to provide drainage away from the house. It is not necessary to have the remainder of the area level unless it is to be flood irrigated. In regions where trees must depend on rainfall alone, runoff water from the house or higher parts of the yard can be directed into large shallow basins near the trees. A large shade tree may use as much as two barrels of water a day in midsummer.

Starting the Lawn. First of all, the soil must be fertile. The subsoil from excavating the basement is usually unsatisfactory for a lawn unless it is covered with two or three inches of rich topsoil. It is not necessary to plow or spade up the soil unless it has been packed by driving or trampling. Usually it is sufficient to loosen up the surface an inch or two with a harrow, disc, or duck-foot cultivator (for small areas a hoe will do).

If the soil is low in fertility, a heavy coating of well-rotted barnyard manure, that is known to be free from weed seed such as bindweed, perennial pepper grass etc. should be applied three or four weeks before seeding time. This is worked into the soil by raking or harrowing.

Fall seeding (Aug. 25 to Sept. 25) is usually best, provided water can be applied to keep the soil moist while the seed is germinating. If sufficient water is not available, spring seeding is advisable but it is important to start early so that the new grass may become well rooted before hot weather comes.

Blue grass seeding is usually done by hand at the rate of one pound for each 200 square feet. The seed should be raked into the loose soil so that it is covered to a depth of about $\frac{1}{8}$ inch. The soil should be rolled or tamped to press the particles around the seeds. Next a mulch of clean straw or sawdust peat moss should be applied to prevent drying out of the soil and to provide shade for the young seedlings. Light sprinkling morning and evening will speed development of the new grass. Weeds of various kinds will also appear and these must be spaded out before they become deeply rooted. Mowing should be delayed until the grass is at least three inches tall.

Care of the Lawn. Weeds are the bane of most lawns. Therefore, every effort should be made to promote the growth of the grass during the spring and fall when conditions are favorable so that in midsummer when weather conditions favor crab grass (water grass) and foxtail, these weeds will have strong competition.

The cutter bar of the lawn mower should be raised to a height of two inches or more if possible. In cool moist weather when the grass grows rapidly, it may be safe to mow once a week but in hot weather little or no cutting is necessary. Crab grass roots at every joint which touches the ground. A strong, thick stand of blue grass two to three inches high prevents this type of spreading because the stems of the crab grass are held upright. If, however, the blue grass is mowed short at this time, the crab grass develops side shoots that crawl along the ground and root easily at the joints.

Fertilizers. The best fertilizer for a lawn is well-rotted barnyard manure free from weed seeds. It may be applied either in the fall or early in spring at the rate of 2 to 3 bushels per 100 square feet. Winter snows and spring rains will leach out the soluble salts which stimulate rapid growth ahead of the weeds. In early April, undesirable residues can be raked off together with leaves and dead grass. Well pulverized sheep manure or chicken manure can also be applied but the rate of application should be only one-half of that for barnyard manure.

Commercial fertilizers can also be used and they eliminate the danger from weed seeds. Nitrogen is the most important element needed. Ammonium sulphate at one pound per 200 square feet or ammonium nitrate at one pound to 300 square feet applied early in spring and again early in September will take care of this need. Every other year at the spring application, treble superphosphate may be added at the rate of one-half pound to 200 square feet.

The best way to apply these materials evenly is to dissolve them in water and distribute with a sprinkling can. A three gallon sprinkling can full of the solution will cover about 200 square feet of lawn. The lawn is marked off in strips of 200 square feet (5' x 40' or 10' x 20') using binder twine or string to denote the boundaries. Then the ammonium sulfate is dissolved in a barrel or tub at the rate of one pound for each sprinkling can full of solution. If the phosphate is also desired, one-half as many pounds of this material should also be included in the solution.

Commercial fertilizers can be applied in the dry form with a small spreader but hand broadcasting is discouraged because even distribution is rather difficult and there is danger of burning patches of the lawn where excessive amounts of ammonium sulfate are applied. If the dried fertilizer is used it is essential that the material be washed off of the grass foliage.

