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Bulletins

South Dakota State University Agricultural  
Experiment Station

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## Arbor Day

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DAKOTA

AGRICULTURAL COLLEGE

AND

EXPERIMENT STATION.

Bulletin No. 3.

April, 1888.

DEPARTMENT OF FORESTRY, HORTICULTURE AND BOTANY.

ARBOR DAY.



# THE GOVERNOR'S PROCLAMATION.

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TERRITORY OF DAKOTA,  
Executive Department,

Bismarck, Dakota, March 20, 1888.

In conformity with custom and the sentiment of the people, I, Louis K. Church, Governor of Dakota, do hereby designate Wednesday, April 25th as Arbor Day for that portion of Dakota lying south of the 7th standard parallel of latitude, and Thursday, May 5th as Arbor Day for that portion of Dakota lying north of such parallel, and I do declare the same a legal holiday and request that the people devote the day as designated to the planting of trees, shrubs and vines in and about public and private grounds and ways, and I especially urge appropriate observance in our Public Schools and that public officials and citizens generally aid in making the day one that will confer a blessing to the future as well as a benefit to the present; and I would call attention to the wise salutary laws of Dakota upon a subject of so much importance which are as follows:

"On all public highways of not less than sixty-five feet in width the owners, occupants or claimants of adjoining lands may use and occupy one rod in width of such highway adjoining such lands for the purpose of cultivating the growth of timber and trees thereon; *Provided*, That the same be kept continuously in good order and under full timber and tree cultivation.

"Any person cultivating a hedge upon his land adjoining a public highway and desiring to fence the same, may place such fence seven feet over and upon such highway; *Provided*, That it do not obstruct the public travel.

"Every person planting one acre or more of prairie land within five years after the passage of this act (March 13, 1885) with any kind of forest trees except black locust and cottonwood, and successfully growing and cultivating for three years, shall be entitled to receive for ten years thereafter



an annual bounty of two dollars for each acre so planted and cultivated; to be paid out of the Territorial treasury; but such bounty shall not be paid any longer than such grove of trees is maintained and kept in growing condition.

"Any person wishing to secure the benefit of this act shall within three years after planting such grove of trees, and annually thereafter, file with the county auditor or clerk of the county in which the same is located a correct plat of land, describing the section or fraction thereof on which such grove has been planted or cultivated, and shall make due proof of such planting and cultivation as well as of the title to the land, by oath of the owner and the affidavit of two householders residing in the vicinity, setting forth the facts in relation to the growth and cultivation of the grove of trees for which such bounty is demanded. The several county auditors or clerks shall, on or before the first Monday of August of each year forward to the territorial auditor a certified list of all the lands and tree planting reported and verified to them in compliance with this act, with the name and postoffice address of the respective owners thereof; PROVIDED, This act shall not apply to any railroad company for planting trees within two hundred feet of its track for the purpose of making a snow fence, nor to any trees planted upon land held, entered and acquired under the timber culture laws of the United States.

"If the territorial auditor shall find that the provisions of this act have been duly complied with, he shall issue to the several applicants entitled thereto his warrant upon the territorial treasurer for the bounty so earned.

"Any one-fourth part of any quarter section of prairie land, the same being a legal subdivision, on which five acres of timber shall be planted either by sowing seed or by setting trees or cuttings, and the same to be kept in growing order by cultivation and not to be more than twelve feet apart each way, together with all improvements thereon, not to exceed in value one thousand dollars, and for a period of ten years from and after the planting of said timber, and any change of ownership of such land shall in no way affect the exemption from taxation herein provided; PROVIDED, HOWEVER, That no person shall derive any of the benefits as set forth in this subdivision until such person shall file an affidavit with the assessor that he has in every way complied with the requirements of the law made and provided in such cases, whereupon the assessor shall make a note of the fact in his list, and shall therein state in effect the following words, to-wit: 'Exempt from taxation by virtue of tree culture,' and shall describe the particular tract or tracts of land so exempt.

"All improvements made on real property by setting out either forest or fruit trees, shrubbery or vineyards, which shall not be considered as increasing the value of the land for purposes of taxation."

IN WITNESS WHEREOF, I have hereunto subscribed my name and caused  
[SEAL] the Great Seal of Dakota to be affixed this 20th day of March,  
one thousand eight hundred and eighty-eight.

BY THE GOVERNOR.  
M. L. MCCORMACK, SECRETARY.

LOUIS K. CHURCH,  
GOVERNOR.

# AGRICULTURAL COLLEGE

And Experiment Station of Dakota.

BROOKINGS, D. T.

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BULLETIN NO. 3.

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ARBOR DAY: WHY TO PLANT, WHAT TO PLANT, HOW TO PLANT.

