

NUMBER 10

APRIL 1952

TREE PLANTERS' NOTES

A Publication for Nurserymen and Planters
of Forests and Shelterbelts



CONTENTS:

TREE PLANTING INSTRUCTION SHEETS

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

WASHINGTON 25, D. C.

TREE PLANTERS' NOTES NO. 10

Tree Planting Instruction Sheets

Here is a collection of the instruction sheets sent out by some of the agencies which distribute trees. We present these because we thought that the people who receive Tree Planters' Notes would like to see a cross section of the variety, and the degree of advertising techniques used in such instructions. The way in which these instructions are gotten into the hands of the planters, and other details concerning them, are given on the pages facing them.

The States represented are:

Alabama
Georgia
Idaho
Michigan (State College)
Michigan (State Forester)
Missouri
North Dakota
Ohio
South Carolina
Virginia
West Virginia



Trees for Tomorrow, Inc

These instructions are intended to show the tree planter how to keep his shipment in vigorous condition until the last tree is planted, and how to do the actual planting. Do they meet the objective?

This collection includes less than 25% of the instructions issued by the various states and other agencies that foster tree plantings. It is hoped that some future issue of Notes can present additional samples of these instructions. Comments upon those given here, and offers of additional instruction sheets for use in this manner will be welcomed.

ALABAMA DEPARTMENT OF CONSERVATION

DIVISION OF FORESTRY

Technical Note #3. This is a single, three-part, multigraphed sheet which tells how to order seedlings, what to do when the seedlings arrive, and gives diagrams of proper planting methods. Included in the several items under the heading, "How to Order Seedlings", are the species available, prices, and general shipping information,

The sheet is mailed out in response to requests for any of the information contained therein. When requests for nursery stock are received, both a copy of the Technical Note and a seedling application form are furnished. Because of its planting diagrams and notes on care of seedlings upon arrival, extra copies of the sheet are sometimes furnished 4-H Clubs, F. F. A groups, and schools to be used in connection with tree planting demonstrations and studies,

The instruction sheet is printed on the multigraph machine in the Division of Forestry office at a cost of approximately \$38,00 per 10,000 sheets.

J. M. STAUFFER
State Forester

STATE OF ALABAMA
DEPARTMENT OF CONSERVATION
DIVISION OF FORESTRY

J. M. STAUFFER
State Forester

Technical Note #3.
Revised 6-24-51

HOW TO ORDER SEEDLINGS

You can order tree seedlings from: State Forester, 607 Monroe Street, Montgomery L, Alabama.

The following kinds are available: loblolly pine, shortleaf pine, longleaf pine, slash pine, catalpa, black locust, black walnut, yellow poplar, red cedar, and Arizona cypress.

All seedlings for the 1951-1952 planting season will cost ;;2.50 per thousand, f.o.b., State nursery, Autaugaville, Alabama, or Auburn, Alabama, except Arizona cypress which will cost j4.50 per thousand. You should order seedlings on application forms obtainable from your county forest ranger. He will also be glad to show you the proper methods of planting seedlings.

All shipments will be made by express collect unless the applicant wants to nick up his order by truck at the nursery.

WHAT TO DO WHEN YOUR SEEDLINGS ARRIVE

1. Pick them up as soon as you get your notice from the express office.
2. If you cannot plant your seedlings within two days after they arrive, you should heel them in immediately. See diagram on other side for instructions. De sure that all roots are covered. Do not leave air pockets. Do not cover needles, Water your seedlings when they are heeled in. Water every day until planted.
3. When ready to plant, be sure you have enough tools and buckets. See other side for planting instructions. Add a little soil to the water in the planting buckets.
4. Be. sure your seedlings are planted at the right depth. The proper depth is deeper than planted in the nursery. Plant your seedlings so that the top root falls one inch below the ground line and they will be at the proper depth. De sure that roots are not bent or cramped when planted.

THE PRICE YOU PAID FOR YOUR SEEDLINGS IS ONLY A PART OF THEIR COST. THE STATE AND FEDERAL GOVERNMENTS HAVE HELPED PAY FOR YOUR SEEDLINGS. PROTECT YOUR INVESTMENT AND CURS. DO YOUR PART AND MAKE THESE SEEDLINGS GROW.

① HEELING IN

1. Dig V-shaped trench in moist shady place.
2. Break bundles and spread out evenly.
3. Fill in loose soil and water well.
4. Complete filling in soil and firm with feet.

② HANDLING SEEDLINGS in FIELD

Correct
In bucket with sufficient water to cover roots.

Incorrect
In hand - roots dry out.

③ CORRECT AND INCORRECT DEPTHS

Correct
At same depth or $\frac{1}{2}$ deeper than seedling grew in nursery.

Incorrect
Too deep and roots bent.

Incorrect
Too shallow and roots exposed.

④ DIBBLE PLANTING

Dibble or Planting Bar

1. Insert dibble at angle shown and push forward to upright position.
2. Remove dibble and place seedling at correct depth.
3. Insert dibble 2 inches toward planter from seedling.
4. Pull handle of dibble toward planter firming soil at bottom of roots.
5. Push handle of dibble forward from planter firming soil at top of roots.
6. Insert dibble 2 inches from last hole.
7. Push forward then pull backward filling hole.
8. Fill in last hole by stamping with heel.
9. Firm soil around seedling with feet.

⑤ MATTOCK PLANTING

1. Insert mattock - lift handle and pull.
2. Place seedling along straight side at correct depth.
3. Fill in and pack soil to bottom of roots.
4. Finish filling in soil and firm with heel.
5. Firm around seedling with feet.

GEORGIA FORESTRY COMMISSION

One of these planting instructions is included each time our nursery department sends out the shipping instructions to the planter. in addition, Rangers and Foresters in our 105 counties under organized forest protection can provide planting advice to citizens in their counties Many shipments are sent directly to the Ranger and Forester and they are picked up at the Forestry Unit headquarters by the person who did the ordering.

The cost of 10,000 copies would depend upon whether the job was done by letterpress or lithograph. Letterpress price is \$153 00 and lithograph price is \$135 00 If we had the cuts from the original run, which we do not, this would have decreased the letterpress cost by \$30.00 Both of these prices are with the provision that we would supply the photograph on the front cover

ROBERT E RUTHERFORD,
Assistant Chief, Information and Education'

Source of Stock

The Georgia Forestry Commission operates three nurseries for the production of forest planting stock for land-owners of the State of Georgia.

The Flowery Branch Nursery at Flowery Branch, Georgia, Davisboro Nursery, Davisboro, Georgia, and the Herty Nursery, Albany, Georgia, have combined total capacity of approximately 60,000,000 seedlings.

Species Available

The State nurseries mainly produce slash, long-leaf, and loblolly pine. Experimentation is being conducted on other species. Contact the Georgia Forestry Commission for availability of other species.

Number of Seedlings Required for Different Spacings

5 feet x 10 feet	871 per acre
5 feet x 12 feet	726 per acre
6 feet x 6 feet	1210 per acre
6 feet x 8 feet	908 per acre
6 feet x 10 feet	726 per acre
6 feet x 12 feet	605 per acre
8 feet x 8 feet	680 per acre
8 feet x 10 feet	545 per acre
8 feet x 12 feet	454 per acre
10 feet x 10 feet	436 per acre

Cost of Seedlings

Planting stock is sold by the State at cost of production or less. Contact Georgia Forestry Commission representatives for cost of seedlings for current year.

How to Order Seedlings from the State Nurseries

Applications for seedlings may be placed direct with the Georgia Forestry Commission. Write State Forester, 435 State Capitol, for order blank.

Supervisory Service in Planting

If you are in doubt as to the best species to plant or the best method of planting, assistance may be had by contacting your district forester. District offices are located at: Gainesville, Rome, Newnan, Washington, Macon, Americus, Statesboro, Waycross and Camilla.

HOW TO CARE FOR and PLANT TREE SEEDLINGS

GEORGIA FORESTRY COMMISSION
STATE CAPITOL
ATLANTA 3. GA.



Care of Planting Stock

The purchase of seedlings represents an expenditure which should be safeguarded from loss and this can best be done by the proper care of your planting stock.

1. Be on the lookout for your seedlings and accept them promptly.
2. Seedlings are shipped at the purchaser's risk, so check your shipment and if damaged, file claim with the carrier and advise the State Office of the Department of Forestry of the extent of the damage and the action taken.
3. Carry them to planting site without delay and "heel in" in a cool, moist place protected from the sun and wind.
4. Do not let seedlings freeze while in bales.
5. If frozen when received, allow to thaw just enough to separate bundles. "Heel in" and allow natural thawing in ground.
6. If planting is delayed, do not neglect to water and otherwise care for "heeled in" seedlings.
7. When ready to plant be sure to have sufficient tools and buckets for handling and planting.
8. Keep roots of seedlings moist at all times until planted.
9. Do not unnecessarily delay or prolong planting.
10. Read your planting instructions carefully and follow closely.

