

Containerized nursery stock for park and roadside planting

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The objective of a program begun in 1972 was to produce trees large enough in one year, to be visible to operators of maintenance machinery and also that could be planted at anytime during the growing season. To avoid damage from maintenance equipment, the Iowa State Highway Commission requested trees taller than 30 inches in height. The Conservation Commission required plant material no less than 12 inches in height. By starting trees in greenhouses during winter months, combining two methods of containerization, and optimizing growth conditions outdoors using lath houses and irrigation, the desired results

A system for growing large containerized stock at the State Forest Nursery is helping to meet the needs of park and roadside tree planters in Iowa.

were obtained for some species.

were prepared for planting by drenching them with a solution containing two tablespoons of captan fungicide per gallon of water. Seeds were sown directly in them and thinned

Procedures

Seeds were started in greenhouses each February. Jiffy-7 peat pellets

Literature Cited (Continued front p. 13)

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3. Matthews, R. C.
1971. Container seedling production: a provisional manual. Can. Dept. Environ., Can. For. Serv., Victoria. B.C. Inf. Rept. BC-X-58, 48 p.



to one seedling per pellet after germination. The seedlings were watered daily and fertilized twice weekly with a dilute solution of Agrico 20-20-20. Greenhouse temperature was maintained at 70° F. Solar irradiance was supplemented using fluorescent and incandescent lamps after sunset to extend the greenhouse photoperiod to 16 hours per day. Greenhouse culture of these seedlings included spraying foliage for insects, mites, and fungi with commercial materials.

In May, seedlings in the Jiffy-7's were potted in 2-gallon containers in a mixture of three parts sphagnum peat moss and one part perlite. The plastic containers, with four screened side openings at the bottom for drainage, were set outdoors on forklift pallets in lath houses (fig. 1).

Lath houses made of snow fencing on a wooden framework provided half-shade. Black, 6 mil plastic sheeting was used as flooring for weed control.

Sprinklers set on top of the lath houses were connected by plastic pipe sections of decreasing diameter to equalize water pressure along the length of the irrigation line (fig. 2). This arrangement irrigated all pots uniformly.

Fertilizer was applied weekly in conjunction with irrigation. Concentrated solutions of 1,058 g of Agrico 20-20-20 per 5 gallons of water were applied either with a Hydrocare 1:24 proportioner attached to a watering hose, or directly to the potting medium with a garden sprayer at the rate of one teaspoon per pot followed by overhead sprinkler irrigation.

Trees in containers were sprayed regularly with insecticide (Sevin) and fungicide (captan) as per instructions. This proved adequate for control of pests, with the exception of red spider mites for which Tedium at the rate of one teaspoon per gallon of water applied with a spreader-sticker was needed.

In early September, fertilization

Winter 1974-73

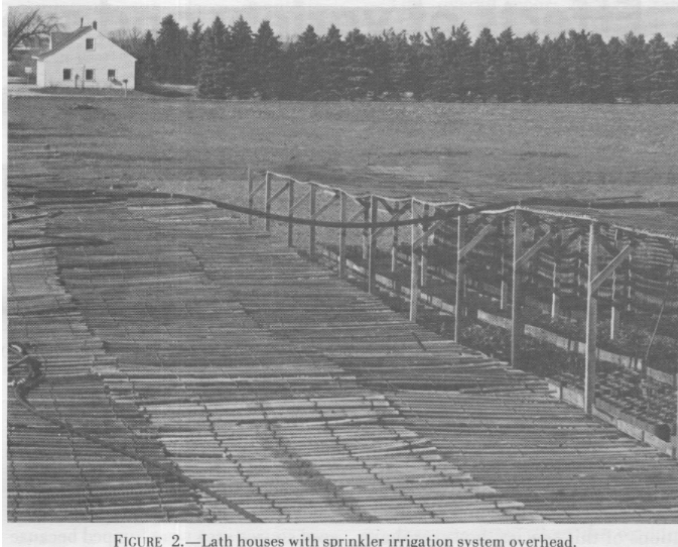


FIGURE 2.—Lath houses with sprinkler irrigation system overhead.

was discontinued and irrigation was tapered off to harden the stock. Most trees were shipped for planting in October,

Results

Because containerized stock has healthy, relatively undamaged root systems, trees can be planted in spring, summer, and fall. For the same reason, growth loss due to transplanting shock seems to be much reduced in comparison to bare-rooted or dug-and-balled stock. Most trees were

planted in the fall.

The Jiffy-7's caused some root constriction of the faster growing sycamores and European black alders. Other problems included some tree mortality caused by overwintering in containers, and mortality of stock that became root-bound during a second season of container growth.

Approximately 10,000 trees have been grown each year under the system described. Average height of species in stock September 1973 is listed in table 1.

TABLE 1.—Height of trees started from seed in February, 1973 measured in September, 1973

Species	Mean height in inches	
European black alder	36.7	Trees meeting Highway
Sycamore	34.2	Commission height requirement
Yellow birch	27.1	
Eastern redbud	22.1	
Amur maple	19.7	Trees meeting Conser-
Norway maple	16.3	vation Commission
European larch	13.5	height requirement
Green ash	13.2	
Scotch pine	5.3	Trees not meeting
Eastern white pine	5.2	either requirement
Norway spruce	4.4	