

# FRIDAY MORNING SESSION

December 6, 1963

The session convened at 9:20 a.m. in the Crystal Room, Sheraton-Jefferson Hotel. Professor J. C. McDaniel, moderator.

## SPEAKER-EXHIBITOR SYMPOSIUM

MODERATOR MCDANIEL: The first speaker this morning, Dr. Jake Tinga, Virginia Polytechnic Institute, Blacksburg, Virginia is unable to be with us. Mr. John McGuire will read the paper.

### HOW TO MAKE TWO DOLLAR PLANTS IN FOUR MONTHS WITH LARGE CUTTINGS

J. H. TINGA AND CHARLES HAYES, JR.  
*Virginia Polytechnic Institute*  
*Blacksburg, Virginia*

During the summer of 1961 and 1962 pilot experiments in the use of large cuttings were made in the mountains of Virginia. As a result of these experiments a larger project consisting of 1,000 three gallon cans were established near Norfolk, Virginia. This was to test the theory that large saleable plants could be produced in one season. If the unrooted cutting was stuck in the media in July, and if the plant could be moved to the landscape site in October, then no moving or handling would be necessary, thus decreasing labor costs.

The experiment was all under one mist system which was controlled by the balanced arm and screen wire mechanism. The mist was *on* when the screen wire weight was dry. It did not usually operate at night or in cloudy weather.

The first variable was the rooting media. There was not a significant difference between rooting results of the four following mixtures: (1) half bank sand and half German peat, (2) half bank sand and half Canadian peat (this peat was much more fine and dusty than the former), (3) half coarse Perlite and half German peat, (4) half coarse perlite and half Canadian peat.

The next variable was the plant species. Three cuttings of 24 to 36 inch length were cut from the mother plant, knife wounded by a tangent cut 3 inches long, dipped in Hormodin 1 powder and stuck into the media of one can. In other words there were three large cuttings placed in a 3 gallon can so as to appear similar to a mature plant. The problem was to establish a good root system. The plants were stuck during the month of July. Two months later, the quantity of mist was tapered off slowly for 30 days. Four months after sticking the



cuttings, they were examined with the following results.

(1) *Ilex crenata rotundifolia*

200 containers: In 94 percent of the cans, media was well covered with roots filling the 3 gallon can except for the top 2 inches. New growth had begun. Six percent of the cans had smaller root balls of 4 to 6 inch diameters.

(2) *Ligustrum lucidum*

200 containers: In 92 percent of the cans, the root ball extended from side to side of the can. In six percent of the cans the root ball was from 4 to 6 inch diameter. In 2 percent of the cans, the root ball was 2 to 4 inch diameter, apparently a position effect caused by not enough mist. The Lucidum were well berried. In one quarter of the lot the berries were removed. This did not affect the rooting results.

(3) *Ilex cornuta burfordi*

200 cans: In the first group of 160 cans the root ball size was 4 to 6 inches in 82 percent, 2 to 4 inches in 13 percent and 0 to 2 inches in 5 percent. These were heavily berried branches when they were stuck. There was quite a variation in berry drop in the group. Some dropped 75% of the fruit and some



Figure 1. Four month old Burford Holly with plenty of red berries.



dropped only 25%. But all cans had fruit on in October. A factor in increasing the sales appeal was the presence of red berries in October.

The last group of 40 cans was from a mother block that had been exposed to salt spray mist. A big storm blew salt spray 5 miles inland from the ocean. Although the branches looked acceptable at the time large cuttings were made, only 3 percent of them made acceptable root growth. This highlights that the prior condition of the foliage is very important in the subsequent rooting.

(4) *Pyracantha coccinea graberi*

200 cans: In the first group of 160 three-gallon cans, the root system was "heavy" on 36 inch cuttings in 42 percent of the cases. As you know, the *Pyracantha* does not make much of a root ball. In 26 percent of the cans, there was "medium" root system, in 13 percent there was a "light" root system. (Six major roots of 6 inches long was a light root system). In 19% there was little or no rooting response. The previous year there had been 87% heavy rooting from a different mother block. We examined the mother block of these cuttings and found that there was a large variation in the vigor of the individual mother plants. This probably was reflected in the rooting response of these 36 inch cuttings.

(5) The final group of large cuttings to be reported on was: *Juniperus chinensis pfitzeriana*, 24"; *Mahonia aquifolium*, 24"; *Abies Cunninghamia lanceolata*, 18"; *Azalea ledifolia alba*, 15"; and *Forsythia variegata*, 24".

Some cuttings in each group rooted and produced a top growth that was outstanding in each case, showing that it was possible and practical, but the group did not root uniformly well. The reason for this will be investigated next year.