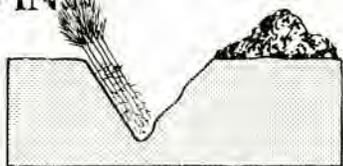
The State is striving to produce a high quality, low cost stock for your plantings, SO: — PLEASE HELP US AID YOU BY FOLLOWING THESE PLANTING INSTRUCTIONS, THEREBY INCREASING SURVIVAL OF THE TREES YOU PLANT. 6

①

HEELING IN



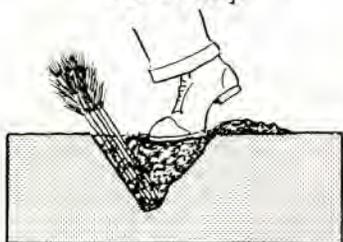
1. Dig V-shaped trench in moist shady place.



2. Break bundles and spread out evenly.



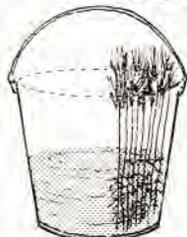
3. Fill in loose soil and water well.



4. Complete filling in soil and firm with feet.

②

HANDLING SEEDLINGS in FIELD



Correct

In bucket with sufficient water to cover roots.

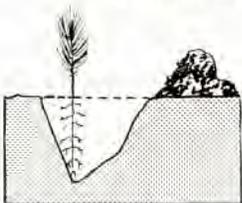


Incorrect

In hand - roots dry out.

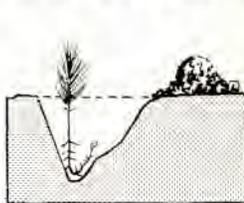
③

CORRECT AND INCORRECT DEPTHS



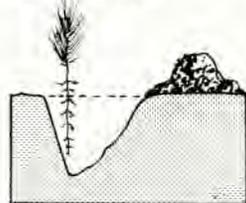
Correct

At same depth or $\frac{1}{2}$ deeper than seedling grew in nursery



Incorrect

Too deep and roots bent.



Incorrect

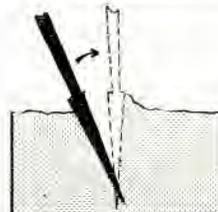
Too shallow and roots exposed.

④

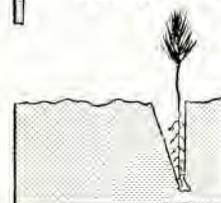
DIBBLE PLANTING



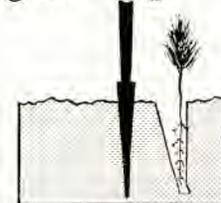
Dibble or Planting Bar



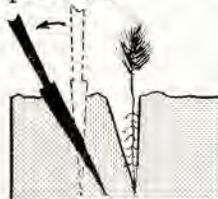
1. Insert dibble at angle shown and push forward to upright position.



2. Remove dibble and place seedling at correct depth.



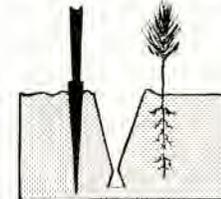
3. Insert dibble 2 inches toward planter from seedling.



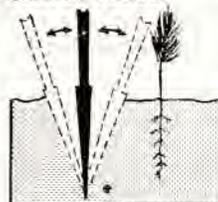
4. Pull handle of dibble toward planter firming soil at bottom of roots.



5. Push handle of dibble forward from planter firming soil at top of roots.



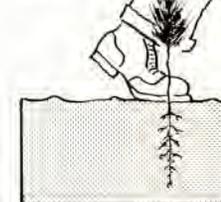
6. Insert dibble 2 inches from last hole.



7. Push forward then pull backward filling hole.



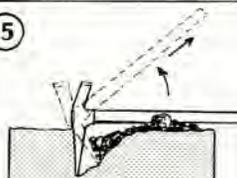
8. Fill in last hole by stamping with heel.



9. Firm soil around seedling with feet.

⑤

MATTOCK PLANTING



1. Insert mattock - lift handle and pull.



2. Place seedling along straight side at correct depth.



3. Fill in and pack soil to bottom of roots.



4. Finish filling in soil and firm with heel.



5. Firm around seedling with feet.

UNIVERSITY OF IDAHO
COLLEGE OF AGRICULTURE

Three of the ideas used by Idaho are presented here. These are:

- (a) Letter acknowledging an order for trees
- (b) Notification that trees have been shipped
- c) Extension Circular 119 titled, "How to Plant Your Trees."

University of Idaho
College of Agriculture
and
U.S. Dept. of Agriculture
Cooperating

COOPERATIVE EXTENSION WORK
in.
AGRICULTURE AND HOME ECONOMICS
STATE OF IDAHO
Moscow

Extension Service
Extension Forester

Dear Cooperator:

We have been notified by the School of Forestry Nursery Department that they have received your order for farm tree planting stock. We are glad to learn of your interest in establishing trees of proven quality on your place. Desirable trees are an important improvement to any farm.

Idaho farmers frequently inquire of this office about the planning of windbreaks and woodlots and the preparation of the tree planting site. Plant your windbreak at right angles to prevailing winds and locate it at least 100 feet back from buildings or protected areas. Extend the windbreak 50 feet beyond the area which is to be protected. Any tree planting site should be plowed and firmly worked down, just as you would land intended for cultivated crops. Keep the planting clean cultivated and water it much like row crops. Give dry land plantings sufficient cultivation to keep them free of all weed competition*

Successful plantings can be made on some non-tillable lands of Idaho. For best results plant the trees on spots of ground which have been cleared of weeds and grass. The spots should be 2 to 3 feet wide. Give careful consideration to the location of trees. Do not place trees too close to other competing plants. Locate them so as to reduce damage from exposure to sun and wind.

The University Extension Bulletin called "Tree Planting for Idaho Farms" gives more specific information on tree planting topics. You can get a copy from your local county agent or from this office.

You will be notified when your trees are shipped. We will send you additional instructions concerning the planting and care of the trees which you have ordered.

Very truly yours,



Vernon H. Burlison
Extension Forester

vhb /mvl

University of Idaho
College of Agriculture
and
U.S. Dept. of Agriculture
Cooperating

COOPERATIVE EXTENSION WORK
in
AGRICULTURE AND HOME ECONOMICS
STATE OF IDAHO

Extension Service
Extension Forester

Moscow

Dear Cooperator:

The School of Forestry has shipped your trees via

They will be delivered to

your County Agent's Office in on

DELAY IN CLAIMING YOUR TREES WILL REDUCE THE VIGOR
OF YOUR STOCK*

The enclosed folder tells you how to plant your
trees for best results. If you want more informa-
tion or need some personal instruction, see your
County Agent*

We welcome your comments concerning the condition of
your stock when it arrives. If it is not in good
shape, please notify at once the University of Idaho,
School of Forestry Nursery at Moscow, Idaho

Very truly yours,



V
ernon H. Burlison
Extension Forester

vhb/Mvl
encl.

likely to be bothered than one with a trashy or weedy surface that gives protection to the mice.

Though insect and disease problems are not common to the species recommended for Idaho farm tree plantings, they sometimes occur. Notify your county agent of rodent, insect, or disease damage.

Care After Planting

The first summer after you plant is a critical period for your young trees. If you are planting on irrigated land, keep the weeds down and water as you do for row crops. Keep dryland plantings clean cultivated as long as the equipment can get through the trees. For the first summer a row of corn on each side of each row of trees will help. The corn will give partial shade. This is very good for the evergreens. Do not plant the corn close enough that it will compete with the trees for moisture.

The spring following planting, replace all trees that have died during the year. Usually, very few trees are lost after the second year.



How to Plant Your Trees



Authors of this Circular are:

Vernon H. Burlison,
Extension Forester,
and
Franklin H. Pitkin,
Forestry Nurseryman.

The success of your tree planting depends upon:

- Good ground preparation
- Prompt care of your trees
- Right spacing and correct planting
- Protection from livestock
- Care after planting

Cooperative Extension Work in Agriculture and Home Economics, D. R. Theophilus, Director. University of Idaho College of Agriculture and United States Department of Agriculture Cooperating.

Issued in furtherance of the acts of May 8 and June 30, 1914

UNIVERSITY OF IDAHO

College of Agriculture

Extension Division

Right Spacing and Correct Planting

Even with close spacing, your tree seedlings look small at the start. Because of this, it is easy to crowd a tree planting. For best results, do not plant closer than the following spaces:

<i>Windbreaks</i>				
Type of Tree	Irrigated Plantings		Dryland Plantings	
	Between Trees (feet)	Between Rows (feet)	Between Trees (feet)	Between Rows (feet)
Bushy (outside row)	3	9	6	12
Tall (middle row)	9	9	12	12
Evergreen (inside row)	9	9	12	12

<i>Woodlots</i>				
Type of Tree	Between Trees (feet)	Between Rows (feet)	Between Trees (feet)	Between Rows (feet)
Evergreen	6	6	9	9
Hardwood	6	6	12	12

On irrigated windbreak plantings allow 12 feet between the tall-tree row and the evergreens if the tall tree is black locust or golden willow. Widen the space between rows if you need extra space to allow use of cultivating equipment.

