

1939

## EC1721 Revised 1939 Tree Planting on the Farm

Clayton W. Watkins

Earl G. Maxwell

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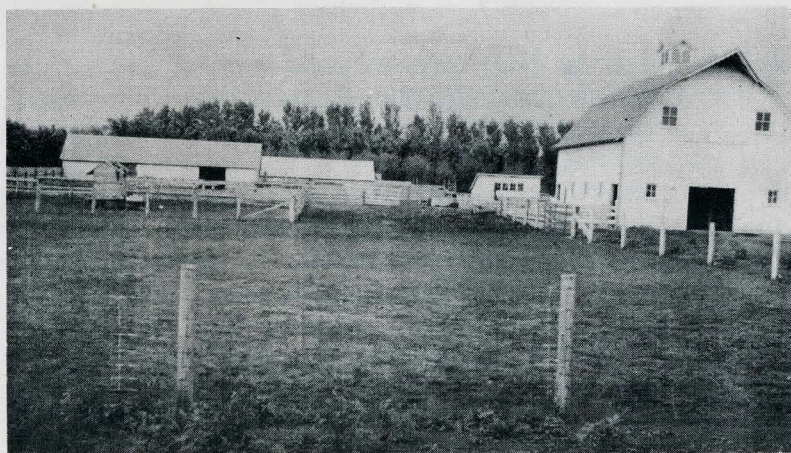
NEBRASKA COLLEGE OF AGRICULTURE

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*Extension Circular 17216*

# TREE PLANTING

*on the farm*



UNIVERSITY OF NEBRASKA---LINCOLN

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## TREE PLANTING ON THE FARM

A good tree windbreak that protects farm buildings, feedlots, and the garden is of real value. Protection from winter winds can effect a saving in fuel. It is always a few degrees warmer on the inside of a windbreak than it is on the exposed side. For this reason fuel requirements in an unprotected home increase with increased wind velocity. Livestock will make the most efficient use of feed when sheltered from severe winds.

It is not a difficult or expensive job to establish a few rows of trees around the farm buildings. They will soon pay for the investment of money and labor in the comfort they add to farm life. A good windbreak will keep snow banks out of the yard in winter and reduce the amount of dust that sometimes blows into the house in the spring.

The improvement of the yard with shrubs and flowers is more easily accomplished where there is adequate wind protection. A good hedge around the garden greatly increases its production by protecting vegetables and small fruit from damage by hot winds. In addition, such a hedge reduces surface evaporation of moisture and causes snow to drift on the area during winter storms.

Birds that help control insect pests will make their homes where trees furnish food, nesting places, and protection.

### LOCATING A TREE WINDBREAK

A windbreak of from three to five rows of the proper type of trees, at least 100 feet from the buildings on the north and west. is probably the most valuable farm planting. Protection a-



gainst the damaging effect of hot south winds is next in importance. A single or double row of trees or a dense hedge on the south side of the entire yard will pay for its space and care during the spring and summer months. One day of severe hot wind may seriously damage garden crops, small fruit, and flowers.

If the ground around the buildings has more than 5 per cent slope, plantings should be made on the contour or the planted area terraced.

The protection of crops and the conservation of moisture on light soil by the use of trees is being recognized as good land use. Plantings for this type of protection should generally run east and west and be located to give the maximum protection with the least interference with cropping practices. A windbreak will protect an area equal to about twelve times its height. Therefore, protection on a field that blows will require a row of dense growing trees at intervals of about 15 to 20 rods. Where land values will permit, a wider belt on the north and west of the quarter section will add to the protective planting.

#### PREPARATION OF GROUND FOR TREES

Ground where trees are to be planted should be in a good state of cultivation. Fall plowing or listing leaves the ground receptive to winter and early spring moisture. One year of summer fallow prior to planting is recommended on difficult upland sites.

On sandy land, spring plow or list two or three furrows for each tree row and then keep this strip in clean cultivation. Single or double row field belts are being successfully established on sandy land by leaving three listed corn rows blank for each row of trees.

In preparing to replant an old grove or start trees where alfalfa has been growing, some method of rebuilding soil moisture must be employed. At least one year of clean fallow is recommended and if possible, the diversion of run-off water to the area.

An artificial snow-fence on the north and west of the windbreak site will hold considerable moisture during the summer. This can be made with cornstalks set in woven wire, bundles of sorghum leaned against a fence, or windrows of hay or straw.