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## Why Should We Plant Trees?

In no other part of our country is there such urgent need for the universal planting of trees as exists in our own Territory. The practical good resulting becomes every year more and more manifest, and greater in increasing ratio as the trees grow and shelter the ground. The mollifying effect of large areas of timber on climate is now well understood. With a soil of unsurpassed productiveness, it is only necessary to modify the extremes of the climate in order to put Dakota in the very front rank of agricultural states. How can this best be done?

If on every quarter section of farm land in the territory there stood today ten acres of healthy trees, the solution of the problem would be begun. The dry winds of summer, which comes to us from the arid plains of Western Nebraska and Kansas, blowing over these timbered areas, would be cooled and moistened by the great evaporation from the foliage, and thus the heat would be materially lessened. By this means, also, a more even distribution of rain fall would be secured. Instead of having one or two rainy periods, during which an excess of water falls and is largely wasted, there would be a noticeable tendency to more frequent rains, though it is not probable that a material increase in the yearly rain fall could be expected.

Last season presented a case in point. In the vicinity of Brookings there was an excess of rain during the month of August, while the two months previous had been very dry, causing a serious shortage of crops. Wild grass especially suffered, and less than half the usual amount of hay was cut. Could the rain that was wasted in August, have fallen during June and July, when the growing crops were so much in need of it, millions of dollars might have been saved to the people. The equal distribution of the yearly rainfall is a matter of the first importance to agricul-



tourists. The farmer can do much toward controlling this vital element by planting trees and caring for them till they are well established. This is not merely a fine theory: it is a fact proven by actual tests in countries which were once treeless and in which the planting of large areas of trees has had a most beneficial effect on the climate. Let every owner of land see that a beginning is made this spring in tree culture. By united effort we can in a few years make our summer climate radically better than it now is.

The rigors of winter will also be lessened when our ten acre groves have grown. No farmer in Dakota can afford to be without a windbreak for the protection of his house and barn and stock lots. There is absolute economy in such provision—a saving that can be measured in dollars and cents. By providing a sheltered yard for the stock, so that they can be turned out, even in severe weather without being exposed to the chilling winds, the farmer insures healthy growth in his animals, and saves much in food that would otherwise have to be consumed to keep up animal heat. Then there is the more important item of comfort to the household, which cannot be reckoned in mere money.

The proclamation of the Governor, printed herewith, calls attention to the fact that there will be paid from the territorial treasury, two dollars per acre each year for ten years to all persons who plant an acre or more to forest trees between 1885 and 1890, if the grove so planted is kept in good condition. Thus public interest acknowledges the importance of growing trees, and in many ways seeks to encourage forestry.

### What to Plant.

White elm, white ash, box elder, silver-leaf maple and cottonwood are native along Dakota streams and are presumably hardy. It is a well known fact that the native form of the white ash (*Fraxinus Americana*) differs quite a little from the white ash of Michigan and Indiana, and there is a noticeable difference between the Iowa and Dakota grown trees of this species. But the peculiarities of the native trees are due to climatic conditions and their exposure to almost constant winds. The native box elder, also, differs from the Eastern form. It is probable that under cultivation both species will take on more of the appearance of their fellows of more favored localities. It is safe, then, to plant any or all of the above named varieties. To this list a few additions might be made by those having a taste for experiment: The birches, especially the yellow and white, are promising; black wild cherry has proven a success, I am told, as far north as Cass county; basswood is native and should grow well. White willow will always be valuable because it is easily grown from cuttings and does well alike on high and low land. The Russian willows and poplars, and especially *Populus certinensis*, should be grown wherever they can be secured. *P. certinensis* has proven a success under the most adverse conditions in Faulk county. It is a very rapid grower, is absolutely hardy, not so subject to

disease of foliage as cottonwood, and is said to yield a much more valuable timber than that variety. It grows readily from cuttings.

Of the trees above named, the most rapid growers under ordinary culture are white willow, cottonwood and populus certineusis; after these—though none are named in order—are the birches, black wild cherry, box elder, maple, white elm, white ash. When the value of their timber for farm use is considered, white ash would take the lead; the wood of yellow birch, black wild cherry and white elm is of great commercial value and for many farm uses is unexcelled.

The cone-bearing trees should be extensively tested on the Dakota prairies, for no others are so good for windbreaks. Young trees of Scotch pine, white spruce and European larch, if properly managed, are almost as sure to grow as ash and elm. They form as perfect a barrier to the north winds as tight board fences, and once established they need no repair.