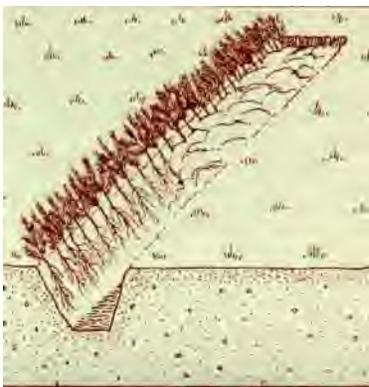
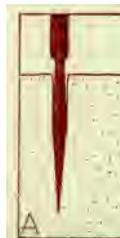
Christmas Trees

Space 4'x4' or 6'x6'. On 4'x4' spacing, plan on thinning the stand for table-size trees.

Don't kill your trees before you plant them. Brief exposure of their roots to wind or sun will kill your trees. Once their roots are dry, no amount of care will revive them. While planting, carry your trees in a pail or knapsack with water or wet moss and leaves covering their roots. Cover the trees left in the bundle to protect them from wind and sun.

Hand planting with a dibble or bar is an easy way to plant small seedling

- stock. The method is most efficient when two persons work at it. One makes and closes the slits ; the
- other inserts the trees and holds them in position until the slits are closed. Hold the planting tool straight up and push it into the ground slightly deeper than the length of the tree roots.



Press the dibble forward, then pull it back to enlarge the opening.

Put the tree in and push it deep into the opening. Raise it back to where it is slightly deeper than it was in the nursery. Shaking the tree up and down will help spread the roots uniformly. Then insert the dibble on a slant about four inches from the tree.

Push the dibble forward and press the soil firmly around the tree's roots,

Use the point of the dibble to fill the last slit with soil. Tamp it down firmly with your heel. If there is danger of the soil's drying and cracking, loosen the surface inch around the tree for a mulch.

Any blacksmith can make a planting bar or dibble. Your county agent can supply specifications.

Hole planting with a shovel or grub hoe works well when the stock is too large to plant easily with a dibble. It is more satisfactory than the dibble method if you are planting on light or rocky soils.



Make the hole large enough so the roots can be spread in a natural position. Hold the tree a little deeper than it was in the nursery and pack

in moist soil. Use your heel to tamp the soil firmly about the tree roots. Mulch with loose soil, grass, or leaves if there is danger of drying and cracking.



A tractor and moldboard plow will speed up large plantings. Plow a furrow deep enough that the roots will not need bending. Place the trees against the vertical or land side of the furrow and put enough moist soil around the roots to keep them from drying out and to hold the tree in place. Back-furrow to fill in around the trees. Lift the plow and run the rear tractor wheel close to the row of trees to press the soil. Then inspect the row to see that no trees are coy-

MICHIGAN STATE COLLEGE
FOREST NURSERY

The Michigan State College Forest Nursery sends the following instructions on tree planting with the shipping notices to tree purchasers. The shipping notice is mailed the same day trees are shipped by express, so the instructions should reach the purchaser a day before the trees arrive. These instructions are mimeographed on a heavy grade of mimeograph paper. The cost of paper and mimeographing is approximately \$20.00 for 10,000 copies.

MICHIGAN STATE COLLEGE
FOREST NURSERY

The Michigan State College Forest Nursery sends the following instructions on tree planting with the shipping notices to tree purchasers. The shipping notice is mailed the same day trees are shipped by express, so the instructions should reach the purchaser a day before the trees arrive. These instructions are mimeographed on a heavy grade of mimeograph paper. The cost of paper and mimeographing is approximately Q20 for 10,000 copies.

PLANTING INSTRUCTIONS
FOR
FOREST TREE SEEDLINGS AND TRANSPLANTS

If trees are to be planted within 24 hours, store them in the bundle. Moisten trees by standing bundle on and pouring water through it. Store the bundle of trees in a cool place. If trees can not be planted within 24 hours, dig a trench or plow a furrow deep enough that the tree roots can be covered with soil. Open the bundle and cut the strings on the bunches of trees. Spread trees out in trench or furrow and cover roots with soil. Pack soil on roots and water, if ground is dry.

PLANTING METHODS

Carry trees in a pail one-fourth full of water to keep the roots wet. Do not expose tree roots to the sun. Plow shallow furrows 6 or 8 feet apart and plant trees in bottom of furrows. Transplants should be planted in a hole dug with a shovel or grub hoe deep enough to accommodate the roots. Seedlings can be planted by the slit method using a spade or shovel, Push the spade straight in the ground to the depth of the blade. Open a slit by moving the handle backward and forward. Place the tree root in the slit and hold the tree so it will be planted the same depth as it stood in the nursery or a little deeper, Insert the spade again 2 inches from the slit and pull the handle toward the planter and push it away to firm the dirt against the tree root. Pull the spade out, close the second opening and pack the ground with the heel.

For additional information on forest tree planting get Bulletin #26/4,.

MICHIGAN DEPARTMENT OF CONSERVATION

These instructions go out by mail and are not shipped with the order itself,

These planting instructions are on one side of the sheet and the regulations which govern the distribution of stock from state nurseries are given on the other side The cost of the plate, which is a Varitype plate, is \$2. 50, The only other cost involved is the value of the stock and the labor to run it through the machine, which is very similar to mimeograph machines

F, J. HODGE, In Charge of
Public Forestry Cooperation
Forestry Division

**SALE AND DISTRIBUTION OF FOREST PLANTING STOCK
BY THE
MICHIGAN DEPARTMENT OF CONSERVATION**

The nursery facilities of the Department of Conservation are maintained to produce trees for:

- (1) Planting on publicly-owned areas, such as, State Forests, State Game Areas, and State Parks.
- (2) Schools and communities and other public agencies,
- (3) Sale to private land owners at the approximate production costs for reforestation purposes as follows:

Forest Plantings
Erosion Control

Farm Windbreaks
Christmas Tree Production

TREES ARE NOT FURNISHED FOR ORNAMENTAL PLANTINGS OR FOR RESALE WITH ROOTS ATTACHED. Orders are not accepted for less than 500 trees or for less than 100 of any one class, Blanket orders from agencies or organizations that intend to redistribute the stock to a number of landowners are not accepted, Each landowner must submit an individual order for his requirements.

With the idea of stimulating the school and community forest movement, the Department distributes planting stock for reforestation purposes in limited quantities without charge, This free distribution is limited to seedlings. **THE REGULAR LIST PRICE IS CHARGED IN ALL CASES FOR TRANSPLANTS.** Seedlings are given without charge only when the title to the land on which they are to be planted is vested in a governmental unit, such as a school district, township, village, city or county, Non-profit organizations such as service clubs, Boy Scouts, Future Farmers of America and religious sects may qualify for free seedlings only when the planting is to be made on land title to which is vested in the school district, township or other governmental units as indicated above. The maximum number of free seedlings that may be obtained by any one agency depends on both the supply and the demand for any particular season, Ordinarily the limit is 5,000 per year, with the understanding that this may be lowered to meet existing conditions if necessary,

Caution is urged against ordering more trees than can be properly planted, It is far better to have too few than too many. This applies particularly to plantings made by school children, Experience has repeatedly shown that approximately two hours is as long as school children will plant and do a satisfactory job,

A legal basis has been **provided** by legislative enactment (Act 217 P.A. 1931) for the establishment of a community forest by any county, township, city, village or school district, This includes the appointment of a forestry commission of three members by the legislative body of any such municipality. The function of this commission is to supervise and administer the community forest lands. It is felt that the appointment and active functioning of such a forestry commission will increase the interest in and tend to assure the future stability of a community forest; and it is strongly recommended that the setting up of this commission be one of the initial steps in the establishment of all community forest projects.

ALL APPLICATIONS FOR TREES MUST BE SUBMITTED TO THE LANSING OFFICE OF THE DEPARTMENT OF CONSERVATION ON THE REGULAR FORM PROVIDED FOR THAT PURPOSE.

CARE OF PLANTING STOCK

If the trees are to be planted within four or five days, they may be left in the package and stored in a cool place.

If planting is to be delayed for a longer period than this, the trees should be unpacked and "heeled in" in the ground. They are heeled in as follows:

- (1) Dig a shallow trench,
- (2) Cut the strings on the bundles and spread the trees out in the trench with the tops above the ground.
- (3) Pack the soil back into the trench so that the roots are thoroughly covered, and tramp firmly.

HOW TO PLANT

Trees should not be planted in areas covered with sod or other vegetation without first preparing the ground. This may be done by either plowing a shallow furrow for each row, or by scalping off an area about eighteen inches square where each tree is to be planted.