#### ARRANGEMENT AND SPACING

The number of rows of trees used in the farmstead windbreak and also the kind of trees will vary with different situations. A low growing tree or shrub which forms a dense growth near the ground to check surface winds, hold leaves and litter for ground cover, is recommended for an outside row. Caragana, Russian olive, Russian mulberry, Lilac, Chokecherry, Tamarix, and Wild plum are suitable for planting this outside row. Taller growing trees such as Chinese elm, Cottonwood, Boxelder, Hackberry, Honey locust, should be planted in the center with one or more rows of evergreens such as Austrian pine, Yellow pine, or Red cedar, planted on the inside of the windbreak. (Red cedar should not be planted where apple growing is important.)

Loss of trees during recent years indicates that trees should not be too closely planted. During dry years trees draw heavily upon the subsoil for their supply of moisture. The greater the number of trees on a given area, the sooner all a available moisture may be used. A wider spacing for trees than that commonly used seems highly desirable in view of heavy losses the last few years in comparatively new windbreaks when close planting has been followed.



Tree rows should be far enough apart to permit permanent cultivation, in central and western Nebraska, and for at least three or four years in the extreme eastern part of the state, with commonly used farm equipment. Spacing in the row should be wide enough to eliminate the danger of early root competition. Spacing must be governed by the amount of available moisture that can be reasonably expected.

Following are spacings recommended for farm windbreaks in Nebraska -- rows 16 to 24 feet apart with spacing in the row 6 to 8 feet for an outside hedge row, 12 to 16 feet for interior broadleaf trees, and 12 to 24 feet for evergreens. Variations within these spacings will be governed by the individual site and its soil moisture possibilities. The above applies to a windbreak of three or more rows. For a single or double row windbreak, the spacing within the row may be reduced somewhat.

In no case should the rows of evergreens be planted closer than 20 feet to the taller growing broadleaf trees. If the windbreak is to be near older broadleaf trees, the newly planted trees should have a clearance of at least 30 feet.

#### POINTERS ON PLANTING

Plant in the spring in well prepared soil. Handle trees so that the roots do not become dry.

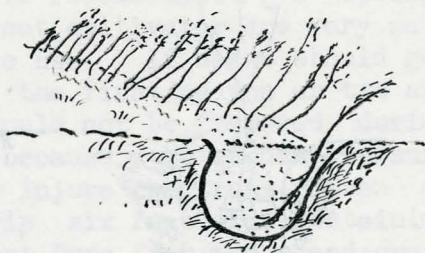
Exposure to sun and wind, even for a few minutes will damage roots.

Evergreen roots are very easily damaged by exposure.

If tree roots are damaged before planting, no amount of care will make the trees grow.

When trees arrive from nursery, open the bundle and place roots in bucket of water or thin mud and plant directly from this bucket.

If trees are to be held for more than a few hours, they should be heeled-in as follows: Spread trees in a sloping trench, preferably in a cool, shady place, and deep enough to permit covering roots and part of stems. Pack the dirt over the roots and keep this packed soil moist.

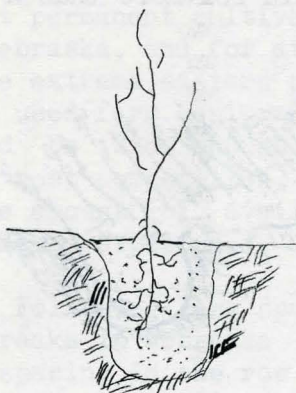


Heel-in bed

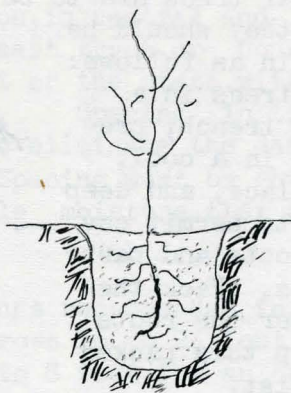
Plant the trees about the same depth or a little deeper than they stood in the nursery. In planting, spread out the roots in a natural position in the hole and pack the dirt solidly with the fist or by tramping as the hole is being filled. Do not place sod and trash in contact with the roots. The tree should be thoroughly watered before the hole is entirely filled. When the water has settled away, fill the hole with dirt left unpacked and slightly lower than the level of the surrounding ground. Planting small trees, particularly transplanted evergreens in deep depressions, especially on hard land, is inadvisable as they may be covered over by soil during heavy rains.

On light sandy soil a simple planting operation for small trees is as follows: Reverse the spade and insert blade full depth, and pull dirt out of hole; insert blade, full depth again, in bottom of first hole, and pull spade handle toward you to open place for long roots. This leaves a wall of dirt against which tree roots can be spread and packed. With roots in place, lift spade and let dirt fall back in place and pack with heel. First spade of dirt is used to complete the job.