Three plant species that failed were *Raphiolepis*, *Pittosporum* and *Juniperus horizontalis*.

*Summary:*

(1) Large cuttings rooted well for several species. The vigor of the wood was much more important than the age of the wood. Some 3 year old *Pyracantha* and Holly wood rooted easily.

(2) There was no difference in the media of the three gallon containers, but there was a difference in weight of the finished plant. Peat and sand weighed 30.5 pounds. Peat and Perlite weighed 19.1 pounds.

(3) It will take a large mother block of well grown plants to supply the "truck load of brush" that went into this experiment. We are drawing the preliminary conclusion that it is easier to grow quality plant tissue on a vigorous mother plant than on a newly rooted cutting. It is possible to grow a large root system on these plants in one season.



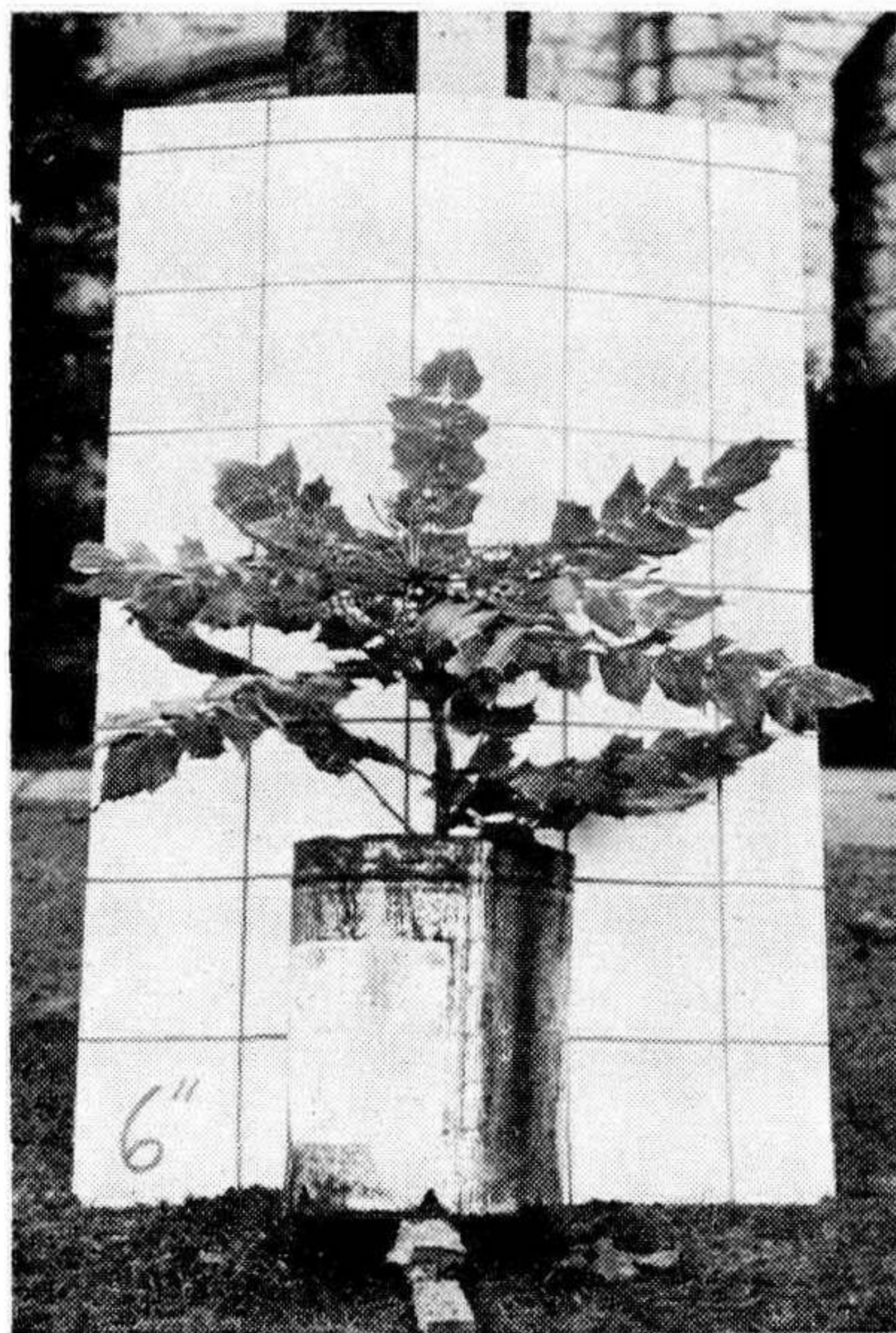


Figure 2. Four month old *Mahonia* with large flower cluster (single cutting — roots filled the can.)

