

Supervision .....	0.02	Heat (natural gas) .....	0.035
Employment taxes & insurance .....	0.04	Depreciation .....	0.005
		<b>Total Cost Per Liner</b> .....	<b>\$ 0.205</b>

We follow several practices that help cut the cost of producing liners. We are continuing to stick cuttings in the summer under mist. A large percentage of them will root and be ready for potting before winter, which reduces the cost of heat. We are also going back to one of the older methods of rooting. We are sticking cuttings in the winter in inflated poly houses with no heat. We leave them undisturbed until spring, at which time they will root and be ready to pot around June or July.

We formerly tried to maintain a 65°F bed temperature in our greenhouses. However, the price of natural gas continues to rise and we have decided to change to 50°F. We feel that the 50°F will still be warm enough to give us a certain amount of rooting during the winter.

Finally, we have found it is very important to keep a close count on the units a laborer turns out per hour or day. This makes it possible to identify and replace slow employees. In our area it is not difficult to hire new help at the present price of labor.

In conclusion there are three suggestions that can help a firm cope with inflation and stay in business: (1) Purchase only what is essential. (2) Keep good records of what each individual laborer does each day. (3) Watch finances as closely as possible.

## **SO YOU WANT A CLEAN NURSERY?**

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The objective of having a clean nursery must be important to management for it to be achieved. It must be top priority and it cannot be accomplished without work. By a "clean" nursery we mean one with a minimum of weeds. Plans are important and it is much easier to carry out those that are committed in writing.

Identification of the weeds to be eliminated is the first step. We have found the *Growers' Weed Identification Handbook* (1) published by the Agricultural Extension Service, University of California, to be very helpful. It has full color photographs and descriptions of most weeds. It also shows the weeds in both juvenile and mature stages.

Second, it is important to decide what course of action to take in the various areas of the nursery, including crop areas; fallow areas; and peripheral areas, such as turnrows, ends, roadsides, meadows, and ditches.

Third, the tools that are available should be reviewed. These can be mechanical or chemical. Mechanical tools include cultivators, discs, hoes and other. I am not going to review all of the available chemicals but only those used at Chase Nursery. These are Treflan, Roundup, Lasso, and Paraquat.<sup>1</sup> It is wise to store all herbicides in a separate, well-marked area or building.

The program we use at Chase Nursery Company is as follows:

We use a Lely Spreader, run closed, pulled behind an International 5We tractor, in low third gear, at PTO rpm, which gives us ground speed of approximately 4.4 mph. We go over every other 48 inch spaced row. We feel that it is important to apply Treflan immediately after planting because the ground is very finely pulverized at this time. This results in better dispersion of the Treflan granules. We do not incorporate the material. In fact, we do not even cultivate until we have had a good rain. This one application gives us good control through two growing seasons. We will make a fall application of granular Lasso in areas that are badly infested with broadleaf weeds.

In addition to the initial chemical application, we believe strongly in cultivators. No chemical will give 100 per cent control. On items that get too tall to go over with a cultivator, such as *Magnolia soulangeana*, saucer magnolia, and *Cornus florida*, flowering dogwood, we harvest every other row so that we can use a small disc. We think this is a very effective system.

Even with chemicals and cultivation, a few weeds survive. The one we find most persistent is *Cynodon dactylon*. We have found that spot applications of Roundup are very effective. Do not cultivate or disturb for 5 or 6 days following treatment. This technique will work equally well on johnsongrass, *Sorghum halapense*.

There are a few hardy weeds that will survive all of this and will need to be removed manually. If the nursery is 90 per cent clean already, it is not difficult. We find one person can then take care of 15 to 20 acres.

This covers our program in crop areas. In our fallow areas we use Sudax, *Sorghum bicolor* × *S. vulgare* var. *sudanense*, as a cover crop, if the land is free of bermudagrass and johnsongrass. Generally, we mow it three or four times before turning under the Sudax.

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<sup>1</sup> Treflan = trifluralin; Roundup = glyphosate; Lasso = alachlor

If we have bermudagrass or johnsongrass, we find that discing the ground deeply every five or six days will give satisfactory control. Let me emphasize that the hotter and drier it is, the more effective is this treatment.

Once crop areas are clean, it is important not to let weeds in non-crop areas grow and produce seeds to re-infest them. Roadsides, ditches, meadows, and turnrows can be troublesome. These areas can be mowed easily with a bush hog, or they can be disced. A spray rig equipped with a boom can be used to apply paraquat for a good quick kill on annual weeds. If the temperature is high, weeds will be killed in 3 or 4 hours. Remember, your objective in all of this is to eliminate seed production.

**SUMMARY:** If management develops a program, commits the program to writing, and makes certain personnel are working the program, the objective of a clean nursery will be achieved.

#### LITERATURE CITED

1. Fischer, B.B., Lange, A.H., McCaskill, J., and Campton, B. 1974. *Growers Weed Identification Handbook*, Agricultural Extension Service, University of California.

### **THE ROLE OF SCHOOLS IN TRAINING PLANT PROPAGATORS**

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What is the role of schools in training plant propagators? Unfortunately, there is no authority to say, "This should be taught. That should not." Even when curriculum guides are followed, there is question as to what should be emphasized. Each propagation situation is different, and the most used knowledge or skill in one will not often be the same as that most helpful in a different nursery, greenhouse, outdoor field, or inside lab. However, there should be certain basic concepts and skills that would be important to an individual learning specific requirements for a particular environment. What are these basics?

A representative sampling of propagators was asked to rate certain basic principles, technical knowledge, and applied skills as to their importance. A form, given as Figure 1, was sent to the propagators with the request that each one circle the 10 items most important for an individual interested in becoming a