Improperly Planted  
Roots crowded and  
too near surface  
of ground



Properly Planted  
Roots spread out  
Dirt packed solidly  
about roots

### CARE AFTER PLANTING

#### Protection

Young trees should be fenced against livestock. It is impossible to start trees if farm animals are allowed to browse and otherwise injure them,

Newly planted evergreens should be protected from drying winds during the first season at least. The protection should be provided immediately after the trees are planted. Two shingles, or a strip of burlap on stakes, on the south and west sides of the trees will give good protection.

#### Cultivation

There is no substitute for thorough cultivation of trees. The purpose of cultivation is to



keep weeds and grass from taking soil moisture and to keep the surface of the ground loose and prevent its cracking. Cultivation often enough to keep the ground clean is recommended. A spring-tooth harrow or duck-foot cultivator are very satisfactory implements to use. If weeds should get a start in mid-summer the first season or two after planting, they should not be removed during real hot dry periods because the sudden exposure will likely seriously injure the trees. Even on light sandy soil a strip six feet wide containing the trees should be kept free from weeds and grass.

### Mulching

Mulching is effective in conserving moisture by preventing weed growth and also preventing surface evaporation.

The practice of mulching young trees is, however, questionable, since it causes root development near the surface of the ground, results in fewer tap roots being formed, and therefore, trees suffer heavier losses during prolonged drouth periods. Then, too, some light rains may be absorbed by and be evaporated from the mulch without reaching the soil. If mulching is desired, it should follow two or three seasons of clean cultivation after the trees are planted.

### Watering

Small trees do not require a great amount of moisture. They can be grown successfully without artificial watering provided there is a good supply of soil moisture at planting time. Artificial watering is not recommended for field plantings of trees where good soil preparation and regular cultivation methods are employed. If watering is done it should be applied at regular intervals and a sufficient amount used to soak the soil down around the roots. If in the fall the soil is dry, a good

soaking of the ground is advisable. This should be done late, preferably just before the ground freezes.

### Pruning and Thinning

It is not advisable to prune the lower limbs from windbreak trees, particularly in the outside row or rows because it permits the wind to sweep under the trees, carry away leaves and litter, dry out the soil, and in some cases actually uncover the tree roots. Then, too, the snow will be carried through the windbreak instead of being held inside where it will be of most value in supplying moisture to the trees. Trees that are allowed to grow naturally will stand climatic extremes much better than those which have been pruned.

Pruning has been done many times to permit cultivation between the rows after the windbreak is a few years old. It is preferable to plant the windbreak with rows far enough apart so that cultivation is possible for a longer time without the necessity of pruning off the lower branches or the distance between rows should be widened at the proper time by removing every other row of trees.

Numerous windbreaks throughout the state with trees closely spaced might be materially improved by removing some of the trees in order to lessen the competition for soil moisture.

### TRANSPLANTING EVERGREENS

Too many evergreens are lost each year in transplanting. This is often because the trees have become too large. A large number of evergreen transplants are grown in nursery rows which



necessitates transplanting to permanent locations. If the trees are allowed to grow several years in nursery rows, loss in moving them is usually heavy as a much greater proportion of the root system is lost in digging. The labor involved is also great. Losses are usually greater when the trees grow more than two years in nursery rows. Those which have made little growth may, however, remain in the nursery one year longer.

Nurserymen prune the roots of evergreens about every two years either by drawing a U-shaped blade underneath the trees or by actually digging the trees and transplanting to a new location. This procedure results in the development of a compact root system which is an advantage when the trees are transplanted to their permanent sites.

Evergreens should be transplanted while they are in a dormant condition. For Nebraska, early spring planting is considered preferable, although planting in the fall can be done successfully if moisture conditions are favorable.

In transplanting evergreens it is necessary to prevent the roots from drying out. For this reason it is important that they be dug and moved with a ball of earth. Balling them the usual way is often quite difficult. Some have used the following method, however, with a large degree of success. For moving small evergreens, cut out the bottom of a five-gallon paint bucket, place the bucket over the tree to be transplanted, and push it down as far as it will go. Then dig the dirt around the bucket and gradually work it down to about its own depth. Dig underneath, tip the bucket and cut off with the shovel or spade roots that happen to be below the bucket. The bucket can then be lifted out with the tree and moved to its new location. The holes should be dug for the trees before they are taken up so that they

will not be out of the ground any longer than necessary. Set the bucket with the tree in the hole and fill in some loose dirt, pour enough water into the bucket to moisten the dirt around the sides so that the bucket may be removed. Then fill the hole almost full, packing the dirt well as it is being filled in and then water the tree well. When the water has completely settled away, some loose dirt should be added, leaving it loose and slightly cupped to catch rainfall.