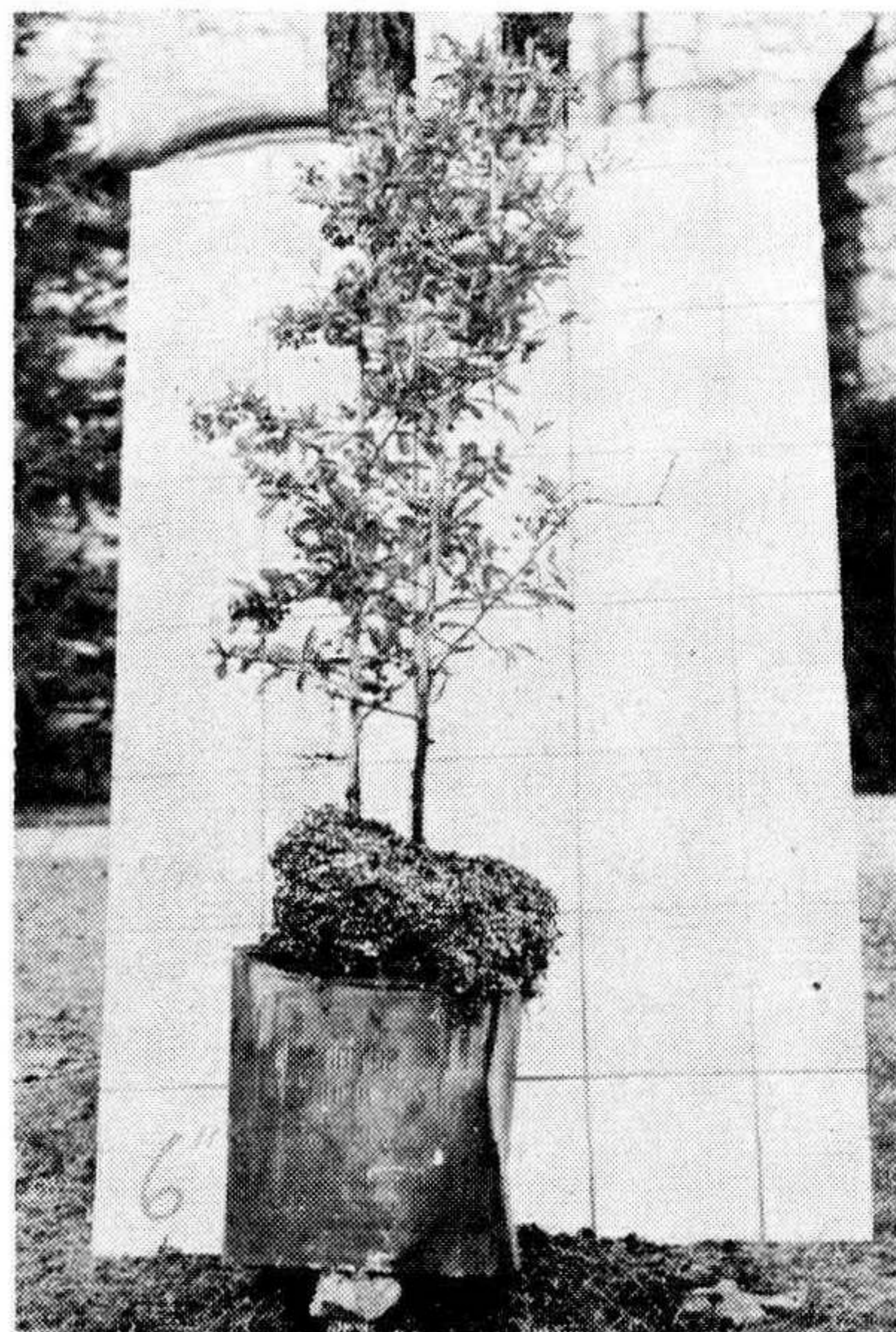


Figure 3. Four month old *Pyracantha* with fruit and good root ball on inverted can.

