

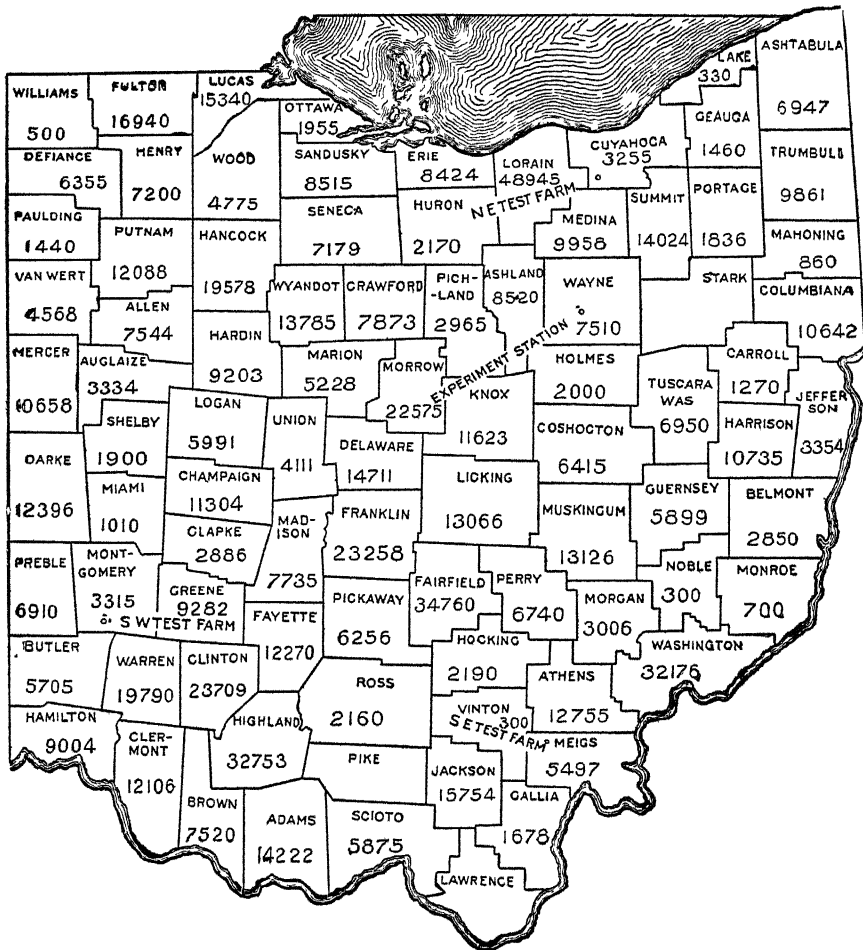
# Ohio Agricultural Experiment Station

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## COOPERATIVE FORESTRY WORK

By W. J GREEN AND EDMUND SECREST



The figures in each county refers to the number of trees planted. Total number of trees planted, 773,663. Total number of cooperators, 606

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The farm woodlot in Ohio is a fundamental factor in timber production. Upon it must depend largely the future supply of wood products for general use.

The degree of productiveness and profitableness of the woodlot to the owner will depend entirely upon its management from the start.

There are many different phases of woodlot management. In fact almost every woodlot presents individual differences; and the management which would profitably apply to one, might not be applicable to another. In common, however, there are certain fundamental principles which apply more or less to all.

The conditions on nearly every farm are such that some phase of forestry operations may be profitably carried on.

### WOODLOT OPERATIONS

**Interplanting.** Some woodlots consist of young trees of value which stand too far apart and therefore form bushy tops, consequently not making any quantity of useful timber, besides not utilizing all of the land. Such trees are often worth saving but in order to force them into an upright growth, with trunks free from limbs, the spaces between them should be filled with some species of value. Catalpa, locust, and other rapid growing species might be used for that purpose. In some cases plowing could be done but it is not always necessary to plow, as the trees may be planted by use of the mattock and spade. This particular phase constitutes an important operation when conditions are favorable. The smaller the standing trees the greater the chances of success.

**Underplanting.** Many woodlots contain valuable species of trees which are not mature, but which do not fully utilize the land upon which they are growing. These trees like those of smaller size are often worth keeping until mature, but young trees should be planted under and among them for several reasons: (1) To make the stand normal and utilize the land to its full capacity. (2) To shade the ground, preserve the moisture and to keep out grass and weeds. (3) To hold the leaves and to keep the wind from blowing them out of the woodlot; in short to establish good forest conditions. Such planting may be done in woods where such species as oak, hickory, ash, tulip poplar (white wood), maple and chestnut are growing.

**Removing mature trees.** In many woodlots there is a mixed growth of both young and old trees. In many cases the older trees are matured and are fast decaying. They should be removed and disposed of while they are yet marketable, no matter of what species. This is not only advisable because they themselves are depreciating in value, but because they are often of large size and of a spreading and distorted habit of growth. Such trees suppress and injure the young trees about them.