It may be well in this connection to suggest a few much advertised trees that are not reliable for planting in the territory. Hardy catalpa cannot be successfully grown in Dakota unless in the extreme Southern part of the territory; it is a native of Illinois and Indiana, and is at its best south of the central parts of those States—regions of far greater humidity than Dakota, hence it winter kills badly here. For the general planter a hardier tree is necessary, and money will be saved if the catalpa is left for our Southern neighbors to deal with.

Russian mulberry is a failure as a tree. It branches freely from the ground up, and is admirable for ornamental hedging. It is almost impossible, however, to make it form a clean trunk, or even a low topped tree. The fruit of by far the great majority of the trees is very small—not worth bothering with. The foliage is beautiful and wherever a large shrub, or, as was said, an ornamental hedge is needed, the Russian mulberry will fill the bill satisfactorily.

Soft maple is not adapted to exposed situations, because of the tendency of its branches to break; it cannot withstand our strong winds. Box elder and white elm are almost perfect in this respect.

### How to Plant.

If a good windbreak is desired it can be secured by laying out a plat 48 rods long and 13 rods wide, on the north side of the farm yards, and sufficiently removed from them to permit the forming of drifts between the trees and buildings. On the west end of this plat, and at right angles to it, lay off a space 24 rods long and 13 rods wide, extending south from the west 13 rods of the longer piece. Plow deep; at least ten inches, while twelve is better, and deeper than that is best. It may be difficult to set the plow so deep in new ground, but in almost all cases deep plowing is essential to successful tree growing. Harrow smooth and mark off the land the same as for corn. The land thus laid out will measure about six acres, and a well made grove in this shape will afford almost complete protection for a space amply sufficient for barn yards, feeding lots, garden and lawn.

It is certainly not the best plan to set a grove entirely of one kind of trees, even though the variety chosen have many virtues. It is true that



along our rivers it is not unusual to see native groves composed almost exclusively of cottonwood; but it is also true that these groves are usually short lived, few of the trees reaching maturity; while in groves where elm and ash and box elder or soft maple grow together, fine specimens of each variety are of frequent occurrence. Thus Nature herself teaches us an important lesson at the very outset.

Having, then, plowed deep and harrowed well, and laid off the ground as suggested, place the trees in a tub half filled with water, and begin the work; plant with a spade; let the roots assume their natural position; set the tree a little deeper than they stood before, and tramp the dirt on and about the roots firmly. This may seem a slow way of planting, but it is a safe way. The essential points are three; deep plowing, keeping the roots moist from the time they are taken up till they are set, and planting firmly.

If it is intended to have a mixed grove, the most practical way is to plant all of one kind first, then fill in the vacant spaces with a second and third variety, or several sorts can be carried along at once and the mixing done at one going over.

For the very best windbreak, nothing can surpass the Scotch pine. If the transplanted trees are too expensive, seedlings can be secured at a very low figure, and after a year's growth under shade they can be transplanted to permanent groves with perfect safety. European Larch is an excellent tree for mixing with this pine; it has been grown successfully also with elm, ash and box elder.

These suggestions are given on the supposition that trees are to be set. If seeds are planted, the ground should be plowed with the same care, harrowed till fine, and marked off as for trees.

The earlier most forest tree seeds are planted in the spring the better; so that if Arbor Day is to be celebrated by the planting of seeds, it might be well to fix upon an earlier date than the one appointed by the Governor.

As is well known, most tree seeds ripen in the autumn and lie on the ground, covered more or less with grass, leaves and snow all winter; they are thus subjected to freezing and thawing: The same treatment can be given saved seeds by mixing them with sand, or placing them in thin layers on well drained ground and covering with boards or straw. But in using seeds that have been kept dry all winter it is important that they should be well soaked before planting. Ten hours is not too long for the most delicate seeds no soak, while good success has followed the soaking of box elder and white ash seeds for two days. The seeds of honey and yellow locust should be covered with boiling water and left standing a day or two. Where the seeds are not soaked most of them will not germinate till the second year after planting.

From four to ten seeds should be planted in a hill, as it is much easier to pull out the surplus plants than to fill in empty places.

The culture for both seedlings and transplanted trees is the same, and should be just about what is required for a good corn crop. Keep the ground well stirred through the early part of the season, but do not encourage late growth.

It will be noticed that a width of 13 rods is suggested for the shelter



belt or grove. To many this may seem wider than necessary, but every year will make more apparent the advantage of good breadth; for the greatest force of the wind is spent on the trees in the border of the grove, which thus form a protection for the more central plants. In this way we approach the true forest conditions, and in a very few years the trees become a complete protection to one another.

Doubtless many citizens will plant a few evergreens on Arbor Day.

The observance of a few simple rules will in most cases insure success.