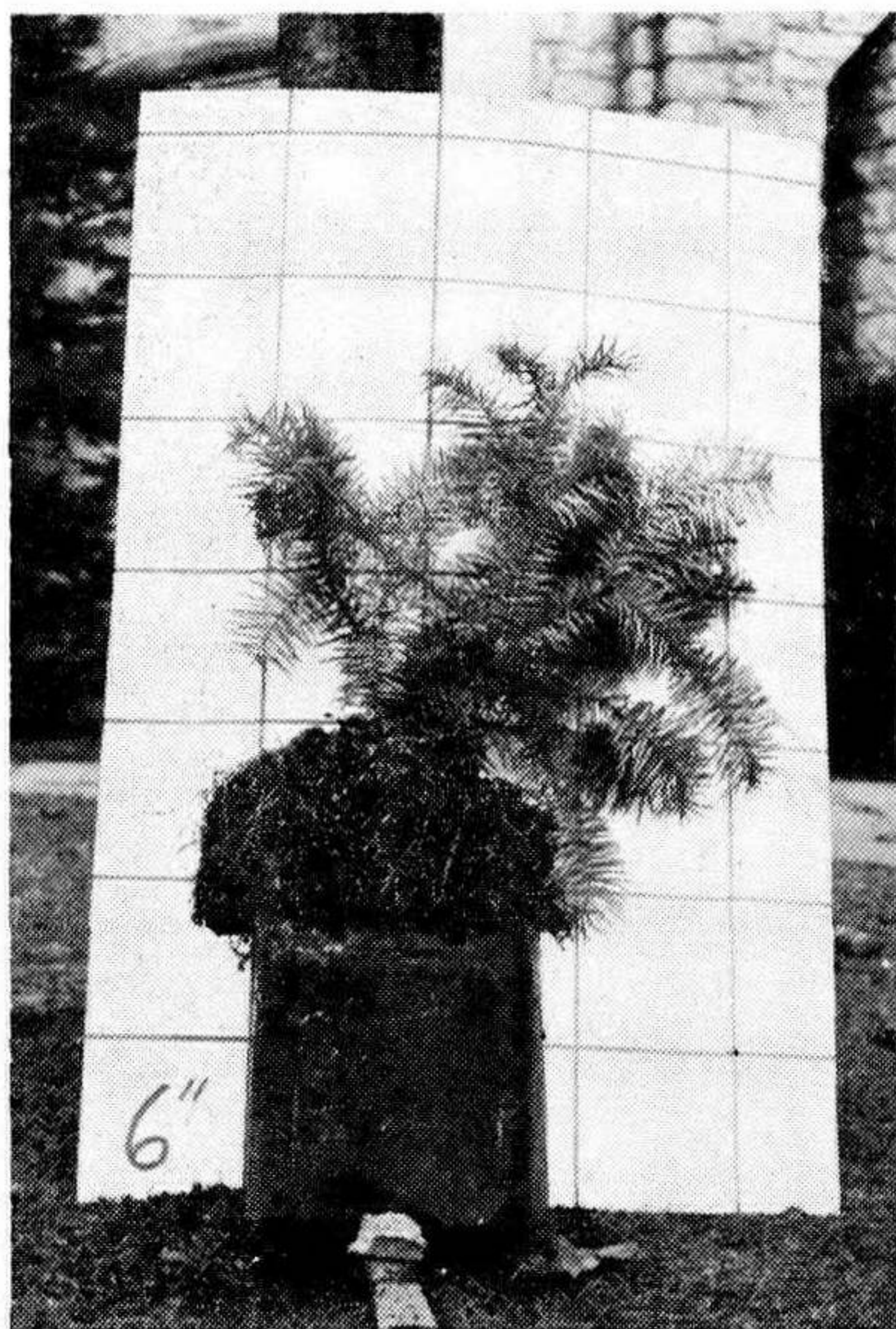


Figure 4. Four month old *Abies Cunninghamia*, Chinese Fir (single cutting).