In planting, a slit is made in the ground with a shovel or planting bar deep enough to allow the roots to go straight down. The tree is then placed in the slit and the soil packed firmly around the roots so that no air pockets remain. Be sure the tree is planted at the same depth as it stood in the nursery,

Keep trees in a pail with the roots covered with wet moss or wet soil while planting,

Number of trees required per acre:

6 x 6 feet -- 1,210

6 x 7 feet -- 1,037

8 x 8 feet -- 681

WHERE TO PLANT

WHITE PINE. White pine is best adapted to moist, sandy loam soils, but will grow on a variety of sites from heavy, moist soils to sand. It prefers the shade of other trees when young, being easily injured by drying winds and intense heat. Planting in pure stands is not recommended due to the possibility of insect damage. Useful for lumber, pulpwood and windbreaks.

RED PINE. Best adapted to well-drained sands, sandy loams and gravels. Should be planted on more open sites as it will not stand the shade of other trees as well as white pine. Grows well in mixture with either white or jack pine. Useful for lumber and windbreaks. Relatively free from disease and insect damage.

JACK PINE. Ordinarily found on the light, dry sandy soils but will grow on the better soils. Requires plenty of light. Valuable as a "filler" to plant in mixture with white or red pine. Used for pulpwood, cheap lumber, and erosion control,

MISSOURI CONSERVATION COMMISSION

Orders for planting stock are placed through the County Extension Agents between October 15 and February 15 All stock deliveries are made in the spring between February 20 and April 15, starting in south Missouri and progressing northward. No stock is delivered for fall planting, Delivery is by state trucks to one central point in each county. Some late orders or special orders may be sent by Railway Express collect. For all species the cost of the stock (\$6.00 per M) includes truck delivery to a central point in each county,

About 10 days prior to delivery to any county, shipping orders for that county are prepared and sent to the nursery. Copies are sent to the County Agents. At the same time a form letter is sent to each purchaser (The text of both letters is given on the next page:) Each purchaser gets Extension Service Leaflet #54, "Planting Guide for Trees and Shrubs" just a week or so prior to delivery of the trees.

This year we are planning to print a small red tag to be attached to each bundle of nursery stock. This tag will urge the farmers to keep the bundles in a cool, moist place; to unpack the seedlings as soon as possible; to heel them in properly; and to keep the roots wet while planting

MISSOURI CONSERVATION COMMISSION
GEORGE O. WHITE

-este!-

Dear Sir:

We are planning to ship trees or wildlife shrubs ordered by you so that they will be received at , **Missouri, or the point designated by the** County Extension Agent on or about

Please make arrangements with the County Agent for securing the plants so that it will not be necessary to keep them bundled for any extended period before planting them. Make sure that the trees have arrived before making a trip into town for them.

I am enclosing a leaflet on planting instructions which will help you in obtaining the best results with your trees or wildlife shrubs. The plants should be heeled-in immediately and carried in a bucket of water while planting to prevent the roots from drying out.

Very truly yours,

CONSERVATION COMMISSION

By:

GEORGE O WHITE

State Forester



Dear Sir:

Enclosed is a copy of the shipping orders for trees to be transported to your county. Our driver will contact you as soon as he arrives in your town with the trees. We are not certain of the exact time, the date indicated is approximate.

We have notified each purchaser of trees in your county that the trees will be delivered to the point designated by you on or about

Please arrange for a storage or unloading place in advance and leave this information with the girl in your office. This will greatly facilitate maintenance of our delivery schedule.

It may be desirable for you to let the purchasers know that the trees are there as soon as you know they have arrived.

Please check attached shipping order and if there are any errors let us know by return mail. We shall appreciate this very much.

Very truly yours,

CONSERVATION COMMISSION

By:

GEORGE O. WHITE

State Forester

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXTENSION SERVICE

Leaflet 54

Columbia, Missouri

August, 1949

What Trees to Plant

Woodlots - Seedlings of black locust, catalpa, osage orange, ash, cypress, yellow poplar, shortleaf pine, jack pine, and red cedar. Treated seed of black walnut and various species in the white and black oak groups.

Windbreaks - For winter protection, shortleaf pine, jack pine, scotch pine, virginia pine, pitch pine, Eastern red cedar. Black locust and osage orange can be used to control wind erosion.

Erosion Control - Seedlings of black locust, red cedar and in some cases pine. Make cuttings from cottonwood and willow to use on wet gully banks where such planting is advisable.

NOTE: Shortleaf, virginia and pitch pines are best for southern part of the state. Jack and scotch pines are best for the northern counties,

When to Plant

North Missouri - March 20 to May 1

Central Missouri - March 15 to April 20

South Missouri - February 15 to April 1

Care of Plantation

Protect - Keep fires and livestock out.

Cultivate - Cultivate twice the first year or cultivate once and mulch, if possible.

Prune - Pruning post and timber trees improves the quality of wood products.

Additional Information on Planting

Obtain a copy of Extension Circular 563, "Planting and Care of Forest Trees", from your county agent or write to the University at Columbia.

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE AND THE UNITED
STATES DEPARTMENT OF AGRICULTURE COOPERATING
I. W. BURGH, Director, Agricultural Extension Service
Distributed in furtherance of the Acts of Congress of May 8, and June 30, 1914

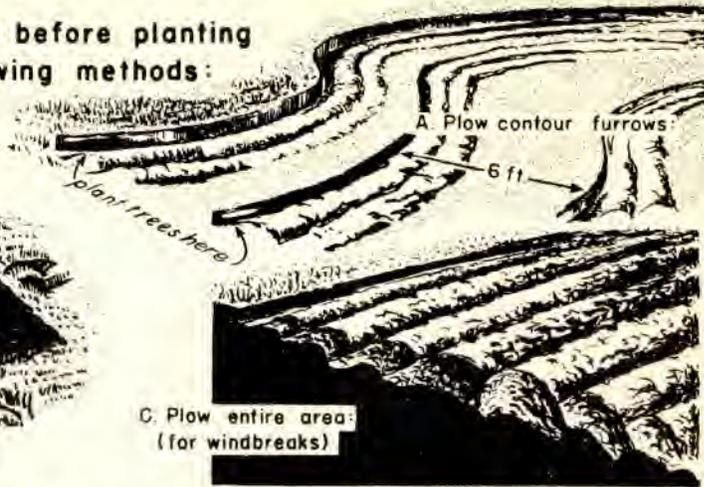
PLANTING GUIDE

FOR TREES AND SHRUBS

I. Prepare the ground before planting by one of the following methods:



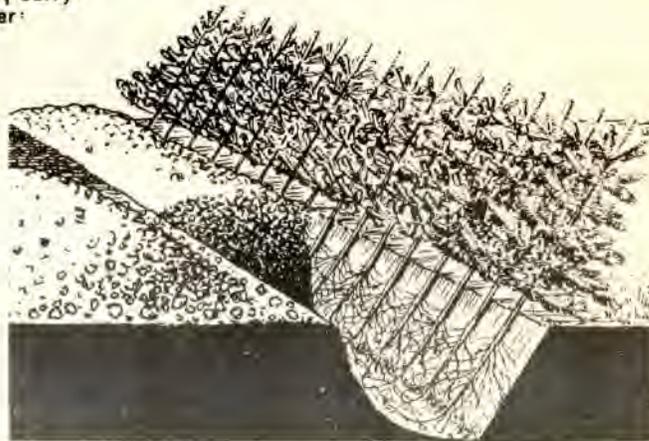
B. Strip off sod
(18 in. square)



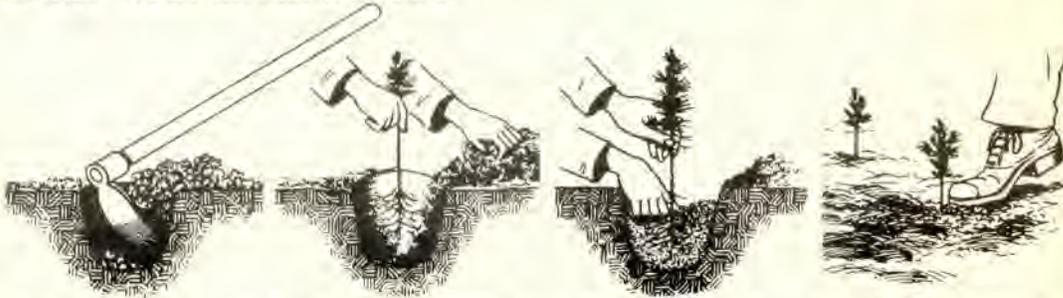
C. Plow entire area:
(for windbreaks)

II. Unpack trees immediately and cover their roots in a trench:

- A. Dig trench in shady place.
- B. Keep roots wet.
- C. When ready to plant, carry trees in pail of water:



III. Set trees as shown below:



A. Dig large hole

B. Set just deep enough
to cover roots

C. Pack soil firmly

D. Press soil with foot

NORTH DAKOTA
SCHOOL OF FORESTRY

These planting instructions are folded and placed in a 3 1/2" by 6 1/2" manila envelope. The envelope is labeled "Planting Instructions." All individual orders are shipped by express so the wire from the express tag is slipped through a reinforced hole at the end of the envelope and then tied to the outside of the bundle.

The cost of the mimeographed instructions is \$15.00 per M, the envelopes cost \$10.00 per M.

