

# **INSTRUCTIONS FOR REFORESTING LAND**

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Instructions for reforesting land by C. R. Pettis

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**C. R. PETTIS**

# **INSTRUCTIONS FOR REFORESTING LAND**



STATE OF NEW YORK

102

914/61  
= Forest, Fish and Game Commission

JAMES S. WHIPPLE

Commissioner

WILLIAM F. FOX

Superintendent of Forests

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INSTRUCTIONS FOR  
REFORESTING LAND

By C. R. PETTIS

Forester



ALBANY

J. B. LYON COMPANY, STATE PRINTERS

1909

1012

## INSTRUCTIONS FOR REFORESTING LAND.

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### **Introductory.**

The requests for some information as to the best methods of reforesting land have become so numerous that it seems advisable to issue a pamphlet containing directions regarding the work.

So many of our people are now ready to undertake tree planting operations that some definite, detailed instructions for their use should be supplied. Hence we have combined here in one publication directions showing how to secure planting stock, what to plant, where to plant, when to plant, how to plant, and some information as to the results that may be expected.

### **How to Secure Stock.**

The Forestry Department of the State of New York maintains several large nurseries for the propagation of forest tree seedlings and transplants — pine, spruce and other species—for reforesting the public lands and for distribution at a nominal price among land owners in this State who may wish to undertake reforesting operations on their own account. The price of these seedlings and transplants is small, being placed at the bare cost, but varies with the age of the plant and species.

Any land owner who desires trees for planting land in order to raise a forest can secure them while there is a supply on hand by making application to this Commission.

The application blank for 1909 was as follows:

**Forest, Fish and Game Commission**

*Albany, N. Y.*

Gentlemen.— The undersigned hereby applies for the following number and kinds of trees for planting in the town of .....  
County of ..... State of New York:

- .....White pine transplants at \$4.25 per 1,000, f. o. b., Saranac Inn, N. Y.
- .....White pine seedlings at \$2.25 per 1,000, f. o. b., Saranac Inn, N. Y.
- .....Scotch pine transplants at \$3.75 per 1,000, f. o. b., Saranac Inn, N. Y.
- .....Scotch pine seedlings at \$2.25 per 1,000, f. o. b., Saranac Inn, N. Y.

**DESCRIPTION OF LAND TO BE PLANTED.**

Topography .....  
Original growth.....  
Present growth.....  
Previous use of land.....  
Kind of soil.....

In consideration of granting this application for trees at the price stated, the undersigned hereby agrees:

1. To pay the purchase price of the trees to said Forest, Fish and Game Commission within ten days after the granting of this application.
2. That the trees hereby applied for shall be used by the undersigned for the sole purpose of reforesting lands within the State of New York.
3. That the trees shall not be sold, offered for sale, or given away by the said applicant, or his agents, to any person.

4. That the trees shall be planted in accordance with instructions furnished by the Forest, Fish and Game Commission.

5. That the applicant shall furnish the Forest, Fish and Game Commission from time to time, when asked for, reports in regard to the condition of such plantings.

Signed.....

P. O. ....

.....190..... Express office.....

It will be noted that this application is a contract made with this Commission. The first clause calls for payment within ten days after the trees are granted. This gives us the opportunity to resell any trees that the applicants do not pay for within that time. The second clause is necessary because the law under which this work is done requires that the trees shall be used for reforestation purposes. No trees will be sold for ornamental planting. The third clause prevents speculation and the interference with our work. The fourth clause simply means that applicants should follow the directions given in this pamphlet in regard to planting. The fifth clause asks that reports stating the condition of the plantation be made to this office, such information being desirable in order to secure data in regard to the work for the benefit of others.

#### **What and Where to Plant.**

The soil where the planting is to be done will, in a measure, determine what kind of trees should be used. The growth already on the land where the planting is to be done indicates the age or size of the stock to be used.

*Relation of Species and Soils.*— No complete directions covering such a large subject can be given in any small pamphlet, and in some cases examination of the land would be desirable before giving advice. There are, however, a few points that can be discussed generally here.



*White Pine.*— This species is usually found on sandy or light soils, but it will do well on any land that is well drained. It will thrive in good soil as well as any other tree when once established. The better the soil, the stronger its growth will be.

