

# THURSDAY AFTERNOON SESSION

December 10, 1959

The second session convened at 1:30 o'clock, President Nordine calling the meeting to order.

**PRESIDENT NORDINE.** You will notice from your program that we have a full session this afternoon, composed of a great many topics which should be of interest to everyone. We are therefore anxious to start on time in order to allow the speakers sufficient time as well as to allow for a period of discussion which is always so important.

The moderator for this afternoon is Richard H. Fillmore. We will call him to the podium at this time.

Mr. Fillmore assumed the chair (Applause)

**MODERATOR FILLMORE:** Fellow Members and Guests of the Plant Propagators Society: The session this afternoon will be devoted to three topics: Namely, the propagation of varieties of honeylocust, the rooting of conifers under intermittent mist and under plastic and to the rooting of junipers in the open field

We shall begin this afternoon with Mr. Hubert Nicholson Commercial Nursery Company, Decherd, Tennessee, who will discuss the "Propagation of Varieties of Honeylocust. Mr. Nicholson, will you please come forward? (Applause)

*(Editor's note: Mr. Nicholson integrated his discussion with a series of colored slides which depicted the sequence used to propagate varieties of honeylocust.)*

## **PROPAGATION OF SELECTED VARIETIES OF HONEYLOCUST BY BUDDING**

HUBERT NICHOLSON  
*Commercial Nursery Company  
Decherd, Tennessee*

I will not attempt to tell you how to propagate honeylocust varieties by budding, but rather will briefly describe a procedure that we are successfully using in Tennessee. Our soil is primarily a clay loam. In the past we have selected lower sites to take advantage of all rainfall, since we do not have field irrigation facilities available. However, in seasons of ample rainfall, such as we have had the past two or three years, our one year buds of honeylocust have become too large and therefore, this year, we budded on seedlings planted on higher soils. In either case, we try to select soils of high fertility, and with good internal drainage.

We do not produce our own seedlings but rather buy 18 to 24 inch, 3/16-1/4", caliper seedlings. We prune the roots severely, leaving only four to five inches of the original root. Side roots, if any, are also pruned back severely. The tops of the seedlings are cut back with a band saw so that not over 18" of top is left above ground after planting. This uniformity of tops makes the seedlings easier to handle when

transplanting and prevents the transplanter from tipping the seedlings in the row. These seedlings are planted 14 inches apart in well prepared soil with a reforestation type transplanter. Rows are spaced 48 inches apart. Soil is plowed up to the seedlings immediately after planting. We generally plant our seedlings in December, weather permitting. The earlier they are planted, the more uniformly they will start growth the following spring. Seedlings which are slow to start represent one of our major problems.

When the seedlings begin to grow in the spring we keep a sharp watch out for blister beetles or any other leaf eating insect. Control is usually effected through the use of DDT. If these insects are not controlled the development of the seedlings will be retarded, thus preventing budding as early as would otherwise be possible. Our seedlings are not fertilized at the time of planting or during the following summer.

We have found that early budding is one of the most important of the many factors affecting our stands. We prefer to start budding by the first of June, if possible. This in part is determined by the condition of the budwood which should be green. I would again emphasize this latter point, that is, the use of green budwood. After the budsticks begin to take on shades of gray and brown, the bud does not come off the budstick properly and is too ripe for us. We cut large buds, sometimes 1½" long and "pop" them off the budstick, leaving the wood under the bud, attached to the budstick. If we have sufficient budwood available we will not use a bud that does not "pop" off the stick. We have found that our stands are not as good where we slice the bud off the stick and then remove the wood from the under side of the bud in a separate operation.

In making the incision on the understock we make a vertical slit on the seedling starting about 2" above the ground. The cross or "T" cut is made about 1" up on this vertical slit with a rolling motion of the knife blade and slanting slightly upward. The knife tends to open the vertical cut as it rotates around the seedling. The seedling is now ready to receive the bud which is not "popped" off the budstick until after the seedling has first been prepared. The bud is then carefully inserted in the slit on the seedling and forced downward until the nose of the bud rests under bark which has not been slit with the knife. This assures a tight fit on the nose of the bud with the rest of the bud lying flat on the seedling, the edges being covered by the bark of the seedling. When the bud is in place it is well if the top extremity of the bud coincides with the cross or "T" cut. This gives a more perfect match of the cambium layers.

Wrapping is performed with 5" rubber bands which are started at the top of the bud and wrapped down. We insist on a minimum of three wraps above the leaf stem of the bud, which incidentally is pulled pretty tight. Wrapping in this manner flattens the "hump" of the bud down against the seedling. This so called "hump" of the bud is that portion where the thorn would be if it were a thorny locust. We complete the wrapping process by taking 2 or more turns below the bud, still exerting some pressure on the rubber bud strip. The wrap is tied

at about the base of the vertical cut. We believe that this "wrapping down" process is a very important phase of successful budding. Using large green buds on sappy seedlings it is very easy to force the bud up out of the "T" slot if you try to wrap it in the conventional manner, starting at the bottom and wrapping upward. We no longer bother to cut the wraps, since they deteriorate before they can do any harm.