PRUNING TREES, SHRUBS AND VINES

Trees, shrubs, and vines all require severe pruning of the tops at transplanting time to compensate for the loss of roots in digging. In later years they need systematic pruning and training to keep them at their best in appearance and vigor.

Trees. The tops of newly transplanted trees should generally be reduced at least two-thirds at transplanting. The larger the transplant, the greater is the need for this pruning. Elms, soft maples, poplars and other varieties that are easy to transplant may have two-thirds of their side branches removed at the trunk. However, the large side branches of oaks, hard maples and birches are merely cut back one-half to two-thirds. Removal of outer branches should be delayed a year or two. Small twigs arising from the trunk below the main permanent branches shade the trunk and help prevent sunscald; therefore, they should be left on the tree for a year or two. Additional protection against sunscald is needed for Norway maples, birches, oaks, and other species particularly if large specimens are transplanted. Whitewashing the south and west sides of the tree reflects the sun and prevents this injury. Wrapping the trunk with a light colored paper or cloth will also serve and in addition prevents borers from depositing their eggs on the bark.

Most shade trees require some training in the early years of their life to make them symmetrical, to eliminate crotched branches that may split off in later years, and to provide well-spaced main branches. Some species like the oaks, birches, Norway maples, and the sycamore develops this ideal type of a head without much help but American elm, hackberry and honey locust usually need training to build strong long-lived trees.

The strongest type of tree is one that has a single central leader from which arise six or eight wide-angled branches, no two of which are directly opposite on this leader. Permanent branches on the same side of the leader should not be closer than three feet. It is much better to remove objectionable branches with hand shears than to wait until a saw is needed.

Old established trees need to be pruned occasionally but in no case should "dehorning" be permitted. This term is applied to the cutting off of the main scaffold branches within 8 or 10 feet of the trunk. Anyone who values shade trees highly should not tolerate this type of tree butchery, since it ruins the form of the tree, leaves large ugly wounds that never heal, and permits entry of rot organisms that sooner or later ruin the tree. If for any reason large limbs must be removed, the cut should be made close to the trunk. If a large branch is to be shortened or headed back the cut should be close to a side branch that grows in the desired direction. Any large wounds should be kept painted with asphalt paint until healed.

Dead limbs or broken limbs should, of course, be removed. Crossing and crowding branches need to be thinned out, using the same precautions mentioned in the previous paragraph. Corrective pruning

may be done anytime during the year but the best time to prune is in the spring just before growth begins.

Evergreens require very little pruning as a group. The lower branches should not be removed at the trunk if it can be avoided because the trees look unnatural without them. Some trees develop irregularly, and in some cases less densely than desired. In such cases the ends of the branches may be clipped back to desired side shoots.

When evergreens develop two or more leaders, all but one of these should be removed before they become so large that a saw is required. Sometimes the leader is accidentally broken out of an evergreen. A new leader may be developed by selecting a strong side branch from the upper whorl of branches and tying this in an upright position.

Evergreen foundation plantings must be pruned or sheared regularly after they have reached the height at which they look best. This type of pruning is done in the spring before growth begins and again in midsummer if the trees are growing vigorously.

Shrubs. All shrubs require some pruning when they are transplanted. Those that are moved from one place in the yard to another require very little pruning as a rule, especially when the operation takes place in March or early April. Specimens that are 10 or 12 years old require more pruning than those that are only two or three years old because a smaller proportion of the roots are retained at digging time. In the latter case, the removal of one or two old canes will be sufficient; whereas, with old plants, one-third to one-half of the old canes should be taken out.

Shrubs from the nursery are usually dug in the fall and stored in a frost-proof building over winter. Such shrubs generally should have one-half of their shoots removed at the crown. This type of pruning results in a better appearing shrub the first season than is the case when all of the top is cut off eight or ten inches from the ground.

After the shrubs have been growing three or four years, most of them will need some pruning regularly. Here are some of the reasons.

To remove old weak wood. The plant replaces this with new vigorous shoots which produce larger more attractive flowers and may lengthen the blooming season.

To remove dead or broken branches.

To thin out crowding branches. Those that remain will receive more light and will develop better foliage and blooms.

To keep shrubs with showy twigs looking their best. The young wood of red dogwood and yellow dogwood is brighter in color than is the old wood.