*Scotch Pine.*— On the poorest, sterile soils the Scotch and red pine makes a faster growth than white pine, but the timber in these species is not as valuable. These trees are particularly adapted to such sites because they have a long root which goes deep in the ground. The white pine is preferable, but on the poorest soils the Scotch pine will make a more rapid growth.

*Spruce.*— Our native spruce is a slow-growing tree and difficult to propagate. It develops so slowly that its use is not recommended. The Norway spruce, which is used extensively abroad, is a much faster grower and is equally desirable in all respects. It should be used wherever spruce is to be planted. The spruces all require soil of moderate quality, and should not be planted on sandy lands. They will withstand a large amount of shade, and their use is preferable for underplanting in an existing forest. It is also better adapted than most of our conifers for planting in swamps or wet locations.

*Hardwoods.*— At present we are not growing hardwoods in our nurseries; but in the Spring of 1909 we will sow a quantity of black locust and yellow poplar seed for distribution in 1910.

Whenever it is desired to raise oak or chestnut the acorn or nut should be planted directly in the field where the future tree is desired.

*Size of Coniferous Plants Used.*— The smaller the tree that can be planted and succeed, the cheaper the work can be done and the greater profit finally secured. There is less shock in moving small plants than large ones, which makes the risk and expense in planting smaller trees less. The size of tree required in order to succeed will be determined by the amount and nature of the vegetation where the planting is to be done, i. e., the amount of competition it will encounter in order to grow. Seedlings, two years old, are

large enough for planting on pasture or other lands where there is little or no shade. If, however, there is a heavy growth of weeds, or other plants making a dense shade, transplants should be used. Otherwise, there will be too many failures.

#### **When to Plant.**

Planting is best done in the spring, as early as possible, so that the trees may secure the benefit of the spring rains and become well rooted before the season's growth takes place. We will ship trees in the spring as early as possible, and they ought to be planted at once.

#### **How to Plant.**

When the trees arrive they should be taken to the planting field immediately and unpacked. The roots should be dipped in water and the plants "heeled in"; i. e., placed upright in a ditch, and the dirt packed tight around the roots. (See illustration.) They can be kept in this manner while the planting is in progress.

The number of men required and the organization of the force will depend entirely upon the amount of planting to be done. In these directions we will assume that only a small number of trees are to be set out—i. e., not over 10,000 plants. For larger operations the force must be increased.

The working unit is two men, one of them equipped with a grub hoe, and the other with a pail for carrying the little plants. Two men working thus as a pair—one making the hole and the other planting the tree—will, after a little experience, set out about 1,000 transplants or 1,200 seedlings per day. If only a few thousand trees are to be planted two men can do the work within the required time; but if many thousand, several pairs of men will be necessary.

The planting site having been selected, the men with the grub hoes will begin making the holes in a straight line across the field. It is well to set up a stake, or two, in order that the man digging

holes can move forward in a straight line. These stakes or poles can be moved over and used again when making the next row of holes. The planter follows immediately behind the grub-hoe man setting a tree in each hole before the exposed soil becomes dry. The planter's pail should always have enough muddy water in the bottom to keep the tree roots wet.

In making a hole, it is well to cut off and remove a thin slice of sod, as this gives the plant a better opportunity to grow. The hole should be large enough to give room for the roots without crowding; but on a light soil the least dirt that is moved in order to set the plants properly the better it will be. The plant should usually be placed in the ground at the same depth that it was before; but on light, sandy soil it may be set slightly deeper. The earth should be packed about the roots thoroughly, so that the plant will be able to get all the moisture possible from the surrounding earth. Care should be taken also to place the roots in their natural position.

Special pains should be taken to prevent any exposure of the roots to the sun. Once the roots become dry the plants are very likely to die. The trees "heeled in" should be kept moist at roots.

The men continue planting back and forth across the field until the work is completed. The trees planted in these rows should be set at regular distances apart and the rows also at even distances in order to properly utilize the soil and light and to secure in time the greatest product. The spacing varies under different conditions, but for general forest planting six feet apart both ways is most desirable. When the trees are planted six feet apart in the row, and the rows are made six feet distant, it will require 1,200 trees to plant an acre. It will be readily seen that the interval used determines the number of trees required per acre, the amount of labor necessary to plant them and the cost per acre of the work.