

PERCY EVERETT: Again we thank you, Bill, and we also thank the Eastern Region for letting us have you occasionally. We have been fortunate to have at least four of the Eastern members with us this morning. We're going to introduce to you now a man that has, perhaps, not been so well acquainted with the Western members. It's not his first visit to California, by any means, but I think it is his first visit to one of our meetings. Vincent Bailey, of the J. V. Bailey Nurseries, St. Paul, Minnesota, is going to discuss our next subject — the mechanization problems that he has had, what they are doing now, and how they have met competition. Mr. Bailey was raised in the nursery business, which was started by his father, J. V. Bailey, in 1905. Vince was a graduate of the University of Minnesota — in horticulture — in 1929. He's been President of the American Association of Nurserymen, 1960-1961, and was President of the Eastern Region of the Plant Propagators' Society in 1964-65. He is very active in the management of the J. V. Bailey Nursery, in the production areas particularly. So now, Vince, will you come up and tell about the various means you have of meeting present day competition?

## MECHANIZATION IN MODERN PROPAGATION

VINCENT BAILEY  
*J. V. Bailey Nursery*  
*St. Paul, Minnesota*

Technically this subject involves the idea of the use of machines in propagation; however, I am going to deviate or take some liberties with the assigned subject. I am sure you will agree that the word propagation implies to the nurseryman and the research man not only the successful reproduction of a plant but further involves the successful establishing of this liner in a media for growing on to a useful size for distribution to the final consumer.

Webster says, "A machine is any contrivance to increase and regulate motive power, an engine, a light carriage, or vehicle." Some of the methods we, at the Bailey Nurseries, are now using do not truly involve machines, but they do involve implements which greatly improve the results and lower the labor costs. We are all interested in improving the quality of our liners, and this it as it should be. Most producers are finding that the buying public is very much interested in high quality and, what is more important, they are willing and able to pay for it.

I will confine my remarks to propagation by cuttings even though this is only a small part of the interests of this group. First, let me talk about our methods of handling hardwood

cuttings. Such common items as *Lonicera*, *Philadelphus* and *Spiraeas* give us little or no trouble, but we have cut our costs almost in half by adopting certain methods.

In school we were taught to make a clean cut at the base of each cutting, but a few years ago we became a little skeptical of the need for this. We experimented with the use of a fine-tooth band saw and found that the percentage rooted was very near to results obtained under the old method. The use of this machine increased the output per man-hour many fold. We make approximately 1,000,000 hardwood cuttings each year, so you can see the saving is tremendous. This work is done in the slack period of late winter. The cuttings are packed in used orange crates with moist peat after a quick dip in IBA; most of the cuttings then go into refrigerated (34°F) storage until planting time, usually April and early May in our area.

Planting is done by hand; however, we use trenchers for opening furrows. Three blades spaced two feet apart or five blades spaced one foot apart are mounted on a frame with a three point hitch on the tractor. I shall show slides of the machine and the plants a little later. This requires six foot tread of tractor wheels. Only an ordinary vegetable cultivator is necessary. Digging in the fall is done by mounting a blade on this same tractor.

You may wonder why I devote so much time to such a common procedure as production of plants from hardwood cuttings, but I feel these methods have yielded great returns. Figures indicate the value of the crop per acre varied between \$1,000 and \$10,000. This is all for a one-season crop. Very few of these liners end up on the brush pile, but we review our planting schedule annually.

Now let me very briefly tell of our mechanization of softwood cutting production, leaving out procedures that have been discussed at recent meetings. We make plantings in the greenhouses and in outside beds. Pure sharp sand is used as a rooting medium — also IBA hormone where needed. The three houses are air-conditioned and equipped with humidity controls. Our outside beds are 22 feet in diameter with the sprinklers set in the center. This is inexpensive and has proven quite successful for many species.

We harden the plants off by November 15 and then roll them up in polyethylene sheets, 250 to 500 per bundle. Most nurserymen then pot these rooted cuttings, but we feel we are getting better quality at much lower cost by planting directly in the field or in containers the next spring. Think of the labor saved in just getting 100,000 of these bare-root plants to the planting site versus transporting 100,000 liners in peat pots.

Soon after November 15 we put a crop of conifer cuttings into the greenhouses using the same humidification and air-conditioning systems. About May 20 (after danger of frost



is over) these rooted cuttings are placed directly into containers or into beds. This method of bypassing the common practice of potting these rooted cuttings is producing a better quality liner and saving many thousands of dollars. Those placed in beds are handled in the same manner as described earlier for the hardwoods.

Cuttings placed in containers are watered by the overhead Skinner system. Fertilizer is alternately applied through the irrigation system and as a solid, slow-release material. Potting material is a U. C. mix (one-half peat and one-half sharp fine sand). All mixing and container handling is completely mechanized.

Our methods definitely would not apply for all propagators, but some adaptation of these methods will result in savings. After all, the commercial grower must make a profit while keeping quality in mind. We, as propagators, have an obligation to the American public to supply the very fast expanding market for plants. I know that we can meet this challenge by being alert to change and adopting new and improved methods.

PERCY EVERETT: Thank you, Vincent. Now we come out to the West Coast, in particular to the southern California area, to hear what the Research Director of the Monrovia Nursery Company has been doing and wants to tell you about. Conrad Skiminia is a graduate of the University of Illinois, 1955, and his field is principally agronomy and soils. He is with the Monrovia Nursery Company, considered, I believe, to be one of the largest producers of container-grown nursery material in the world. They have become so large they need Research Directors in the various fields, and Conrad holds this position. This is a way some of the larger organizations have of meeting the present day needs of our industry.

Conrad, will you come up and tell people how you handle things at Monrovia?

## MECHANIZATION AT MONROVIA NURSERY COMPANY

CONRAD SKIMINA  
*Monrovia Nursery Company*  
*Azusa, California*

Mechanization is the use of devices, facilities or systems which will reduce labor requirements or create a more efficient operation. With the increase in costs, the nurseryman has to look for ways of cutting down expenses. One way is to develop a machine or a system that reduces expenses. Not all machines are made to save on labor directly, but their intrinsic purpose is to reduce labor costs whether directly or indirectly. For example, soil sterilization may be used *directly* to control plant diseases — however, this indirectly reduces labor because plants can be produced in a shorter time with less labor.