Since Soil Conservation Districts pick up 90% of our stock by truck, only 300 individual orders are expressed annually,

What to Do When Trees are Received

These trees are so packed that they should keep in good condition for a day or two after you receive them. It is advised, however, that these trees be planted immediately upon receipt, if at all possible, otherwise they should be heeled in until they can be planted.

PLANTING SITE AND SPACING

1. Plant trees in well prepared soil. If weeds are present, cultivate the planting site before planting.

2. Mark your rows by using any practical method, such as setting stakes or stretching a line, etc. Care should be taken to get the recommended spacing both between the trees in the row and between the rows.

Distance between rows 8 to 12 feet

Distance between shrubs in the row 2 to 4 feet

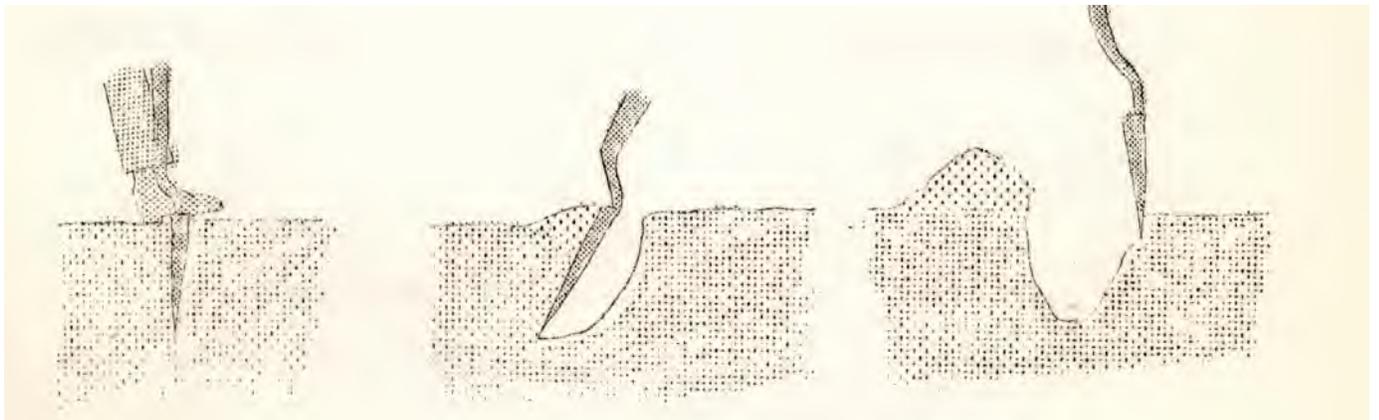
Distance between trees in the rows 6 to 8 feet

3. A spade or long-handled shovel makes the best planting tool.

4. Place trees in a pail half filled with water, or in wet burlap. Take particular care that the roots are moist at all times. In the past, evergreen losses have been rather high and if special care will be given, these losses can be greatly reduced. Roots of evergreens should never be exposed and dried by sun or wind. The delicate rootlets of evergreens are very easily injured and killed by exposure to sun and wind even for a few minutes. Dry roots mean dead trees.

HOW TO PLANT YOUR TREES

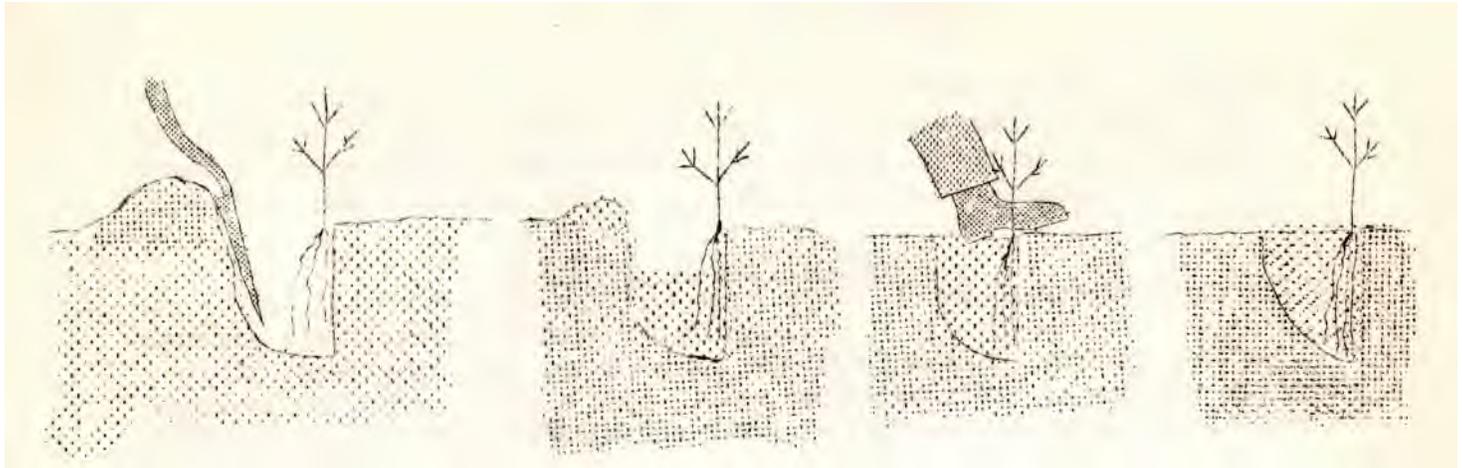
Scrape off all dry top soil from the spot you are going to plant the tree, then follow the directions for planting as shown and explained in the following diagrams:



1, Shovel in position for starting planting hole, blade reversed, perpendicular.

2. Shovel handle pushed forward, bottom of hole cut to straighten back and out of hole.

3. Beginning of second hole cut to straighten back and out of hole.



4. Shovel pulled back making clean hole. Tree placed in hole, roots in normal position. Plant the tree one-half inch deeper than it formerly grew.

5. First packing, hole half filled with soil, tree in proper position, heel used in tamping

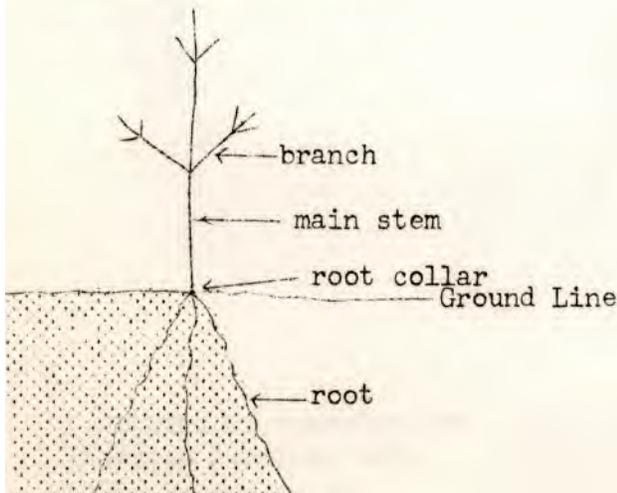
6. Second packing, hole completely filled.

7. Planting completed, surface covered with mulch of loose soil.

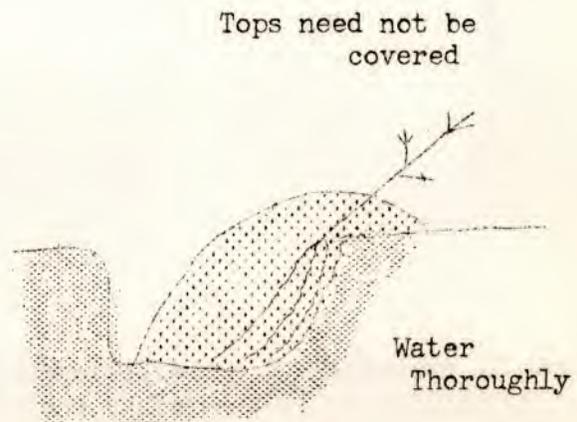
HOW TO HEEL IN YOUR TREES (IF NECESSARY)

1. The heeling-in bed should be in a cool, shaded location where the trees will not be exposed to the warm rays of the sun.
2. Dig a trench about a foot deep with one side sloping. The dirt from the trench may be placed along the sloping side to increase its height, as shown below.
3. Lay the bundles of trees against the sloping side, roots resting on the bottom of the trench, tops point up the slope.
4. Fill the dirt against the trees so as to cover the roots completely and about half of the trees above the root collar.
5. If the soil is dry, it should be well soaked with water as soon as the heeling-in is finished.
6. Trees should be planted at the earliest possible time, and not later than the time the leaves start appearing.

Diagram of seedling



Heeling-in Diagram



DEPARTMENT OF NATURAL RESOURCES
STATE OF OHIO

The Ohio planting instructions, "How to Plant Your Trees", cost \$6. 00 per thousand in 20,000 lots These are shipped with the trees from our state nurseries, and are placed in a manila envelope 3 1/2" by 6 1/2" with an eyelet at one end. The envelope is attached to the bundle of trees with a new Bostitch hog ring staple The envelope is marked "Planting Instructions."