To reduce the size of the plants.

To make them formal in appearance for the formal garden hedge or individual specimens.

To prolong the blooming period of shrubs. Removing flower clusters on weigela, anthony waterer spirea, and hybrid rugosa roses after full bloom stimulates production of new shoots which bloom later in the season.

Rejuvenating Neglected Shrubs. More drastic pruning is required for neglected shrubs than is suggested for any of the classes above. The easiest way is to cut off the entire top growth at the ground during the dormant season. But this treatment may be objectionable for prominent places in the border and in the foundation plantings. Here it would be better to take out only one-half of the old stems in the first dormant season and the following spring remove the remainder. Vigorous new shoots will develop from the crown in both cases and if they fail to develop side branches by the time they are two or two and one-half feet tall, the growing tips should be pinched off.

PRUNING ORNAMENTAL VINES

After ornamental vines have become well established, they need a heavy annual pruning to keep them looking their best. There are two general methods of treating vines. One is to cut off at the trunk a third of the old canes each year, which means that the entire top is removed in three years. A second method is to cut off all the new shoots annually to three or four buds (spur system). Every four or five years, a long cane arising at or very near the trunk is left as a renewal arm and the old arm is removed at the trunk. This method is used with bitter sweet and wild or tame grapes on arbors or fences.

Climbing roses are sometimes pruned as suggested in the first part of the above paragraph. However, since the best flowers are produced from buds on the new shoots that grew the past season, the more common method is to prune out most of these shoots immediately after the blooming period.

WHEN TO PRUNE

Flowering shrubs which bloom early in spring and produce their flowers from buds upon wood that grew last year are pruned immediately after they are through blooming. This one year wood is cut back one-half to two-thirds its length. The following shrubs belong in this class:

Almond, Flowering	Quince, Flowering
Currant, Flowering	Redbud
Deutzia	Roses, Climbing
Fringe Tree	Siberian Pea
Golden Bell	Spirea Van Houtii
Lilac	Spirea Thunbergii
Pussy Willow	Spirea Prunifolia
Tamarix	Spirea Arguta

The following shrubs are pruned in the dormant season (early in spring is best).

Barberry	*Hydrangea
Bush Honeysuckle	Mock Orange
Coral Berry	Roses, *Hybrid Teas
Currant	Snowberry
Dogwood	Spirea—Anthony Waterer Billiard

* These sorts bloom late in the season on new wood. They are heavily pruned leaving only a few buds on the base of the strong shoots that grew last year.

There is another group of shrubs which require very little pruning. The sorts mentioned below are pruned a little after blooming and a little in the dormant season.

Cotoneaster	Viburnum, nearly all Spireas
Elder	Wahoo
Lilac	Rose of Sharon
Sumac	

SPECIES ADAPTED IN NEBRASKA

Shrubs and Trees for Sheared Hedges

Japanese Barberry	Russian Olive
Buffalo Berry	Red Cedar
Cotoneaster	Spirea Vanhoutte
Chinese Elm	Amoor Privet
Russian Mulberry	

Vines

Virginia Creep (*Ampelopsis quinquefolia*)
 Engleman's Ivy (*Ampelopsis Engelmannii*)
 Boston Ivy (*Ampelopsis Veitchii*)
 Trumpet Vine (*Bignonia radicans*)
 Bittersweet (*Celastrus scandens*)
 Clematis (*Clematis paniculata*)
 Hall's Honeysuckle (*Lonicera halliana*)
 Scarlet Trumpet Vine (*Lonicera (ens) sempervirens*)
 Flame Honeysuckle (*Lonicera Heckrottii*)
 Silver Lace Vine (*Polygonium auberti*)

* Plants resistant to chlorosis (yellowing of leaves)

Austrian Pine	Purple Leafed Rose
Ailanthus (Tree of Heaven)	Colorado Dogwood
Caragana	False Indigo Bush
Honey Locust	Lilacs
Red Cedar	Mountain Mahogany
Russian Olive	Purple Leafed Rose
	Tamarix
	Wax Currant

Plants very susceptible to chlorosis

Pin Oak	Rose (tea, rugosa, climbing)	Peach
Black Locust	Spirea, most varieties	Pear
Soft Maple	Privet	Cherry
Sycamore	Syringa	Plum
Cottonwood	Wild Plum	Grape
Catalpa	Peony	Blue Grass
Willow	Iris	

* From circular on chlorosis by the Plant Pathology Department, Agricultural College, Lincoln. For recommended treatment of plants showing symptoms, write for this circular.