A hickory grove where the ground has been plowed and young trees successfully started in the open spaces.

**Removing worthless weed trees.** This class of trees occurs in a greater or less degree in almost every woodlot, and includes species of very little or no economic value, as beech, black gum, water beech, and ironwood. This class also includes distorted individuals of valuable species, which, owing to their habit of growth, are valueless for timber products besides suppressing and distorting young growth. Oftentimes the removal of trees of this class creates spaces where young trees may be planted. It is not always necessary to remove water beech, ironwood and dogwood, and yet in certain cases their presence is obviously harmful, especially when they have attained considerable size. Underneath large trees they often serve a useful purpose in holding the leaves.

**Planting after the removal of old timber.** If it is desirable to plant subsequent to the removal of old trees, it should be done the season following their removal. This is particularly applicable when the leaf canopy has covered the ground long enough to exclude grass and weeds, as in the case of beech woods, where the

conditions are usually good for planting. But if several seasons are allowed to pass, grass and weeds spring up and owing to the stumps and interlaced surface roots, plowing is difficult, especially in beechwood, and the chances for success are lessened.

**Thinning dense stands.** Thinning of second growth stands is a matter of prime importance, and one in which a considerable degree of laxity exists. In many cases sufficient thinning may be accomplished by the removal of worthless or "weed trees" alone, while in others it will be necessary to remove some of the valuable trees, in order to allow the desired ones to develop. Stump or sprout forests can be thinned to good advantage by removal of surplus sprouts. Foreign experiments indicate that the yield of second growth stands may be increased from 30 to 40 percent by thinning, besides improving the quality of the product.

**Planting to hold the leaf mulch.** The preservation of the leaf mulch is one of the essential factors in woodlot management. The leaves serve as a soil mulch, create humus, check washing and prevent the growth of grass. If planting is done for this purpose it is always advisable, whereve possible, to grow some species of value but small trees or shrubs of no value for timber are better than nothing and even blackberry plants serve a useful purpose.

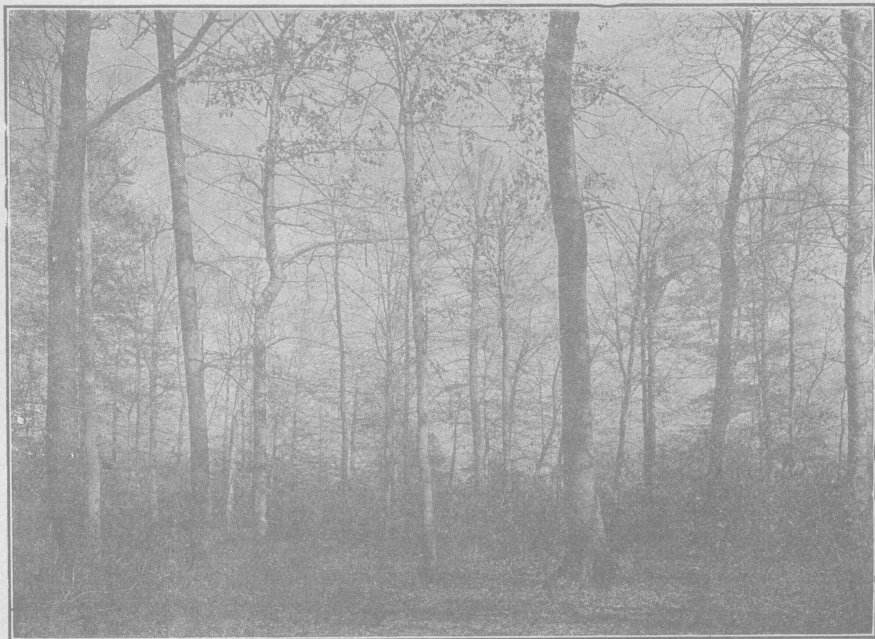
**Underplanting to preserve sugar orchards.** This is an important operation. Many sugar groves are rapidly declining, owing to the unnatural conditions under which they are growing. Ninety percent of such groves have no protective undergrowth, and in consequence a heavy sod covers the ground, the leaf mulch is blown away and the roots of the trees are exposed and mutilated by the trampling of live stock; the natural forest conditions are destroyed and the existing ones are such as to hasten early decay of the trees.

These conditions may be remedied by the exclusion of live stock and by planting some trees, underneath, which are tolerant of shade. Species like catalpa, mulberry or sugar maple might be used. The underplanting of these trees would not only tend to increase the longevity of maples, but post and other timber products might then be secured in time. The presence of livestock in a woodlot is detrimental to the trees because of the destruction of the natural leaf mulch which occurs when the underbrush is removed. To make a woodlot continuously profitable and to keep the trees in a healthy condition there should be constant reproduction from seeds. The pasture in a woodlot is worth less than the growth of the young trees. The pasturing of woodlots has wrought far greater destruction within the state to these same woodlots than the ax, fire and all other agencies combined.

