

THURSDAY MORNING SESSION

PRESIDENT MAIRE: Before I turn the program over to the Program Chairman, I would like to acknowledge a couple of new guests that we have with us from the Eastern Region this morning — Al Fordham and Al Martin. Would you stand up and let the people see you? You've arrived and we're glad to have you with us. I'm not sure whether Otis Kenyon from Sherman Nurseries in Iowa City, Iowa, is here. Is he here in the room now? Yes. Glad you're with us too. Now here is your Program Chairman.

TED VAN VEEN: Well, we have a good crowd this morning. We have a full program. To start off today, Dick Joyce has kindly accepted the job of Moderator. Dick is with Joyce Nurseries in this area. He is one of our fine young nurserymen; we have a whole crop of young nurserymen coming up in this area. Dick, I'll turn this over to you.

DICK JOYCE: It gives me real pleasure to welcome you to the second session of the Western Region Plant Propagators' Society Meeting and I know the program this morning is going to be beneficial and educational and will certainly give you something you can take back and utilize.

To start our program this morning we have one of the leading nurserymen and certainly one of the most reputable from the Portland area to be our first speaker. J. Frank Schmidt, Jr., has been 34 years in the nursery business. He's the president of J. Frank Schmidt and Son Nursery in Troutdale, Oregon, and president of the Milton Nursery Company in Milton Freewater, Oregon. They are farming all together in the vicinity of 1200 acres. He is a past president of the Oregon Association of Nurserymen. His father, with Avery Steinmetz and Mr. Brownell, started the Portland Wholesale Nursery Company years ago. He is going to be discussing shade tree propagation this morning. Mr. Schmidt:

SHADE TREE PROPAGATION

J. FRANK SCHMIDT, JR.

Troutdale, Oregon

Most of the trees we propagate are cultivars, a few are selections but both groups are clones propagated by budding or grafting. Two or three, such as oaks, are grown from seed and continued on their own roots. Our annual routine starts with land preparation.

One year of constantly worked bare fallow eliminates weeds. A year of repeated cover cropping with appropriate fertilizer restores the organic matter and nutrient level in the soil. In early fall we apply lime and dolomite and plough down the last cover crop. In March the following spring we disc or plough the ground, whichever is appropriate, for the particular soil type or season — apply fertilizer as dictated by soil tests, and work the soil up to a nice crumbly condition. In early April we plant seedlings of: — green ash, birch, cherry, apple, hawthorne, honeylocust, linden, laburnum, Norway and red maple, mountain ash and plum. These become the root stocks on which we bud or graft. The oaks, grown from specially selected seed are not budded. London plane and cistena plum are grown from cuttings and so do not require budding.

The newly planted seedlings are kept free of weeds by cultivating and herbicide spraying throughout the summer. We irrigate when necessary to develop a good stem and root system and flow of sap. In August we cut buds from the various cultivars and selections in our stock blocks and insert these into the stems of the seedlings with the exception of the three mentioned above.

With the exception of weed control, re-budding or grafting in February trees that didn't take, not much more happens culturally until early the following March. We then cut the seedlings off just above the bud, which is about 2" above the ground line, shred up the prunings and broadcast them and an application of fertilizer appropriate to the field and crop.

We have found that the caliper of the tree which develops from the bud inserted the previous August is directly related to the nutrient level in the soil and plant sap at the time the bud breaks. No deficiency then can be made up by extra feeding later on though, of course, later feedings will be necessary in most cases.

Cultural practices during the spring and summer involve weeding, watering and cultivating the soil, staking, tying, shaping and pruning the trees, watching for pests and diseases and spraying to control them. Further steps in our cycle are harvesting, grading, storing, selling and shipping, which are important because they are more vital than anything else we do. So much of the year's work in our trees depend upon understocks. Producing these is a separate operation that follows its own routine.

Well ahead — two years at least — planting plans are made. On this basis seeds are ordered or harvested at the proper time. The seeds are properly stored after they are received. Some are dried and stored in closed containers at room temperature. Others are kept slightly moist in a cooler and a few are frozen.

Seed coat dormancy can be overcome by hot water or by treating with acid or in an abrasive drum. Embryo dormancy can be

overcome by chilling or by chilling and warming a couple of times to simulate seasonal changes. The important thing is to ready the seed so that it germinates promptly after sowing. Sowing some seed in the fall and some in spring often results in at least one lot escaping untimely frosts which kill even hardy seedlings if it catches them in the cotyledon stage. Sowings are usually made on beds 4 feet wide, with sawdust used to cover the seeds.

From the time of germination we have found the ideal stimulant to be "fertigation" rather than applying dry fertilizer and irrigation by turns. By adjusting a liquid mixture the first applications should be as gentle as a tear and the danger of burning eliminated. The reason for fertilizing seedlings at all is to get them up to optimum size, 1/4 inch, for most kinds. This is quite difficult in one season.

While this group may be more interested in the techniques and finer points of propagation than in the business end of it I decided to conclude with a few figures. We plant about 600,000 seedlings a year. We sell about 400,000 trees. Seedlings cost \$100—150 per thousand if you buy them — more if you raise your own. Budding costs about 4.0 cents per tree — not counting the bud. It takes one steady employee per 10,000 trees but we report on over 100 people who make more than the minimum.