Shrubs

Tall shrubs for borders, screens, low windbreaks for gardens.

- | | |
|---------------------------------------------------------|------------------------------------------------|
| Ultimate height 8-10 feet | Plant 5-6 feet apart |
| *Juneberry (<i>Amelanchier canadensis</i>) | *Smooth Sumac (<i>Rhus glabra</i>) |
| Siberian Pea Tree (<i>Caragana arborescens</i>) | Buffalo Berry (<i>Shepherdia argentea</i>) |
| *False Indigo Bush (<i>Amorpha fruticosa</i>) | Lilac, common (<i>Syringa vulgaris</i>) |
| *Wahoo or Burning Bush (<i>Euonymus atropurpurea</i>) | Highbrush Cranberry (<i>Viburnum opulus</i>) |
| Amur Privet (<i>Ligustrum amurense</i>) | Snow Ball (<i>Viburnum opulus sterilis</i>) |
| Bush Honeysuckle (<i>Lonicera tatarica</i>) | Lilac Persian (<i>Syringa persica</i>) |
| Mock Orange (<i>Philadelphus coronarius</i>) | Lilac Chinese (<i>Syringa chinese</i>) |
| *Nine Bark (<i>Physocarpus opulifolius</i>) | *Nanny Berry (<i>Viburnum lentago</i>) |
| Flowering Plum (<i>Prunus tribloba</i>) | Wayfaring Tree (<i>Viburnum Lantana</i>) |
| Purple Leafed Plub (<i>Prunus cistena</i>) | Tamarix (<i>Tamarix Hispida</i>) |
| Buckthorn (<i>Rhamnus cathartica</i>) | |
| Blue Leafed Honeysuckle (<i>Louscira Korolkowii</i>) | |

Medium Shrubs

- | | |
|-------------------------------------------------------|---------------------------------------------------------|
| Ultimate height 5-8 feet | Plant 4-5 feet apart |
| *Juneberry (Sackutoon) <i>Amelanchier alnifolia</i> | Virginal Mock Orange (<i>Philadelphus virginalis</i>) |
| *Red Dogwood (<i>Cornus stolonifera flaviramea</i>) | Nanking Cherry (<i>Prunus tomentosa</i>) |
| Cotoneaster (<i>Cotoneaster acutifolia</i>) | Golden Currant (<i>Ribes aureum</i>) |
| Cotoneaster (<i>Racimiflora</i>) | Japanese Rose (<i>Rosa rugosa</i>) |
| Cotoneaster (<i>Integerima</i>) | *Skunk Bush (<i>Rhus triloba</i>) |
| Beauty Bush (<i>Kolkwitzia ambalis</i>) | Van Houttei Spirea (<i>Spirea Vanhoutte</i>) |
| Morrows' Honeysuckle (<i>Lonicera Morrows</i>) | Plum Leafed Spirea (<i>Spirea prunifolia</i>) |
| | Elder (<i>Sambucus canadensis</i>) |

Low Shrubs

- | | |
|---------------------------------------------------------|---------------------------------------------------------------|
| Ultimate height 2-4 feet | Plant 2½-3 feet apart |
| Japanese Barberry (<i>Berberis thunbergii</i>) | Yellow Cinquifol (<i>Potentilla fruticosa</i>) |
| Purple Leafed Barberry (<i>Berberis atropurpurea</i>) | *Sand Cherry (<i>Prunus besseyi</i>) |
| Blue Beard (<i>Caryopteris mongolica</i>) | Flowering Almond (<i>Prunus triloba</i>) |
| Japanese Quince (<i>Chaenomeles lagenaria</i>) | Wax Currant (<i>Ribes cereum</i>) |
| Pigmy Caragana (<i>Caragana pygma</i>) | *Prairie Rose (<i>Rosa Setigera</i>) |
| Summer Snowball (<i>Hydrangea arborescens</i>) | Anthony Water Spirea (<i>Spirea Anthony Waterer</i>) |
| Hydrangea (<i>Hydrangea paniculata</i>) | Billiard's Spirea (<i>Spirea Billiardii</i>) |
| | *Snowberry (<i>Symphoricarpus racemosus</i>) |
| | *Indian Currant, coral berry (<i>Symphocarpus vulgaris</i>) |
| | Chenault Coral Berry (<i>S. vulgaris chenaulti</i>) |