IRVING I. DICKMAN, Forester
In Charge of Reforestation

HOW TO PLANT YOUR TREES



DEPARTMENT OF NATURAL RESOURCES

DIVISION OF FORESTRY

1500 Dublin Road

Columbus 12, Ohio

HERE ARE YOUR TREES

. —

and some suggestions on how to get the best results with them



Heel them in the ground today — preferably on or near the planting site. Do not allow the roots to dry out at any time. If properly heeled in, they may stay in this trench 8 to 10 days, but immediate planting is best, especially if the weather is warm,

PREPARE THE PLANTING SITE

This may be done several months in advance if you desire. Where practical, plowing of shallow furrows about 7 to 8 feet apart, either on the contour in hilly country or at right angles to the prevailing wind in level ground, is advisable. If this cannot be done, scalp spots about 18 inches square, 7 or 8 feet apart, each way. The heavier the sod cover, the more important it is to scalp it off before planting. Very thin sods need not be scalped.



The trees are set in holes dug in the uphill side of the contour ridge, in the bottom of the single furrow, or in the center of the cleared spot. A mattock is a good tool to use, Many prefer the planting bar for setting small stock, It is a four-inch spud with short handle and spur for applying foot pressure. The hole should be deep enough to receive the roots without curling the ends.



Carry the trees in a pail with 3 to 4 inches of water in the bottom. Place a tree in the hole and cover the roots with soil.

Pack the soil firmly around the tree. This is important. Leave a shallow basin to collect water, If planted in furrows, pull some dirt in beside the tree to act as a dam across the furrow,



CARE AFTER PLANTING

After establishing a plantation of trees, it would be foolish not to take certain precautions to protect this investment of money, time and effort,

The two greatest hazards are grazing and fire. Rodents and insects also cause considerable damage.

GRAZING: Livestock eat young seedlings and trample the protective soil and leaf cover, thus encouraging erosion and drying of the soil. The plantation should not be set out if it cannot be protected from livestock permanently,

FIRE: If *fire* does not kill the trees outright, it will expose or burn the roots and leave fire scars on the stem permitting butt rot. All these

lower the future value of the trees. Every precaution against fire should be taken, and, if high hazards exist, fire lanes should be plowed around the plantation.

RODENTS AND INSECTS:

Where rabbits, squirrels and groundhogs damage young trees, it might be advisable to allow hunting during the hunting season. If insect injury is noted on the planted trees, owners are urged to report to the address shown on the front of this publication.



If samples of injury are needed, instructions for submitting these will be furnished,

CULTIVATION: In large plantations and also in farmstead wind-break plantings, shallow cultivation for two or three years is desirable, where it can be done, This improves the growing conditions and helps the trees get off to a better start. Cultivation serves to keep weeds and sod from competing with the trees for moisture and from smothering the young seedlings. It also gives protection from the ravages of rodents which find protection under the grass and weeds.

SOUTH CAROLINA
STATE COMMISSION OF FORESTRY

A copy of the leaflet is placed in a special envelope and tied to the outside of each bundle. Space is provided on the envelope for the address of the person to whom the seedlings are shipped.

The cost of printing 20,000 copies of the leaflet "Plant Your Trees Right" is \$169.00. The South Carolina State Commission of Forestry furnished the plate when this leaflet was printed.

H. R. SCOTT
Management Assistant

Source of Stock

South Carolina State Commission of Forestry owns and operates the Horace L. Tilghman State Forest Tree Nursery at Wedgefield, Sumter County, South Carolina.



This Nursery has an annual output of approximately 35 million forest tree seedlings that are available as planting stock for landowners in the state of South Carolina.

Species Available

The following species are available for forest and farm woodland plantings:

Slash pine	Longleaf pine
Loblolly pine	Spruce pine
Arizona cypress	Red cedar

Number Per Acre

Requirements for different recommended spacings are as follows:

6 x 6 feet	- - - - -	1210 per acre
6 x 7 feet	- - - - -	1037 per acre
6 x 8 feet	- - - - -	908 per acre
8 x 8 feet	- - - - -	680 per acre

Cost of Seedlings

The charge for the seedlings is as follows:

- (a) Cash with order: \$2.50 per thousand, trees delivered at Nursery.
- (b) Cash with order: \$3.00 per thousand, trees delivered to nearest express office.

How to Order

Application for seedlings may be placed through the District Forester, County Ranger, Vocational Agriculture Teacher, County Agricultural Agent, Soil Conservation Service or directly with the S. C. State Commission of Forestry at Columbia, S. C.

PLANT YOUR TREES RIGHT



**SOUTH CAROLINA
STATE COMMISSION OF FORESTRY
C. H. FLORY, STATE FORESTER
COLUMBIA, SOUTH CAROLINA**

Care of Hunting Stock

The purchase of seedlings represents an investment in the future. We recognize this and try to furnish you with the best seedlings that can be grown. **It is up to you, however, to care for and plant these seedlings properly.**



In order for you to obtain best results and secure maximum survival, it is necessary that you follow a few simple instructions. These are as follows:

1. Get your trees from the express agent at the earliest possible moment. **You will be notified in advance, so be on the lookout for them.**
2. Carry them home without delay and "heel in" in a cool moist place that is protected from sun and wind. (See No. 1 on inside.)
3. Be sure to water the seedlings every day that they remain in the "heeling in" bed.
4. Start your planting as soon after you receive the seedlings as you can.
5. Be sure to keep the seedlings moist at all times. (See No. 2 on inside.) Use a muddy or clay solution.
6. Be sure to plant seedlings to the proper depth and in holes that are deep enough. (See No. 3 on inside.)
7. Whether you use dibble or mattock for planting (see No. 4 and No. 5 on inside), be sure that the soil is well packed around the tree.
8. Protect your investment from fire loss by plowing firebreaks.

District Foresters of the S. C. State Commission of Forestry will be glad to help you choose the best species for your land, and will aid you in determining how, when, and where to plant the seedlings. District offices are located at:

AIKEN	FLORENCE
CAMDEN	NEWBERRY
KINGSTREE	SPARTANBURG
	WALTERBORO

① HEELING IN

1. Dig V-shaped trench in moist shady place.
2. Break bundles and spread out evenly.
3. Fill in loose soil and water well.
4. Complete filling in soil and pack with feet

② HANDLING SEEDLINGS in FIELD

Correct
In bucket with sufficient muddy water to cover roots

Incorrect
In hand - roots dry out.

③ CORRECT AND INCORRECT DEPTHS

Correct
At same depth or $\frac{1}{2}$ deeper than seedling grew in nursery

Incorrect
Too deep and roots bent.

Incorrect
Too shallow and roots exposed.

④ DIBBLE PLANTING

Dibble or Planting Bar

1. Insert dibble at angle shown and push forward to upright position.
2. Remove dibble and place seedling at correct depth.
3. Insert dibble 2 inches toward planter from seedling.
4. Pull handle of dibble toward planter packing soil at bottom of roots.
5. Push handle of dibble forward from planter packing soil at top of roots.
6. Insert dibble 2 inches from last hole.
7. Push forward then pull backward filling hole.
8. Fill in last hole by stamping with heel.
9. Pack soil around seedling with feet.

⑤ MATTOCK PLANTING

1. Insert mattock lift handle and pull.
2. Place seedling along straight side at correct depth.
3. Fill in and pack soil to bottom of roots.
4. Finish filling in soil and pack with heel.
5. Pack around seedling with feet.

VIRGINIA FOREST SERVICE
DEPARTMENT OF CONSERVATION AND DEVELOPMENT

Virginia prints its planting instructions on waterproof parchment stock,

At the time these were printed last year by the Virginia State Penitentiary, the cost, including stock, was \$9 67 for 10,000 copies, We include one copy of these with each package of trees shipped from our nurseries The trees are usually packed about 2,000 per package, in bundles of 50, The instructions are placed inside the opening of the package wrapper in such a manner that they will be immediately seen by the person opening the bundle An effort was made to make the instructions sufficiently simple so that they could be easily understood by the average person_

We also have a supply of these instructions printed on regular paper stock. They are, of course, less expensive than the waterproof ones and are used at planting demonstrations and in answering inquiries,

JOHN B , HELT ZEL,
Chief, Reforestation

PLANTING TREE SEEDLINGS

Care of Planting Stock:

The Virginia Forest Service attempts to furnish the best tree seedlings that can be grown. It is up to the planter, however, to care for the seedlings he receives and to see that they are properly planted.

A few instructions for the care and handling of tree seedlings follow:

1. Get trees from the express agent at the earliest possible moment. You will be notified of shipment in advance.
2. Unpack and "heel in" trees as soon as possible. Pick a moist place that is protected from the sun and follow instructions given on the back of this page.
3. Be sure to water seedlings every day that they remain in the "heeling in" bed.
4. Start planting as soon as you receive your seedlings if you can.
5. Be sure to keep seedlings moist at all times — just a few seconds exposure of the roots on a dry sunny day will kill the trees.
6. Be sure to plant seedlings to the proper depth and that the holes are deep enough. (See back of this sheet).
7. Whether a mattock or planting iron is used, be sure that the soil is packed tightly around the roots of the seedlings. (See back of this page).

