Propagation of French Hybrid Lilacs

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INTRODUCTION

Lilacs have traditionally been the cornerstone of many landscapes throughout the midwest. The colorful and fragrant flowers were a subtle reminder that the spring season was in full swing. The ever-changing family of lilacs offers numerous cultivars with a wide selection of shape, size, flower color, and leaf texture. The emphasis of this paper will be on *Syringa vulgaris* and the propagation of cultivars using softwood cuttings stuck directly into the soil. The amended soil used is formed into temporary beds using lumber to keep them in place and throughout this paper will be referred to as ground beds.

We at Scarff's Nursery have built a consistent and ever increasing request for large lilacs to be used in landscapes mainly on the East Coast. We are presently growing 10 cultivars and planning to add more. In order to supply the market we needed to produce a liner quickly and transplant it to produce a finished product in 5 years. There were many options to consider when producing the liners including grafting, buying in tissue culture plugs, and propagating softwood cuttings. We chose the last option because it was economical and fit into our production program. The following paper will provide procedures and cultural practices we use to produce a quality lilac liner.

GROUND BED PREPARATION

The area used for our ground beds consists of approximately ½ acre. We alternate the beds every other year as the liners are grown as a 2-year crop. When the ground is idle it is kept weed free and is amended with recycled potting media, perlite, and comtil.

Bed preparation begins in mid-April with a final herbicide application being sprayed to kill any lingering weeds. After 5 days the soil is rotivated using a Howard rotivator. The beds are laid out using irrigation risers as focal points so at a later time 2-inch irrigation pipe can be set down between the beds. The beds are 105 ft in length and 5 ft wide with 24-inch aisles between them. We connect two of the beds together with a hoop thus forming a 12 ft wide temporary hoop house to overwinter the newly rooted plants. The 5-ft beds accommodate our undercutter when harvest occurs. The old beds are dismantled and the same shade cloth, hoops, re-bar and lumber is used to build the new ones. Irrigation is set up for frost control once the shade cloth has been removed.

The beds are formed by hand and lumber moved in complete sections. The lumber used is CCA treated 2 inch × 6 inch × 16 ft boards connected with metal truss plates and held in place with 18-inch stakes made from re-bar. The soil depth is set 2 inches from the top of the boards as sand is used to level them off. The sand used is a washed sand and #9 gravel mix (7 : 3, v/v). This top layer of sand makes the dibble board pattern easier to read and allows the cuttings to stand upright making them easier to stick. Once the beds are framed and sand is added they are sprayed with Vapam, a soil fumigant. The Vapam is drenched in and the beds are covered with clear plastic and left for 3 days. The soil temperature must reach 70°F to activate the fumigant.

After the soil has been sterilized the plastic is removed, beds are raked to aerate the soil, and the hoops are set in place. A 75% shade cloth is placed over the hoops. The mist system is then put in, using 1-inch poly tubing, 3-ft stakes, Eddy mist nozzles, and a Davis 812 controller. The whole bed preparation process should be completed by mid-May.

STICKING SOFTWOOD CUTTINGS

The window of opportunity for taking softwood cuttings of *S. vulgaris* can be very limited. The weather is the biggest factor, which regulates the growth of the 2-year-old stock plants. The10-inch tip cuttings are taken mid to late May when the new growth is still fleshy and hasn't started to harden off. The cuttings are trimmed to a uniform length of 7 inches, lower leaves stripped off, and upper leaves clipped to allow air and light movement. They are then quick-dipped in a Woods rooting hormone that was diluted 1 : 4 using distilled water. The cuttings are transported in wet burlap and stuck 20 to a row using a dibble board to set the pattern. A 6-inch space is left between cultivars with a label at each end. Each bed holds approximately 7500 cuttings, making a total of 15,000 per hoop house. As the bed is progressively filled it should be covered with a clear 4-mil poly sheet.

The mist system is set to come on for 8 sec every 8 min; this may vary under full sun or cloudy days. It begins at 10:00 AM and shuts down at 6:00 PM. Once the hoop house is completed, the poly is drawn over it and sealed up. This creates intense humidity and protects the mist and plants from wind drifts. In 4 weeks the cuttings should start to callus and send out initials. At this time the poly can be vented to help reduce extreme hot temperatures. In 6 weeks the cuttings should be rooted and the mist reduced to harden off the cuttings. After 8 to 10 weeks the plants are drenched with a fungicide and fertilized with two applications of 10N-52P-10K. At this time the poly is removed and the shade cloth kept intact.

CULTURE, OVERWINTERING, AND HARVEST

The cuttings are trimmed to a height of 12 inches in August and are hand weeded as no herbicide is applied. After the plants are weaned from the mist, they are irrigated overhead with Rainbird 25 heads off a 2-inch aluminum irrigation pipe. The plants are kept moist and every 2 weeks an application of 21N-7P-7K liquid fertilizer is applied until the end of August. At that time the shade cloth is removed to harden the plants off for winter. In December the hoops are covered with a single layer of 4-mil white plastic. They are heavily baited with both granular and bar rodent bait and moth balls. Depending on temperatures, the last step before closing them for winter is to cover each bed with Gilbond, a brand name poly-foam winter protection blanket.

The following spring the blankets are removed and hoop houses left open so the liners break dormancy in a timely manner. The white poly protects them from frost until irrigation lines are set up. The second year plants are irrigated with Rainbird 25 heads off a 2-inch aluminum irrigation pipe. They are fertilized every 10 days with Plantex 21N-7P-7K liquid fertilizer. Cuttings are taken off them in May and then they are trimmed to a height of 14 inches. Cuttings are sprayed every 2 weeks with an insecticide/fungicide mix. In November when they have lost their leaves they are harvested with a Egedal undercutter. Cuttings are transported to cold storage where they are root pruned, graded, and packed accordingly by taxa to sit through the winter season. In the spring they are planted on 40-inch spaces.

CONCLUSION

By implementing the above procedures we have found a satisfactory rooting percentage for propagating French hybrid lilacs Each year the percentage varies, but we still have found this ground bed method the most economical way to produce quality lilac liners. After 2 years in our ground beds and 3 years in the field we have been able to harvest a 3- to 4-ft lilac ready to ship to our customers We are continually striving to increase the rooting percentage by making subtle changes, but by following the procedures in this paper, lilacs can be successfully propagated by softwood cuttings and grown on to a large quality specimen shrub.

LITERATURE CITED

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The Educational System in Denmark

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I would like to thank IPPS Scandinavia who made this trip possible for me and Eastern Region for letting me speak at their annual meeting. My presentation will focus on horticultural education in Denmark and I will discuss the following categories

- Primary, secondary, and high school.
- Basic education groups
- Higher education groups.
- Education at university level

PRIMARY, SECONDARY, AND HIGH SCHOOL

Danish children start at primary school when they are 7 years old and almost 98% of them enroll in preschool classes 1 year before They attend school for 9 or 10 years; only 45% attend the last year. It is optional for pupils to finish primary school by taking examinations in the most important disciplines. English is taught from the 4th year, and German or French from the 7th year Most children go to public schools that are free and paid by the government After finishing primary and lower secondary school approximately 45% of the pupils enroll in upper secondary school or high school.

BASIC EDUCATION GROUPS

Some basic education groups can be attended directly after primary and lower secondary school whereas others require upper secondary school. Basic education groups are provided by institutions such as technical and business colleges and by institutions with university status.

Technical colleges are basically divided into four groups according to sector

- Technical colleges (trades and industries and service trades).
- Business colleges (commerce and administration)