## ARTIFICIAL PLANTATIONS

Artificial planting, as a woodlot operation, may be carried on in many different ways. Land which is valueless for tillage crops, because of certain conditions, may often be utilized for timber growing. Different kinds of planting, which may be carried on for special purposes, are quite numerous and among those, some one of which is applicable to almost every farm, the following may be mentioned:

**Windbreaks.** The rapid disappearance of natural windbreaks, the native woodlot, makes the planted windbreak a valuable adjunct to many farms as a means of affording protection to buildings, livestock and crops. In many cases a windbreak and woodlot may be combined so as to serve a dual purpose, making the plantation all the more valuable. Almost any species adapted to the soil and conditions may be used for this purpose, but it is usually advisable to combine evergreen with the deciduous trees, so as to make the break more effective during the winter months, when it is most needed.



Open beech grove of no value but where shade and browsing animals have prevented reproduction

**Planting on steep hillsides.** One of the most important of forestry operations is the utilization of steep hillsides for timber growing. Such locations, with properly established tree growth, will yield profits as large as if in annual tillage crops or pasture, and will do away with difficult cultivation, and prevent destructive erosion.

**Planting irregular fields.** Many farms contain irregular plots of land, due to a diagonal fence, ditch or stream. Such areas can often be more profitably planted to trees than any other crop, thereby making cultivation unnecessary. Many times, too, such areas are lying idle, or overgrown with weeds and worthless shrubbery.

**Planting along streams.** This is an important feature in preserving soil, and is practically the only method of preventing the erosion of first river bottoms subject to overflow. Many bottoms contain soil of a high degree of fertility but are practically worthless for tillage crops owing to washing.

Oftentimes such locations are well adapted to timber growing, and not only produce a profitable crop but check the shifting of soil to a marked degree. There are many small fields which are cut off from the main part of the farm by streams and these may be utilized by planting catalpa and other fast growing species, such as ash, walnut, sycamore and tulip poplar.

Impoverished land, too sterile to produce pasture grass, can often be reclaimed by the locust. This species if planted judiciously in a pasture will stimulate the growth of grass.

**Planting to prevent landslides.** There is practically no solution for the landslide problem aside from forest growth. In many cases even trees are not effective. But they are a practical means of preventing a shift in the start, and all portions which give promise of shifting should be given over to timber growing. These preventive means, however, must be taken at the start as later they are not effective.

**Planting in sod.** It is always best to plow land in sod before planting trees on it, but it is not always practicable. In recently cleared woodlots where the stumps and roots are numerous or on a steep hillside or undulating bottoms, subject to erosion, it is best not to break the sod, in order that the soil may be preserved. Spaces two feet or more in diameter should be dug where each tree is to stand. While sod impedes the growth of trees, it is by no means an insurmountable barrier in establishing tree growth, and in many cases it is certainly more practical to plant trees under such conditions than to attempt plowing or cultivation.

It is sometimes difficult to decide just what phase of forestry operations one can most advantageously undertake, but it is not unreasonable to state that one-tenth of every farm should be devoted to timber culture. There are seeming exceptions to this in the case of high priced farming land, but granting the needs of windbreaks and of various kinds of timber on every farm there are a few cases where this percentage is too high, and very many more where it is too low.



FIG. VII. Good reproduction in spots. Beech trees cut in order to permit interplanting.

The fundamental principles of forestry are applicable to every woodlot, but there are local problems in forestry practice which must be worked out in different sections by actual test. Other problems are more general but also require solution by experimentation. For this reason the forestry work of the Experiment Station is largely on the cooperative plan. Any person desiring to take up any phase of forestry work on his farm should communicate with the Station. Arrangements will then be made for a representative of the Forestry Department of the Station to visit him and assist in deciding upon what line of work he can advantageously undertake. For this work plans will be made and, in case the conditions are such as to warrant, seedling trees will be furnished. The work will be looked after and suggestions given from time to time.