(STUDY DIAGRAMS ON BACK)

Number Per Acre:

Pine seedlings are generally planted at a spacing of 6x7 feet which requires about 1000 trees per acre. Different recommended spacing follows:

6x6 feet	1210 per acre	6x8 feet	908 per acre
6x7 feet	1037 per acre	8x8 feet	680 per acre

Mechanical Tree Planters

Tractor drawn mechanical tree planters may be rented from the Virginia Forest Service. The rent rate which includes an operator, but not the tractor, is reasonable and from 8,000 to 10,000 trees per day may be planted by a two-man crew using the machine. By hand methods, a two-man crew usually can plant only from 1,000 to 1,500 trees per day.

Complete information concerning rental of a tree planter can be gotten at the nearest Virginia Forest Service office. See the list of offices below:

Where to Get Help:

Foresters from any of the offices listed below will be glad to give tree planting information and to assist in getting planting operations started. Contact them whenever they can be of assistance. Just write or call the Virginia Forest Service at:

WAVERLY—P. O. Box 222, Tel. 2300

CHARLOTTESVILLE—P. O. Box 1368, Tel. 2-6174

FARMVILLE—P. O. Box 386, Tel. 355

SALEM—P. O. Box 128, Tel. 2671

BRISTOL—P. O. Box 270, Tel. 828

RICHMOND—P. O. Box 960, Tel. 3-6262

STAUNTON—P. O. Box 655, Tel. 2194

PORTSMOUTH—P. O. Box 256, Tel. 75931

TAPPAHANNOCK—P. O. Box 216, Tel. 2211

WILLIAMSBURG—P. O. Box 567, Tel. 907-J

Virginia Forest Service

DEPARTMENT OF CONSERVATION AND DEVELOPMENT

Charlottesville

Publication 61

① HEELING IN

1. Dig V-shaped trench in moist shady place.
2. Break bundles and spread out evenly.
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4. Complete filling in soil and pack with feet

② HANDLING SEEDLINGS in FIELD

Correct
In bucket with sufficient muddy water to cover roots

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1. Insert dibble at angle shown and push forward to upright position.
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8. Fill in last hole by stamping with heel.
9. Pack soil around seedling with feet.

⑤ MATTOCK PLANTING

1. Insert mattock lift handle and pull.
2. Place seedling along straight side at correct depth.
3. Fill in and pack soil to bottom of roots.
4. Finish filling in soil and pack with heel.
5. Pack around seedling with feet.

WEST VIRGINIA CONSERVATION COMMISSION
DIVISION OF FORESTRY

West Virginia has two instruction sheets, the new one printed in red and black on white paper bearing the title "Planting Instructions, " and the old one on green paper bearing the title "Trees for Forest Planting." The State writes as follows:

The newly issued "Planting Instructions" (form FM 18) were intended to supercede the old green sheets. Actually we have not withdrawn the old sheet and will use it on occasion.

The "Planting Instructions" cost \$108.80 for 6,000 copies , Perhaps the paper is a bit too heavy and a thinner grade of paper would bring the price below \$100.00. This is a lithograph job.

These "Planting Instructions and the purchaser's copy of the shipping slit are enclosed in a 3 1/4" X 6 1/2" manila shipping envelope which is attached to the shipment at the nursery.

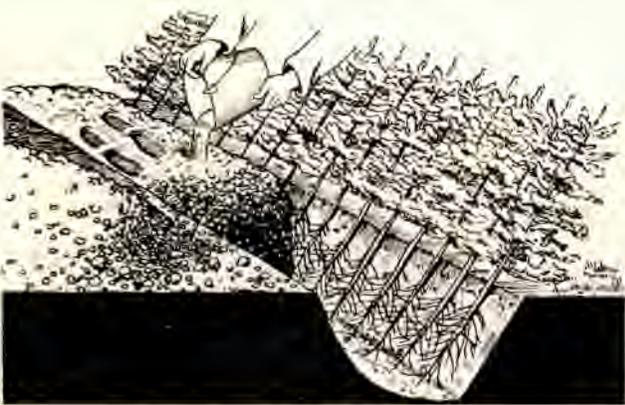
HARRY LEE BAKER,
Assistant State Forester

PLANTING INSTRUCTIONS

I UNPACK IMMEDIATELY

- Inspect and Water

II PLACE IN GROUND — "HEELING-IN"



"Heel-in" Bed.

- Dig trench in loose, moist soil.
- Break bundles and spread out evenly.
- Pack soil firmly and water.

III WHEN READY TO PLANT SEEDLINGS:



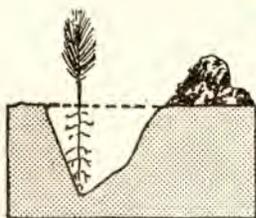
- Remove seedlings from "heel-in" bed.
- Place seedlings in pail. Keep roots covered with thin mud or water at all times.
- Carry pail of seedlings to planting site.
- Remove and plant one at a time.

IV PLANT SOON AS POSSIBLE

Delay reduces chance of survival

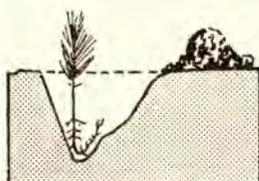
PLANTING METHODS

Correct and Incorrect Depths



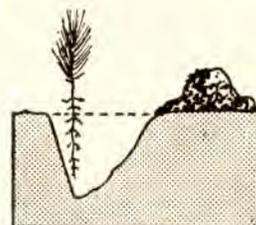
Correct

At same depth or 1/2" deeper than seedling grew in nursery.



Incorrect

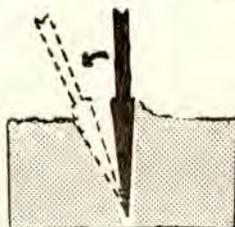
Too deep and roots bent.



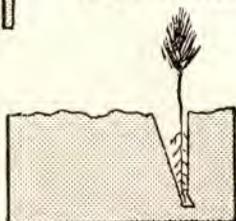
Incorrect

Too shallow and roots exposed.

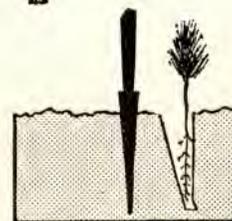
Dibble Planting



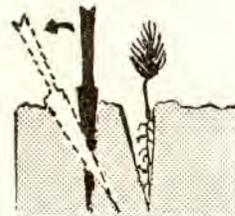
1. Insert dibble as shown and pull toward planter.



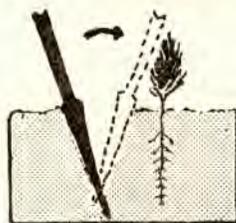
2. Remove dibble and place seedling at correct depth.



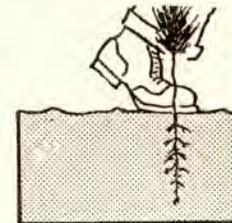
3. Insert dibble 2 inches toward planter from seedling.



4. Pull handle of dibble toward planter firming soil at bottom of roots.

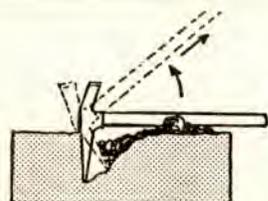


5. Push handle of dibble forward from planter firming soil at top of roots.



6. Firm soil around seedling with feet.

Mattock Planting



1. Insert mattock-lift handle and pull.



2. Place seedling along straight side at correct depth.



4. Finish filling in soil and firm with heel.



5. Firm around seedling with feet.



3. Fill in and pack soil to bottom of roots.

CONSERVATION COMMISSION OF WEST VIRGINIA

DIVISION OF FORESTRY



TREES FOR FOREST PLANTING



The West Virginia State Forest Nursery, located on State Route Number 2, fourteen miles north of Huntington, is maintained by the Division of Forestry of the State Conservation Commission in order to produce trees suitable for reforesting idle and cut-over land in the state. Trees are furnished to private land owners at less than the cost of production. Trees are distributed free of charge to state institutions and 4-H Clubs. Applications for trees should be made on blanks distributed by the nursery and mailed to the West Virginia State Forest Nursery, Lesage, W. Va,

Trees may be secured from the nursery for planting to control erosion and slips, Christmas tree plantations, and for windbreaks, as well as for timber production. Trees will not be distributed for ornamental or shade purposes to private land owners,

The table below gives favorable planting areas and some uses for the more important species that are available:

Species	Soil	Uses
Black locust	Loam to gravelly soil	Posts, erosion control, insulator pins
Black walnut	Rich moist lands	Furniture, veneer, nuts
Red oak	Loam to sand and gravelly soil	Flooring timbers, ties, furniture
Tulip poplar	Moist fertile soils	Lumber, timber, wooden ware
White ash	Moist fertile soils	Furniture, timbers, handles
Red pine	Deep loam to dry sand and gravel	Lumber, timbers, windbreaks
White pine	Fertile well drained soils to gravel	Lumber, wooden ware, Christmas trees, windbreaks
Pitch pine	Medium fertile soils to dry slopes	Ties, timbers, mine props, pulp
Scotch pine	Poor to medium fertile soils on dry slopes	Lumber, timbers, erosion control, windbreaks, pulp
Shortleaf pine	Medium fertile soil or dry slopes	Lumber, ties, timbers, pulp, mine props
Norway spruce	Deep moist to thin soils (Avoid wet locations)	Construction lumber, pulp, Christmas trees, windbreaks

Trees are shipped from the nursery during both the fall and spring seasons. Spring planting of evergreen species is advisable. Hardwood species may be successfully planted during either season.

