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The Agricultural Experiment Station

FORT COLLINS, COLORADO.

A Co-Operative Experiment in Tree Planting.

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The planting of trees for posts and fuel is a subject in which the farmers of Colorado are doubtless interested and yet it is one which has not received the attention which it deserves. So long as land holdings were large and but few fences were required the supply of native timber was found ample. But with the division of our agricultural lands into smaller areas, requiring a greatly increased amount of fencing material, the original supply is being so rapidly reduced that in some parts of our state the price of posts has doubled within the last few years. In fact it is evident that we must soon look to some other source than the natural timber growths of this state to supply this increasing demand for such material. The Experiment Station, therefore, is about to enter into a co-operative timber planting experiment with a few land owners in various parts of our state during the coming season.

PURPOSE OF THE EXPERIMENT.

The purpose of the experiment is primarily to determine the adaptability of certain species of utility trees to the various parts of our state. The data thus secured will then be available as information for those who seek the advice of the Station in the matter of planting such trees. It is also purposed to establish a number of small plantations which may serve as examples in tree planting for timber and afford object lessons in their proper management. It is finally the aim, by means of this experiment, to encourage and promote the planting of utility trees wherever in our state they are capable of successful growth. It is thus hoped that farmers will be induced to make timber plantations from which they may cut their own posts, and to a certain extent their fuel, within the next decade.

Trees Selected:—The trees selected for this experiment are the Hardy, or Western Catalpa, (Catalpa speciosa) and the common or black locust (Robinia pseudacacia.) These two species have been selected because they promise well for the purpose mentioned. Thus they are relatively hardy, grow rapidly under favorable conditions, and resist decay remarkably well when in contact with the soil. The locust, moreover, is of good fuel value. By growing the catalpa two seasons and cutting back to the ground in winter or early spring a growth of vigorous, straight shoots will arise which will form good trunks for posts or poles. Both species sprout readily from the stumps when cut in winter and by leaving the strongest shoots the plantation is thereby readily renewed.

CONDITIONS OF THE EXPERIMENT.

(a) One plantation of three hundred trees of each species is to be established in each of twenty representative localities in the state.

(b) Each plantation will be put in charge of some responsible land-owner who volunteers for that purpose. He will be expected to furnish and fit the ground, set the trees, irrigate, cultivate and prune them according to instructions, and to keep a record of their growth from year to year. A report is to be made to the Station, when requested, upon the progress of the experiment.

(c) The experiment Station will furnish the trees for the experiment (300 of each species) f. o. b. cars Ft. Collins, and supervise the planting and give occasional supervision during the period o he experiment. It is believed that at the end of ten years the trees will be large enough to furnish from two to four posts and stakes each in addition to some fire wood. This estimate is based on measurements of trees grown in western Kansas and is not in excess of the record of such trees now growing in this state.

Plan for Planting:—On irrigated land it is planned to set the trees of both species in rows six feet apart and four feet apart in the row thus covering about one-third of an acre with the six hundred trees. Where the conditions are like those on the plains and water for irrigation is not available the planting will doubtless need some modifications in this respect by allowing more space for each tree. Under such conditions the trees should be set in as compact a form as possible and frequent, shallow cultivation given. The trees for this experiment are now growing on the Agricultural

College grounds, having been set last spring when two years old from seed, which is a convenient size for planting.

Although it is intended to furnish only enough trees from the Station supply to set one plantation in each locality it is hoped that it will be the means of encouraging many farmers to start similar plantations themselves. Thus the following brief directions and suggestions have been prepared to aid in this matter.

STOCK FOR PLANTING.

While it is possible for the farmer to grow his own seedlings it is doubtful if this is advisable. Black locust seedlings two years of age can be purchased very cheaply from the principal nurseries, and this is a suitable size for planting. The securing of the true hardy catalpa, however, is an uncertain matter and unless this is done almost certain failure will be the result in this state.

PREPARATION OF THE LAND.

Directions The land for this purpose should not be land that has no usefulness for crop-growing, although very rich and heavily watered soil is not desirable. The ground should be fitted by fall plowing if possible and well harrowed in spring, but land that has been in cultivation for one or more seasons is better than newly broken land. It should be free from weeds and grass at time of setting the trees, in fact the preparation should be the same as for setting an orchard, which will greatly facilitate the matter of setting the trees and tending them later on.

Planting—The best time for setting trees in this state is undoubtedly in spring. Trees planted in autumn, unless the work is done at just the right time, are in danger of being killed by drying out. When ready for planting the young trees should have all broken and bruised roots trimmed off with a sharp knife so they will heal more readily, and at the same time the top should be cut back to correspond to the reduced root system thus balancing the two and ensuring the least amount of loss from drying out. The holes for setting should be deep and wide enough to allow the roots to be spread out fully and as the soil is put in it should be carefully packed among the roots so there shall be no air-holes. This is best accomplished by using a stake with rounded end although the foot can be successfully used to pack the soil as fast as it is thrown in. Seedlings and very small trees can be rapidly planted by two persons. One makes the holes by pushing the blade of a spade almost vertically into the soil to the depth of a foot or more and pushing the handle forward. The other person then inserts the roots of the tree behind the spade, which is then withdrawn and the soil pressed firmly back with the foot. If the planting is to be done on a bright, dry day care should be used to keep the roots covered with moist burlap or they may be heeled in temporarily to prevent drying out. The trees when set should be a little deeper tha n when in the nursery and a shallow depression about each one will help to retain moisture. Ordinarily as soon as the trees are set water should be turned on, which will further settle the soil about the roots and encourage their growth. Irrigation should be given only as often as necessary to keep the soil moist and the trees growing well. And after each irrigation or rain the soil should be given shallow cultivation to break up the surface and form a dust mulch. Where trees are being grown without irrigation this matter of surface cultivation is extremely important, as by this means the soil moisture is largely retained for the use of the trees instead of being lost through evaporation. This cultivation should continue until the trees are well established and until they shade the ground well which will probably not be accomplished in less than three seasons.

For the production of posts and fuel tall trunks free from branches are desired. To secure these pruning will be necessary as long as culti-

vation is kept up, after which the side branches will mostly die back. The trees along the north and west sides may be allowed to retain their lower limbs which will act to some extent as a windbreak. In some cases trees can be successfully grown along ditches and roadsides but cultivation is then not so readily given.

The trees should not be set where stock can get at them, for browsing animals are sure to greatly injure them by eating off the young growth beside breaking them down by rubbing and trampling. If the plantation cannot be situated in a field not used for grazing purposes then a fence should be put around the area devoted to this purpose.

Any land owner who desires to undertake such an experiment is requested to correspond with B. O. Longyear, Assistant Horticulturist, who will have these experimenns in charge. In making application kindly state the kind of soil it is proposed to use, location, (Section, Township and Range) whether it is on the home farm or otherwise, elevation above sea level if possible, facilities for irrigation, and whether you are willing to care for the plantation as stated above.

If more applications are received than we have trees to supply, preference will be given to choice of location and condition which promises best success. However, it is hoped that all will correspond with us who are interested in the plan even if trees cannot be furnished at this time, the interest shown may be the means of future co-operation.