*Negative by Sponsler*

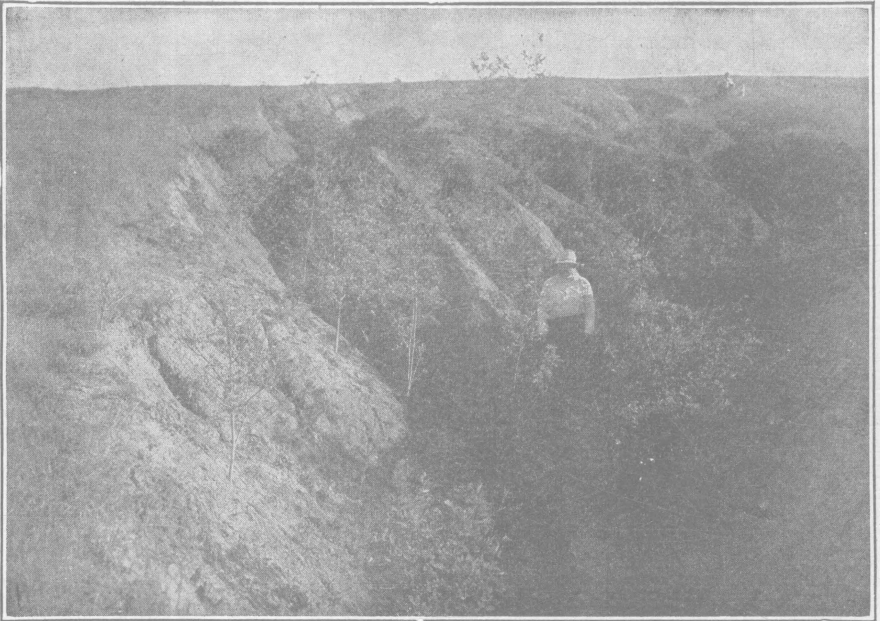
A splendid blue grass pasture produced from once sterile ground by the influence of the black locust. The locust grove is about 25 years old and is valued at \$120 per acre.

The cost to the land owner will be the use of the land, the labor, transportation of seedlings from the Experiment Station to his farm and conveyance of the Station representative to and from a convenient transportation point, it being understood that the Station is to have access at all times to the plantation to secure data for publication.



Enough is already known to warrant the belief that tree plantations, properly managed, will yield profitable returns. To demonstrate this fact, and to learn more about the most desirable methods to be followed, is the object of this work. All plots are therefore demonstrational plots and many of them experimental plots as well. But the experiment will be very simple and will not obviate the possibility of financial returns.

During the past six years the Station has undertaken cooperative forestry work with 606 land owners in 85 counties of the State and has distributed 773,663 trees for demonstrational and experimental purposes. The work has been confined largely to the planting of the quicker growing trees suitable for post and pole timbers, such as locust and catalpa, but in the future, especially in the case of woodlot improvement, many other kinds of trees are to be used.



*Photo by Secrest*

Stopping the wash by planting locusts

Many of the plantations are duplicates, but to a certain extent duplication is necessary as it verifies and hastens results. In certain portions of the state enough plantations of this character have been established to serve the purpose for which they were intended. In two counties of the state no work of this nature has yet been done.

It will seem that the kind of forestry which the Station should undertake must be largely controlled by local conditions. In some sections it will not be necessary to give as much attention as formerly to tree planting, but woodlot improvement can be more carefully looked after. In taking this attitude, the Station does not wish to discourage such plantings but it is more desirous of giving its attention to other phases of the work of equal or more importance.

In those sections where catalpa and locust groves are numerous it is advisable for parties who desire to plant such species to gather seed, and to grow their own trees. Groves established by the Station in 1904 are in some case producing seed. In many localities catalpa speciosa trees are growing from which the seed may be gathered. Great care should be taken in gathering catalpa seed, as there are two or three species of the tree, only one of which has value for forest products. There is danger of getting the spurious kind unless the gatherer is familiar with the different species. Even then it is sometimes difficult to identify the species, as they hybridize or cross. While it is necessary to see the tree, the flowers, pods and seeds before identification can be made positive, one having knowledge of the species can judge quite accurately from seed and pods alone.

The Station will advise, as far as possible, parties who will send in an average sample pod containing seed, along with an accurate description of the tree, as to its characteristics and habit of growth.

GENTLEMEN:—

I have read carefully your circular regarding Cooperative Forestry Work in 1908 and may say that I shall be pleased to go ahead with the work under the conditions named therein and to have your Forester visit me to make the plans at such time as seems wise to you.

I shall be pleased to meet him at \_\_\_\_\_  
*Railway or traction station.*  
which is \_\_\_\_\_ miles \_\_\_\_\_ of where I live or at  
*(direction)*  
\_\_\_\_\_ which is \_\_\_\_\_ miles \_\_\_\_\_  
of where I live or at \_\_\_\_\_

I shall wish about \_\_\_\_\_ days notice and am connected with the  
\_\_\_\_\_ telephone exchange \_\_\_\_\_

The plot I wish to use in the work contains about \_\_\_\_\_ acres,  
which may be described as follows: \_\_\_\_\_

It is situated in \_\_\_\_\_ township and  
\_\_\_\_\_ county.

Signed \_\_\_\_\_

P. O. \_\_\_\_\_

Date of mailing \_\_\_\_\_

Mail to

EXPERIMENTALIST, O. A. E. S.,  
Wooster, Ohio

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