Wages and salaries add 75 cents to the cost of a tree, truck and tractor fuel 2 cents, insurance 6½ cents, sprays and fertilizers 7 cents, social security taxes take a 12 cent bite from the nursery and a 12 cent bite from the employee plus other overhead expenses per tree. These are a few of the out-of-pocket expenses. The cost of land, buildings, machinery and the use of capital are not included although, of course, they must come out of the selling price of the tree.

DICK JOYCE: Our next speaker is Harry Lagerstedt, who will be talking about winter grafting of walnuts, *Juglans regia*. He is now a USDA research horticulturist working out of Oregon State University at Corvallis and is responsible for research with nut crops in Oregon. Dr. Lagerstedt.¹

DICK JOYCE: Are there any questions?

VOICE: I was trying to write down the factors that promote callus growth in walnuts. Would you repeat these?

HARRY LAGERSTEDT: It is 82° F as far as temperature goes, and then you have to have moisture — where there is no

¹Dr. Lagerstedt discussed his experimental work in grafting of the Persian walnut in Oregon.

moisture there is no life. And aeration, which involves oxygen, and a lack of light, and a lack of pressure at the union. These are the five things.

HUDSON HARTMANN: Harry, how about patch budding walnuts in the nursery row in late summer. Is that successful in Oregon?

HARRY LAGERSTEDT: No, it is not. It has been tried but we have very poor luck. There is just no take.

HUDSON HARTMANN: It's a common practice in California for nurserymen to make some slanting cuts around the trunk of walnut trees close to the ground so the bleeding takes place there instead of around the graft union. Was this used here ?

HARRY LAGERSTEDT: No, these slanting cuts at the base have not been used. I know that a lot of Eastern amateur walnut growers do this, too. It's common practice in California. This drilling of a hole through the trunk has worked very nicely for us and we can continue to graft even during quite severe bleeding.

HUDSON HARTMANN: Another thing, what rootstock do you now recommend for walnuts in Oregon?

HARRY LAGERSTEDT: We grow grafts solely on a rootstock called Manregian. It is a *Juglans regia*, or Persian walnut, which was located in Manchuria. So they've combined the Manchurian and the *J. regia* to make the rootstock name, Manregian. If we graft on the black walnut in Oregon, ultimately we wind up with "black-line," which is a breakdown at the graft union. So we're limited to this particular rootstock. Actually, we have very few walnut nurserymen in Oregon and I think it is a rather risky business.

VOICE: Has Carpathian stock been used much?

HARRY LAGERSTEDT: Carpathian rootstock has not been used. There were some tests made around 1952 to 1954 comparing a large number of rootstocks for walnuts and out of this, the Manregian rootstock was the one that was chosen and we stay with it pretty much.

VOICE: Have you done some work on budding and grafting filberts?

HARRY LAGERSTEDT: Yes, my primary effort is with filberts. I have done a great deal of work with this. Budding is practically impossible with filberts. We've had a great deal of trouble. As soon as we get a very small piece of tissue, it seems to dry out and we just cannot maintain it. Even if it looks like we get a take with a filbert bud, whether it is our rainy winters or whatever it is, by spring we have nothing. Now we can graft filberts. It has been a hit or miss thing, but I think through some of our efforts we're up maybe 85 or 90% in commercial filbert grafting. However, it is not a common practice in Oregon. There is no nurseryman doing this at

the present time. We are extending this practice to nurserymen by going out into their nurseries, planting out rootstocks and doing the grafting for them to show them and carry them along. But one of the problems with filbert grafting is that there is no accepted rootstock at the present time, another whole problem.

VOICE: How about Turkish hazel nuts?

HARRY LAGERSTEDT: Well the Turkish hazel nut has been used but when you grow our primary variety, Barcelona, on Turkish hazel, after about 20 years or so, production declines. So Turkish hazel nut has not found a great deal of favor as a result. It is an excellent rootstock as it does not sucker, which the European hazel does. We are now crossing the European and the Turkish hazel to try to come up with a happy compromise.

HUDSON HARTMANN: How is the propagation of filbert by leafy cuttings under mist working out?

HARRY LAGERSTEDT: This can be done roughly between June 15 and July 15. We find the critical thing is that the terminal must be growing. If the terminal bud has set, all we get is callus and no roots. Now, we put so much water on these cuttings that we tend to rot out the lateral buds and at the end of the propagating season, we wind up with a rooted stick. We have no growing point; this has been our biggest problem. We're trying to control the mist so we have enough mist to keep the cutting alive yet not rot out these lateral buds. We can root them, however, about 60 to 65% consistently. IBA is essential for this.

VOICE: You might try to use some air pressure with the water to produce a fine, foggy mist.

HARRY LAGERSTEDT: To reduce the quantity of water. Yes. Well, that's a very good idea. I appreciate that. We went the other way using a Solatrol to try to just put just barely enough mist and try to control it rather than use just a straight mechanical control.

DICK JOYCE: Our next speaker this morning will be discussing the propagation of dogwood. Les Clay is a graduate of the University of California, 1956; he's been in the nursery business since then and is mainly interested in cutting propagation. He lives in Langley, B. C., Canada. At this time we would like to welcome Les Clay talking on the propagation of dogwood. Les.