If everything goes well, the perfect union consists of a big bud, flat on the seedling, with a continuous knit all the way around. However, not all our buds follow this perfect pattern and we find various forms of unions, some of which tend to promote poor stands. Quite often, by the following spring, the upper portion of many of the buds has dried up down to the area where the leaf stem was originally located. As long as this leaf stem area is alive, the bud will force out in the spring.

One of our biggest troubles results from the seedling overgrowing the bud. If the understock completely covers the inserted bud, it is likely that the bud is dead. If the center portion of the incision remains open far enough for the bud to emerge there is a good possibility that the graft will be successful. Early budding, as well as ample rainfall following budding encourage this type of overgrowth. Rapid growth after budding will sometimes cause the rubber budding strip to cut into the seedling, although this apparently causes no serious harm. Some of the buds will force within two weeks after budding. This new growth ranges from a cluster of leaves to shoots three to four feet long. In the event that a shoot forms, we always cut it back to the bud the following spring. By the end of the summer after budding, the seedlings are normally around three feet tall. The past two years, however, we have had seedlings as tall as six feet and over one inch in caliper. If the bud lives on these more vigorous seedlings and doesn't become buried, it will make a big tree next year.

Before growth begins the next spring the top of the seedlings above the bud are removed. This is done by making a sloping, 45° angle cut extending from top of the bud to rear of seedling.

The first flush of growth pushes one or more buds of the selected variety into growth. It has been our observation that the bud and shield of the selected variety contains several latent buds. Usually two or three of these will force at the same time, which makes it necessary to remove all but one at the first disbudding operation. In addition to the removal of these extra growths, all shoots that have forced out on the stem of the seedling are also taken off. The remaining bud grows rapidly. If it should blow off or be accidentally broken off, other latent buds will be forced out of the original bud area to take its place. I have personally seen as many as six or more buds force from a plate, after the original bud had been accidentally broken off after reaching a height of five or six feet. This characteristic works to the advantage of the grower, as you can readily see.

When our new bud reaches a height of 12 to 18 inches we generally fertilize with a 10-10-10, complete fertilizer. This is banded on each side of the row, after we have finished weeding the row. By late June or early July, if the buds are not growing as rapidly as we feel they

should be, we side dress with ammonium nitrate. By the first of July our buds should be in the neighborhood of six feet tall.

Pruning is confined primarily to getting the young bud off to a fast, straight start. If all side branches are kept off the shoot until it is four or five feet in height, you will be quite sure of getting a straight tree. Ninety per cent of the crooked trees we have are a result of leaving on side limbs to furnish budwood. We have on occasion topped six to eight feet whips in July in an attempt to stimulate branching but this has given us inconsistent results. Apparently the earlier you are able to top the whip, the better the chances of producing a branched tree.

For the past couple of years the average height of our block of one year buds has averaged about eight feet, with many trees topping ten feet. Most of our trees are sold as one year trees, although a few are grown the second year. At the beginning of the second year those trees which are retained are topped at 7 to 7½ feet. They make beautiful heads that growing season, and put good caliper, some reaching 1½" by the end of the second growing season. Thank you.

\* \* \* \* \*

MODERATOR FILLMORE: We thank Mr. Nicholson very much indeed for this presentation on the propagation of varieties of honeylocust by budding. I am also personally very glad to hear a discussion of budding. I regard budding as the most advanced plant propagating technique that we have, particularly in the sense that every solitary bud on the plant becomes a potential new plant instead of having to use perhaps 15 buds, as we frequently do on a leafy cutting.

Are there any questions for Mr. Nicholson?

If not we shall now proceed to "The Rooting of Conifers Under Intermittent Mist" by Dr. Stuart H. Nelson, who is in plant propagation and nursery management research at the Plant Research Institute, Ottawa, Canada. Dr. Nelson.

Dr. Nelson presented his talk in two parts, which covered the seasonal propagation of evergreens under mist. Tabular data was presented by means of slides. (Applause)

## THE SUMMER PROPAGATION OF CONIFER CUTTINGS UNDER INTERMITTENT MIST\*

S. H. NELSON

*Plant Research Institute Experimental Farm  
Ottawa, Ontario, Canada*

Conifer cuttings are usually collected in the winter months after sticking and root very slowly, even under greenhouse conditions. Rooting periods six to eight months in length are not uncommon for some

\*Contribution No. 38 from the Plant Research Institute, Research Branch, Canada Department of Agriculture, Ottawa, Ontario