

mid-September and they stayed in the frame for 1 year, after which they go directly to the field.

TOM McCLOUD: Was it just straight top soil that you used?

EVERETT VAN HOF: Yes, but we mix 3 inches of sand into the top soil.

TOM McCLOUD: Do you fumigate the medium or use any fungicides before you close the frames?

EVERETT VAN HOF: No.

VOICE: This method also works for junipers and spruce.

HANS HESS: Do you have sash bars for support or do you just butt them?

EVERETT VAN HOF: Just butt them against each other.

OIL SAVINGS IN PITHOUSE ROOTING OF RHODODENDRON AND LAUREL CUTTINGS

ADRIAN J. KNUTTEL

Knuttel Nurseries

Warehouse Point, Connecticut 06088

Five years ago, when the price of heating oil was only 17.9 cents per gal., fuel costs were not a major consideration in designing propagation facilities. Now that the cost of oil is almost 50 cents per gal., and is expected to go much higher, it seems appropriate to optimize designs for fuel economy. At our nursery, we have had good results with a pithouse. Ours is an H-shaped building constructed of cement blocks at a cost of approximately \$9000. The legs of the H are 96 × 11 ft. and 16 ft. apart. The connector between the legs is 12 × 16 ft. The walls of the connector and the inner walls of the legs are 7½ ft. high, and the outer walls are 6 ft. high. Soil is backfilled to about 10 in. from the top of the walls. The rafters are 2 × 6 spruce 3 ft. on center. There are 3 layers of plastic on the roof. We have 0.004 clear plastic on the underside of the rafters, 0.006 "602" on top cleated with 2 × 3's, and another layer of 0.006 "602" over the 2 × 3's. The connector contains a propagation work table, two oil heaters, and a wood stove for emergency heating. The oil heaters are 140,000 BTU hot air counter-flow furnaces with a one gallon per hour nozzle, and distribute heat by air ducts under the benches. The benches are 4 ft. wide with wire mesh bottoms and they are placed against the walls with a 30 in. wide concrete path between them. The floors under the benches are sand.

To look at the economics of the design, we will compare it with a conventional 30×96 foot double plastic walled propagation house. Bench space in both houses is the same. The conventional propagation house has 5400 sq. ft. of double layer plastic exposed, including an inflated roof. The pithouse has 2200 sq. ft. of triple plastic exposed, or 40.7% of the exposure of a conventional propagation house. The oil consumption in the winter of 1977-1978 amounted to 4860 gal. of #2 fuel in the conventional house, and 980 gal. of the same fuel in the pithouse, a savings of nearly 80%. Apparently the heat contributed by sub-frostline earth aids in maintaining proper temperatures.

In the pithouse, temperatures in spring and summer are easily controlled by fan and simple shading. For this we use 0.004 and 0.006 translucent white plastic left over from winter storage hoopouses. Because the temperature is so easy to control in the pithouse, we are able to have three crops of cuttings a year, whereas in the conventional propagation house, high temperatures make summer propagation impossible. Since it is so easy to keep the house cool, we have had excellent results propagating deciduous azaleas.

CHEMICAL AIDS IN ROOTING RHODODENDRON AND ILEX CUTTINGS

HARVEY GRAY¹

State University of New York
Farmingdale, New York

After making and observing the rooting of *Rhododendron* cuttings for 30 years, it appears that cuttings made during the November-December period produce a better percentage of good rooted cuttings than to those taken at other times. It now also appears that soaking the cuttings in a sodium hydroxide (NaOH) solution at a pH of 10.5 for 20 to 30 minutes before sticking in the rooting medium, gives much better rooting and higher percentages. This concept was developed by C.I. Lee, J.L. Paul, and W.P. Hackett and presented at the Western Region IPPS meeting in 1975 (1).

After reading this paper, I decided to run a few tests on the value of soaking wounded cuttings of *Rhododendron* and *Ilex* in NaOH solutions at pH 10.5. Trials with *Rhododendron* cuttings were made November 11, 1977 using cuttings formed during the August growth period of 1977. The *Rhododendron* cuttings were double wounded and soaked for 20 minutes in the

¹ Professor Emeritus