DR. REISCH: What is the potential for reinfecting disease-free stock?

DR. CATION: It varies with the vrius, the crop and the isolation. Sour cherries, with ¼ mile isolation from cherry yellows have remained free for 13 years. We hope to get a tree to full size and bearing before virus hits. A young tree with this virus is practically hopeless. For asters, another virus, aster yellows is prevalent in nearby weed hosts. Asters had to be grown under cloth to keep out insect vectors. Now we have resistant varieties. The same disease on head lettuce was reduced by spraying the edge of the field with parathion.

DR. MAHLSTEDE: Certain viruses can be eliminated by growing the plants under extreme heat. The tip of the plant is then excised and forced into growth, free of virus.

MR. NORDINE: Can you distinguish aphids, virus or other insect symptoms on leaves?

DR. CATION: Usually, yes. Occasionally this is difficult even for experts. Quince rust fungus on Delicious apples looks like aphid injury. Mineral excess or deficiencies may result in virus-like symptoms.

PRESIDENT ROLLER: Going now to Hans Hess for a report on the discussion of timing to take cuttings.

HOW CRITICAL IS TIMING IN TAKING CUTTINGS?

DR. F. O. LANPHEAR, *Moderator*
HANS HESS, *Recorder*

We had a very interesting discussion on how critical is the time of taking of cuttings. To begin with Dr. Lanphear from Purdue presented some general facts on a few of the difficult-to-root plants and the critical importance of timing in the taking of cuttings of these. Two examples that he gave were the umbrella pine — as you all recall Sidney Waxman a few meetings back told us about taking cuttings on certain time in late March to get good rooting. The time was very critical, a few weeks prior or a few weeks past the optimum time the rooting difference was terrific. Good rooting at the proper time and practically no rooting if it were too early or too late. Another thing that was mentioned by Dr. Lanphear were the deciduous azaleas which are very critical in the timing as far as taking cuttings to get successful rooting. Another example of timing and the use of supplemental lighting was brought out. The fact that Japanese yew cuttings taken in late winter and given supplemental light. The light promoted growth and the cuttings were actually retarded in rooting from those that were given no light. The conclusion here was that dormancy is beneficial for good rooting of Taxus.

Timing, it was brought out, must be determined for different species of plants. One member stated that he had faster

rooting of junipers taken in February than those taken in November. Another said he had good success taking the same juniper variety in July. Then we had another gentlemen who contributed this statement, that he had good success with cuttings taken in November or February as long as he was willing to wait long enough. Hemlock was reported to give no rooting except when taken in March, similar to the umbrella pine. And this indicates another plant which is very specific as far as timing is concerned. The use of forced cuttings from plants brought into the greenhouse in late February or early March giving 90% rooting in about four weeks indicating again that timing important was discussed. The azaleas were brought into the greenhouse and laid on their sides to force a large number of cuttings.

It was brought out that timing must be scheduled according to each season, rather than any specific calendar date. For example, during a dry season cuttings would be harder and therefore would have to be taken earlier to get good rooting success.

A very interesting discussion came up between Jack Hill and Roland DeWilde as to how you determine the proper time a cutting was in optimum condition for rooting. Roland gave a very good answer to Jack. He said I don't know exactly how I tell but, "I just look at them, squeeze them a little bit, and it's either too hard or it's just right or it's too soft. I don't know how, but I can put my fingers on it." So there I think it is a case of a man having a number of years actual experience in propagation before he is really qualified to determine whether a cutting is in the proper condition. You have to work under some body like Martin Van Hof or Pete's father or somebody like that.

In summarizing we must determine timing not by the calendar but by the season and by the varieties we are working with. We can not at this time by chemical analysis determine whether the cutting is in optimum condition or not. That will probably come. But for the present we have to use the old rule of thumb method, go over and get a hold of the cutting and bend it a little bit to know whether it is right.