

OVERWINTER STORAGE IN NEW YORK
Robert L. Evans

I would like to express my thanks to the Committee for inviting me to talk on the subject of Cold Storage in New York. Just recently I read in the newspapers that people were asked which they feared most - dying or speaking to a group - most people said they were more afraid of speaking than dying. Again, I want to thank the Committee for this wonderful opportunity of speaking before a group.

Before I begin I would like to bring to your attention two Bulletins, published by the Applied Research Institute at the Syracuse College of Environmental Services concerning cold storage; they are:

1. Review of Cold Storage of Coniferous Seedlings by Hocking and Nyland. Applied Forestry Research Inst. Report # 6 July 1971.
2. Fall Lifting for Overwinter Cold Storage of Conifers by Ralph Nyland. AFRI Report # 22 August 1974.

First off - why do we overwinter trees in a refrigerated building.

The most important reason is the ability to ship to our southern counties when they are ready to plant and we are still frozen.

The second reason is that it allows our work load to be spread out and organized into a regular work schedule defying the effects of weather. It also enables us to work with a smaller more efficient crew.

Also by counting our shrubs in December before the selling season is really started we have better control over our inventory and can sell without worrying about underruns and subsequent refunds. I don't know if other nurseries raising shrubs have trouble in their field inventories, but we do. Our labor budget has been trimmed so much that we cannot take all the counts that would be necessary to provide a real accurate inventory.

The last reason would be winter protection for sensitive species such as Japanese Black Pine.

Well that's why we do it - now when do we do it.

Over the years we have learned that seedlings should be in a dormant condition to be successfully stored at below freezing conditions. According to Ralph Nyland, when the new root tips only show .1 - .3 of an inch of new growth (white tissue) the trees are becoming dormant. In our area this is usually around Thanksgiving week. Ralph happened to be conducting his research at our nursery at that time and I can see him now "testing or tasting" the root tip of newly dug trees. What he was actually doing was removing soil from the root tips so he could determine the length

of the white tip. I personally find sand in my teeth to be objectionable so I stick to soil temperatures and wait until soil temperatures are below 50° before we start.

Actually the longer you can wait and still be sure of digging the trees the better off you are. The colder the seedlings are, the faster the entire crate cools down and the less chance of any interior heating. Mechanical harvesting makes it possible to dig much later than the conventional pulling method and I would have to say that mechanical harvesting is responsible for a good deal of the success we have had with our cold storage system.

All species we raise can be stored successfully, but we have experienced some problems with Black walnut, Larch and white Pine (if pulled in warm weather).

The seedlings are lifted by a Grayco Harvester, packed directly into 4 x 4 wood pallet crates that are lined with a poly-coated paper, covered with a 4 mil clear polyethylene that is tucked in on all sides and finally covered with a polypropylene tarp to hold it all in. No additional water is added and the tarps do a good job of preventing desiccation.

The crates are then placed into our cold storage and held at a temperature of from 28° - 30°F until processing time.

One bit of caution. If you are harvesting and it happens to be one of those beautiful fall days when the temperature is near 80°F you can have problems if your seedlings have fine needles and are packed too tightly. Heating can develop even after crates are put into the storage due to the time it takes for the cold to penetrate the interior of the crate. It probably is a good idea not to harvest on unseasonally hot days.

The storage temperature is maintained at 28° - 30°F. Our units have a manual defrost so we try to eliminate as much free moisture as possible to cut down on defrosting time. Once the building is stabilized, defrosting can be on a weekly basis in the winter, but has to be on a daily basis from April through the end of May.

The power cost for operating the unit and storing 11/2 million seedlings average out to be about 80 cents per thousand.

In December we count, grade and unitize the shrubs, then return them to storage for bagging in the spring (late March or early April).

Our shipping schedules are made out in the winter and all truckers and interested parties are given their shipping dates approximately two months in advance. This makes for an organized, hectic free shipping season that would not be possible without the use of the cold storage.

I've been personally involved in Nurseries for 25 years and

have seen the evolution of cold storage progress from the ammunition igloos of World War II to the modern up-to-date units of today and let me tell you that I'm proud to be a nurseryman and to have been a part of the evolution.

Associate Forester, NYS Department of Environmental Conservation,
Saratoga Tree Nursery.