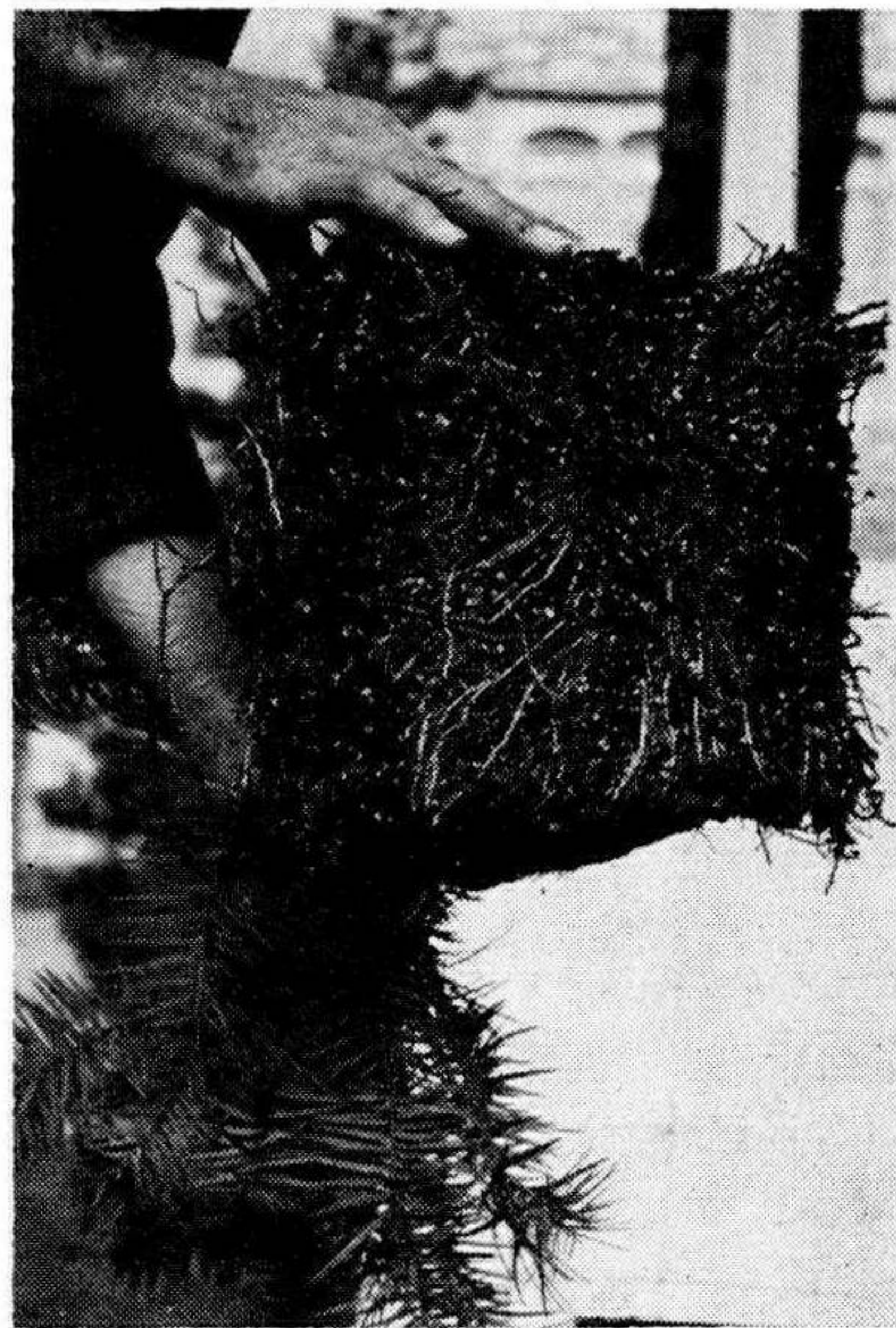


Figure 5. Four month old *Abies Cunninghamia* showing root system on the bottom of the can.



(4) This project is aimed at net profit for the grower. The total labor bill for the entire experimental set up including building 200 feet of mist line was 181 man hours. With no handling and no transplanting, this method of growing landscape sized plants in one season has good possibilities.

MODERATOR MCDANIEL: Thank you very much, Mr. McGuire. Our next speaker is Mr. Paul Bosley, Sr., Bosley Nurseries, Inc., Mentor, Ohio.

### **WHY BUDDING IS SUPERIOR TO GRAFTING AND POINTS ON WHICH SO MANY FAIL**

PAUL R. BOSLEY, SR.  
*Bosley Nurseries, Inc.*  
*Mentor, Ohio*

Budding is usually done in the open field and requires no expensive physical lay-out, such as greenhouses, heating plants and grafting cases.

Budding requires a minimum amount of handling and labor.

Budding takes advantage of the natural cycle of rest and growth that takes place in a plant during a year.

Budding produces the maximum size plant in the minimum amount of time. And a true union of tissues takes place during the first growing season.

I have found much to my amazement that different practices are employed in different parts of the country, as for example along the Eastern Seaboard and up around Long Island most nurserymen practice grafting and they don't have the technique or the help to establish a budding practice. In Lake County everybody practices the budding methods and budding help is generally available.

There was a time when young boys 10 and 12 years old were winders behind budders and before they had finished high school they were doing the budding and some of these same people today do budding on the side, or do contract budding. When contract budders are employed you usually can get a guarantee of a 90% "take" on the buds or the budder will come back and re-do his job. Under a set-up like this budding certainly has every advantage.

Most growers who have been grafting are not prepared to think in terms of budding and do not anticipate the entire program and in a change-over very often are discouraged with their results the first few years.

In most cases one should select a vigorous species rootstock or understock as closely related to the item that is to be budded as is possible.

Many plants have a so-called crown which is the dividing line between root tissue and top growth and as a rule, there are