1. If possible get your trees of a Dakota grower. The home nurserymen should be patronized in all cases wherever possible, but it is especially important that coniferous trees be purchased as near home as possible. If you can, drive to the nursery, with a wagon box full of straw and old rags or saks, and select your trees, having them dug with care.

2. *From the time the trees are taken up until you set them, do not permit the dry air to strike the roots if it can be avoided.* This is essential. Have wet straw at hand, and as soon as the trees are out of the ground, wrap the roots well in it. Put wet straw in the bottom of the wagon, pack the trees closely, and throw wet blankets or sacks over all.

3. Choose small trees. Trees a foot high are far better than those of greater size, and in five years will be larger than those two feet high when planted.

4. *Set the trees firm.* Put fine soil in among the roots, shaking the tree to make it fill all crevices; then *tramp the ground hard.*

5. Mulch deep with course litter.

The care of trees when first received from the nursery is an important item. As soon as received they should be unpacked and all badly bruised roots should be pruned off with a sharp knife. Then puddle the roots in a mixture of fresh cow dung, clay and water in equal parts. The trees should be "heeled in," or partly buried till wanted.

In providing for a public celebration of Arbor Day, the holes in which the trees are to be planted can be dug the day before, keeping the rich surface soil to itself. In setting the trees, this surface soil should be fined and put on the fibrous roots, leaving the lower soil for the top. Street and lawn trees should be tamped hard and mulched heavily with coarse stable litter or straw. If large trees are planted it is best to anchor them by means of wires fastened where the branches start and stretched to three or four posts at equal distances from each other and the bases of the trees.

These notes, hastily prepared, are issued just at this time in the hope that they may be of use in the celebration of the forthcoming holiday. Especial attention is called to the Governor's proclamation.

CHAS. A. KEFFER,  
Professor of Forestry Horticulture and Botany.

## Report of the Horticultural Society on the Observance of Arbor Day.

The admirable report of the Horticultural Society's committee on Arbor Day is appended. The gentlemen who prepared the report are old residents of Dakota and are experienced planters, and their suggestions cannot be too heartily commended. Particular attention is called to the list of trees which the committee recommends. This list was prepared by the Society, and can be regarded as reliable.

"At the annual meeting of the Dakota Horticultural and Forestry Society, held in Huron, the undersigned were appointed a committee to enlist, as far as possible, a general observance of Arbor Day in Dakota and to carry out the suggestions contained in the following resolutions, which were unanimously adopted at the time:

The undersigned committee appointed to consider the subject of a more general observance of Arbor Day in the spring of 1888, than has been hitherto made, and to prepare a programme for such observance to be recommended to the people of Dakota, report as follows:

1st. That the Governor be requested to designate the 25th of April for that part of the Territory south of latitude 47, and the 5th of May for the northern part, in order that as nearly as possible in the selection of not more than two days, it may not be too late for the southern part or too early for the extreme northern section.

2d. That it be recommended to the city councils, boards of trade, township boards and school boards, that as soon as the Governor's proclamation is issued they take such local measures as will result in the general setting apart of the day designated as a holiday for the planting of trees on all public grounds, such as parks, cemeteries, school and church grounds, streets and highways, and wherever practical the holding of meetings in cities, towns and country school districts, with appropriate exercises relating to forestry. We also recommend that on Arbor Day every citizen of the territory occupying a piece of ground, from a village lot to a farm, be earnestly requested to plant at least a few trees as a memorial of the day, and that city councils arrange by appropriations, or by private subscription, to provide trees as a donation to be planted along the streets in front of premises whose owners are unable otherwise to obtain them, to the end that a general and systematic work of street tree planting may be done on that day.

3d. That it be recommended that processions be formed of the various organized societies of the several cities and villages, with music, when obtainable, to march to the places of planting and aid in making the ceremonies impressive.

4th. That the laws of the territory encouraging tree planting be compiled and furnished to the newspapers of the territory with the request for their publication, and that the influence of the press be strongly invoked to awaken the interest of the people for the general observance of the day.

5th. And your committee finally recommend that the Territorial Horticultural Society suggest a list of trees for road and street planting and another list for planting in parks and other public grounds for Arbor Day."

Respectfully submitted,

W. F. T. BUSHNELL,

E. DE BELL,

OLIVER GIBBS, JR., Com.

Adopted by the Territorial Horticultural Society at its annual meeting held at Huron, December 15th, 1887, and the following list of trees recommended for Arbor Day:

For streets and highways: White Elm, Box Elder, Hard and Soft Maples.

For Parks and other public grounds: Cut Leaved Weeping Birch. European White Birch, English and American Larch, Lateral Willow, Mountain Ash, Blue Spruce, White Elm, White Ash, Box Elder.