The newly transplanted evergreen should, as stated above, be protected from drying winds the first season. A strip of burlap on stakes serves well for this purpose. Frequent watering for the first week or so, including spraying the foliage, will be beneficial.

### THE MERITS OF EVERGREENS

Evergreen windbreaks are appreciated today more than ever before. The red cedar and the Austrian and yellow pines have demonstrated their ability to withstand drouth, extreme temperatures, and the ravages of insect pests as no other species have been able to do. Many of the older farmstead windbreaks are today serving the purpose for which they were intended only because of the hardy evergreens which were included. It is unfortunate that more of the early plantings did not contain some evergreens. One or more rows of cedar or pines should be included in all of our windbreak plantings.

Evergreens possess other worthwhile qualities. Since they retain their foliage throughout the year, they give maximum protection both winter and summer. Then, too, they bring the freshness and beauty of summer into the dreariness of winter.



Some will say that evergreens cannot be grown, others complain of their slowness of growth, but those who have succeeded with evergreens contend that these objections are not warranted.

It has been demonstrated by many individuals that red cedar and the hardy pines can be grown as successfully as can broadleaf trees. To succeed with evergreens, however, requires good ground preparation, careful handling and planting, protection from drying south and west winds at least the first season, and very thorough cultivation to conserve moisture.

The evergreens referred to will, if given good care, grow an average of one foot or more in height a year. It is not at all uncommon to see evergreen windbreaks that are ten years old which are at least ten feet high. It should, therefore, not require a lifetime, as it is sometimes said, to develop an effective evergreen windbreak. Even though they do not grow as rapidly as most broadleaf trees, their advantages justify some extra care and a longer time in growing them to the desired height.

#### TREES IN WILDLIFE MANAGEMENT

Soil, water, and wildlife are natural resources of Nebraska which every citizen should strive to preserve. Trees and shrubs have a very important use in providing suitable environment for wildlife. A much greater number of hardy trees and shrubs should be planted for the control of erosion, and since they can be relied upon to provide a better habitat for wildlife, it is possible to conserve two important resources at one operation.

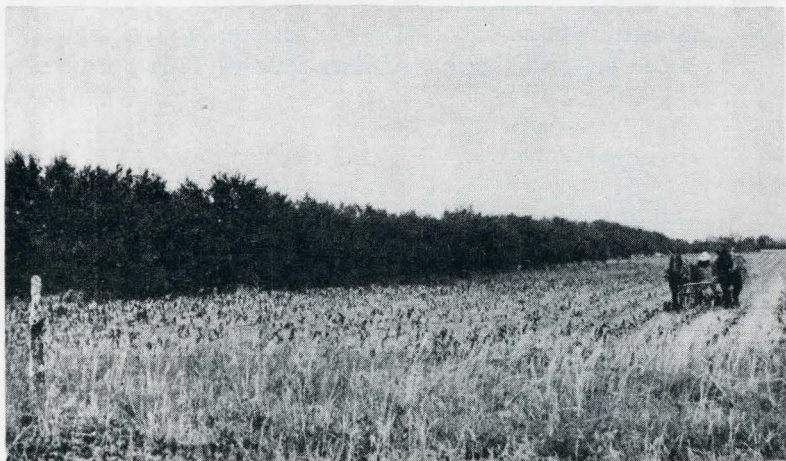
There are several trees and shrubs native to Nebraska which lend themselves well to planting for erosion control and wildlife conservation. Some of them are valuable for another reason, that of providing food for the table. The early settlers were able to go into the canyons, along roadsides, and by the streams and gather great quantities of choke cherries, wild plums, buffalo berries, June berries, elderberries, and sand cherries which helped materially to supply food for their families.

These shrubs may be made to serve a three-fold purpose; that of furnishing protective cover and food for birds, providing food for the family and also to aid in soil erosion control. Red cedar, hackberry, dogwood, sumac, bittersweet, and buckbrush are also beneficial for wildlife cover and for erosion control, and their fruits are relished by birds. These and other native trees and shrubs should be planted freely in waste places, along streams, and where gullies are forming.



Circular Prepared by  
Clayton W. Watkins and Earl G. Maxwell  
Extension Service  
College of Agriculture, Lincoln

-1939-



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