* Native shrubs.

Ornamental—Broadleaf

<i>Common Name</i>	<i>Botanical Name</i>	<i>Adaptation</i>
American Elm	Ulmus Americana	Entire state
Hack Berry	Celtis occidentalis	Entire state
Green Ash	Fraxinus lanceolata	Entire state
Box Elder	Acer negundo	Entire state
Bur Oak	Quercus macrocarpa	Entire state
Honey Locust	Gleditsia triacanthos	Entire state
Black Walnut	Juglans Nigra	Entire state
Red Oak	Quercus rubra	E. 2/3 of state
		On rich moist well-drained soils
Scarlet Oak	Quercus coccinia	E. half of state
Pin Oak	Quercus palustris	E. 1/4 of state
American Linden	Tilia glabra	E. half of state
Wild Black Cherry	Prunus serotina	Moist locations
Norway Maple	Acer platanoides	E. half of state
Schwedeler's Maple	Acer platanoides Schwedeleri	E. half of state

Small Flowering Trees

Russian Olive	Elaeagnus augustifolia	Entire state
Redvein Crab	Malus Niedzwetzkyana	Entire state
Hopa Crab	Malus Hopa	Entire state
Purple-leafed Plum	Prunus Cistena	Entire state
Hawthorn	Crataegus sp	Entire state
Amur Maple	Acer Ginnala	Entire state
Mountain Ash	Sorbus quercifolia	Entire state
Apricot Manchuria	Prunus manshurica	Entire state
Willow Laureleas	Salix pentandra	Entire state
Red Bud	Cercis canadensis	E. half of state

Evergreen Trees

Red Cedar		
Grafted sorts	Juniperus Virginiana	Entire state
Cannarts	Juniperus Va. Connarti—dark green	Entire state
Dundee	Juniperus Va. Pyramidiformis purple in winter	Entire state
Silver	Juniperus Va. glauca	Entire state
Western Red Cedar	Juniperus scopulorum silver	Entire state
Grafted sorts		
Pathfinder	J. scopulorum Pathfinder silver blue	Entire state, especially suited W. half
Sutherland	J. Scopulorum Sutherland green type	Entire state
Western Yellow Pine	Pinus ponderosa	Entire state
Austrian Pine	Pinus nigra var austriaca	Entire state
Limber Pine	Pinus flexilis	Entire state
Douglas Fir	Abies Pseudotsuga taxifolia	Entire state
Concolor Fir	Abies concolor	Entire state
White Spruce	Picea glauca	N. half of state
Black Hills Spruce	Picea canadensis albertiana	All but S. central
Colorado Spruce	Picea pungens blue to green	Entire state
Grafted sorts		
Koster's Blue	Picea pungens Kosters	Entire state
Moorheim	Picea pungens Moorheim	Entire state
Norway Spruce	Picea excelsa	N.E. third of state

Dwarf Evergreens

Mugho Pine	<i>Pinus mugho</i>	Entire state
Pfitzer Juniper	<i>Juniper chinensis pfitzeriana</i>	Entire state
Sargent Juniper	<i>Juniper chiensis sargentii</i>	Entire state
Sabin Juniper	<i>Juniper Sabina</i>	Entire state
Japanese Yew	<i>Taxus Cuspidata nana</i>	Entire state on N. side of buildings

Creeping Junipers—J. Horizontalis

Waukegan	<i>J. H. douglasi</i>	Entire state
Andorra	<i>J. H. plumosa</i>	Entire state