Further information may be secured by writing either to the nursery or to the State Forester,

CONSERVATION COMMISSION OF WEST VIRGINIA

DIVISION OF FORESTRY



INSTRUCTIONS AND SUGGESTIONS FOR THE HANDLING AND PLANTING OF FOREST TREE SEEDLINGS



CARE UPON ARRIVAL OF STOCK

Arrange to procure your trees from the transportation company as soon as you are notified of arrival. You will be notified of the shipping date and the method of shipment at the time the trees leave the nursery. Inquiry should be made at the office of the transportation company if you are not notified of arrival within a reasonable length of time after the shipping notice is received. Unpack the trees at once after you receive them, If they cannot be planted the same day they should be "heeled in."

HEELING IN

Select a place in well-drained soil which is not stony and where water is available. Dig a trench wide and deep enough to take care of the roots of the trees with one side almost vertical. Take the bundles of trees from the shipping boxes, wet the roots thoroughly, cut the strings, and spread out in a thin layer along the vertical side of the trench. Cover the roots with pulverized soil, and tamp it thoroughly about them, No soil should come above the limbs of the conifers. Hardwood seedlings can be covered so that the soil extends about half way up the stems.

PLANTING

When ready for planting, the trees should be lifted in convenient amounts from the trench and placed under a wet burlap sack or wet moss to prevent drying. The trees may be carried in a pail, which contains sufficient wet moss or burlap to keep the roots moist, during the planting operation. Death will result in a very few minutes if the roots are allowed to dry,

Two persons make a good planting crew, one man going ahead with a mattock and digging the hole, the other following behind and planting the trees. Several crews may work abreast in this manner. It is important that the planter hold the tree so that when the soil is tamped it will be planted as near as possible to the same depth that it grew in the nursery, The hole must be sufficiently large to accommodate the roots without crowding. Loose dirt should be drawn into the hole and placed firmly about the roots with the planter's hand or fist, Leaves, rocks, and sticks should be cleared away and not be allowed to come in contact with the roots.

Dig the holes in rows, the distance between which will depend somewhat upon the trees used, the quality of the soil, and the type of planting that you wish to make. In most cases, six by six feet (1210 trees to an acre) is considered as a good average spacing in forest planting, Trees planted for Christmas tree purposes may be closer; about four by four feet, or 2700 per acre,

CARE AFTER PLANTING

It is very important that the tree plantation be well protected from fire and grazing. As a usual thing, however, little attention will be required unless the trees become badly overtopped by brush or weeds,



TREES FOR TOMORROW, INC.

Trees for Tomorrow, Inc., is an industry sponsored organization dedicated to the advancement of reforestation in Wisconsin It distributes the following set of planting instructions.

How To A Tree

PLACE SEEDLINGS AT PROPER DEPTH



CORRECT. Place seedling in hole at same depth or $\frac{1}{2}$ inch deeper than it grew in nursery.

INCORRECT. Note how root is curled up. This prevents proper growth. Tree will die.

INCORRECT. Roots are exposed to air—a slight tug will indicate shallow planting.

PLANTING BY MATTOCK OR SHOVEL METHOD



Plunge Mattock in center of 18" x 18" scalp. Lift handle and pull.



The seedling is placed along straight edge of hole at correct depth.



Prevent air pocket by packing soil around bottom of roots.



Pack freshly turned soil down with firm stamp of heel.



Level off soil around stem of seedling with sole of shoe.

HEELING IN SEEDLINGS TO PROTECT ROOTS



Select shady spot and dig a V shaped trench in soil that is moist.



Open bundle of trees and spread roots out evenly along one side of trench.



Fill in trench with soil and drench well with water.



Stamp down soil for firm covering. Water heeled-in trees each morning.

When trees arrive from nursery they are packed in moss or cedar shingle tow. Water immediately, plant as soon as possible. If stored in a cool place, they can be kept in good condition for several days.

If you must postpone your planting operations for a week or so, the best practice is to open the bundles immediately and heel them in. It is imperative that the roots be kept moist from the time seedlings leave the nursery.

CARE OF SEEDLINGS AT PLANTING SITE



Incorrect

Tiny roots if exposed to air will dry out in a short time.



Correct

Place seedlings in pail. Keep roots covered with water at all times.

USING THE PLANTING BAR FOLLOWING FURROWING



Plunge bar at above angle, then push forward to upright position.



Place seedling against flat side of planting hole.



Plunge bar into ground 3 inches from seedling.



Pull handle of bar toward planter, firming soil at bottom of roots.



Next push handle of bar forward to pack soil at top of roots.



To close hole plunge bar into ground 3 inches from last hole.



Work it forward, then pull backward filling hole.



Last hole can be filled by tramping in loose soil with heel.



Stamp loose earth around seedling with feet to prevent air pockets.

Published As A Practical Guide For Tree Planters By

TREES FOR TOMORROW INC.

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MERRILL, WIS.

M. N. TAYLOR, EXECUTIVE DIRECTOR

GENERAL RULES AND GROUND PREPARATION

Norway Pine

1. Most desirable soil type---light sandy loam.
2. Spacing of trees--6 ft. x 6 ft.
3. Ground preparation--furrowing with 14" to 16" bottom plow or 18" x 18" scalps.
4. Shade from overstory--Norway pine should not be underplanted where there is more than 40% shade from standing growth.
5. Method of planting--digging a deep hole with a mattock or planting bar, or using a tree planting machine,

Jack Pine

1. Most desirable soil type--light sands and loamy sands.
2. Spacing of trees-4 ft. x 6 ft.
3. Ground preparation--furrowing by 14" to 16" bottom plow or 16" x 16" hand scalps.
4. Cover--jack pine should not be planted when there is more than 10% shade from existing growth,
5. Method of planting--planting bar, mattock and deep hole, or tree planting machine.

White Spruce

1. Most desirable soil types -- light and heavy barns (hardwood-hemlock soils.)
2. Spacing of trees-6 ft. x 6 ft.
3. Ground preparation -- (4 yr. old transplant stock) Scalping 18" x 18" scales.
4. Cover--does well where there is 40% or more of natural cover. While white spruce does grow in the open, better results are usually obtained when planted under cover.
5. Method of planting--digging deep hole with a mattock or similar tool.

White Pine

1. Most desirable soil types -- sandy, light & heavy loams.
2. Spacing of trees-6 ft. x 6 ft.
3. Ground preparation -- (4 yr. old transplant stock) scalping-18" x 18" scalps.
4. Cover -- white pine can be grown in the open but better results are usually obtained when there is 40% to 60% shade,
5. Method of planting -- deep hole dug with mattock, shovel or similar tool.

Invitation

All persons who work in reforestation, or who are interested in it or some allied field are invited to send in material for publication in Tree Planters' Notes. If their material is not yet in final form for publication, they are invited to at least send a letter to Tree Planters' Notes and tell what they are doing and what manner of information should be published. The address is: Chief Forest Service, U S Department of Agriculture, Washington 25, D, C

Call for Papers on Specific Subjects

One of the most sought after and widely distributed editions of Tree Planters' Notes yet issued was No. 6. It carried articles on costs, experiences, methods, and machine modification for mechanical field planting. The supply of this issue is exhausted and another issue with new and more articles is planned. We will welcome articles for it on any phase of field planting (hand or machine) -- costs, design, methods, machine modifications or anecdotes about the every day life of a planting job,

The same thing holds for another issue on nursery equipment. We have seen nursery devices indeed worthy of publicizing, although apparently commonplace to the men using them. For example, there are nurseries which determine quantities sold by weighing samples, which have substituted scotch tape for steel strapping cord; which apply fertilizer in the irrigation water, and which have shipping tags that also serve as order blanks and inventory control. And then there are some with simple devices like a box of crankcase oil soaked sand outside the tool room door for cleaning dirt off shovels and hoes. There are seed cleaning devices, weed control methods, tillage tools, mulching practices, bird protective equipment, wildling transplant techniques, and others that should be told to the world.

Here is a chance to tell your associates what you or your outfit is doing.

Therefore, in addition to our standing invitation for articles on any pertinent subject, we now issue a special invitation to the profession for articles on field planting and on nursery equipment. No dead-line is set for their receipt although the issues will be published as soon as possible. Beautifully typed articles of flawless grammar are not required, although such would not be rejected. Manuscripts written in lead pencil during noon hour are acceptable if that is what it takes to get an account of what has been done.

Subscriptions and Mailing List

Tree Planters' Notes will be sent upon request to persons and organizations doing reforestation work, and to libraries, forest schools, and similar appropriate places. The address is given above.