

Rooting Double White French Hybrid Lilacs—Power vs. Liquid IBA

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INTRODUCTION

Because of difficulty in rooting double white lilacs at the Royal Botanical Gardens (R.B.G.) using our conventional method of 8000 ppm IBA in talc, we decided to treat cuttings of seven double-white, French-hybrid cultivars with 5000 ppm IBA in alcohol and compare the results with our conventional method. The results showed there may be a minimal advantage towards using alcohol over the talcum powder and that *Syringa vulgaris* 'Krasavitsa Muskovy' was by far the best double white lilac to be rooted from softwood cuttings.

Lilac propagation has been a leading priority of R.B.G. for some time. A concern has been to make sure lilacs are on their own roots to help insure trueness-to-name and to help avoid incompatibility problems, hence the reason for rooting lilacs from softwood cuttings.

MATERIALS AND METHODS

Double-white, French hybrid lilacs used in this study included (Rogers, 1976):

'Krasavitsa Muskovy'	Kolesnikov, USSR, 1963
'Madame Lemoine'	Lemoine, France, 1890
'Professor E. H. Wilson',	Havemeyer, New York, 1943
'Oakes' Double White'	Meador, New Hampshire, 1963
'Rochester'	Grant, New York, 1971
'McMaster Centennial'	Brown/Pearson, Ontario, 1987
'Saint Joan'	Blacklock, Ontario, 1953

Lilac propagation is done in an unheated, quonset-style, fiberglass-covered greenhouse measuring 10 x 30 ft (Graham, 1986). There is an exhaust fan at one end and during the summer months the house is covered to provide 50% shade inside. There are two benches, one on each side with an aisle down the middle. The benches are filled with sharp sand and thermostatically controlled electric heating cables are buried within to provide constant bottom heat of approximately 70°F. Humidity and irrigation are provided by an intermittent mist system. The mist nozzles used are 'Pate B10' which are brass, have a 1-mm orifice and a discharge of 0.9 liters per minute at 25 psi. The nozzles are spaced at 36-in. centers on a 1/2-inch copper line suspended about 18 in. above the cuttings. Water to the line is controlled by an electric solenoid valve. Preceding the solenoid valve in the water line is a 1/2 in. line strainer to remove any debris which might clog the nozzles. The solenoid valve is activated by 2 time clocks wired in sequence. The first clock runs a standard 24 hour cycle. During its "on" period, it activates a 30 min time clock with 30 sec calibrations. The on periods for both of these clocks are manually altered based on prevailing weather conditions. Typically on a sunny July day 30 seconds of mist would be applied every 15 minutes between 8:00 a.m. and 7:00 p.m. The water used is city water with a pH of about 7.4.

All lilac cuttings are rooted in wooden boxes with inside dimensions measuring 22 × 10 × 3.5 in. The rooting medium is a homogeneous mixture of 4 parts sharp sand to 1 part screened sphagnum peat moss. The medium is suitably moistened prior to sticking the cuttings. The pH of the medium is not monitored on a regular basis, but is decidedly alkaline.

Maturity of the wood is a key factor in softwood cutting propagation. If taken too early, cuttings are soft and very perishable; if taken too late, they become woody and difficult to root. In Hamilton, harvesting of cuttings is done after flowering during the first two weeks of June, when the softwood shows a dappled brown colour.

Early morning or rainy days are the best time to collect the cuttings. Generally, the cuttings collected are 4 to 7 in. long and have 4 to 6 pairs of leaves. Poor growth, diseased material and rank or sucker-like growth should be avoided. After being severed from the plant the cuttings are dipped in water and stored in plastic bags in the shade until needed.

All cuttings are prepared individually in a shaded area. The lower one or two pairs of leaves are removed and a fresh basal cut just below a node is made leaving 2 or 3 pairs of leaves. The leaf area may be reduced by half to permit greater density of cuttings while still maintaining adequate air circulation. A 1/2 in. wound is made on one side of the cutting above the basal node.

All the cuttings were collected and stuck in one day. We took as many cuttings as we could from each cultivar. Half were dusted with 8000 ppm IBA in talc (0.8% IBA Stim-Root No. 3) and the other half were dipped in 5000 ppm IBA in alcohol (0.5% IBA Stim-Root Liquid 5000).

Due to the lack of cuttings we did not stick a control group of cuttings. The cuttings were then inserted into prefilled boxes of rooting medium on 1.5 to 2 in. centers. Filled boxes were then moved to the mist house and closely monitored. The average time for lilacs to root is 7 to 10 weeks. We did not have time to tally the results until the first of October.

RESULTS

First we counted the number of roots on each cutting and tabulated the results (which we have but are not shown here). We then added all the cuttings that rooted and presented them as a percent of cuttings rooted (See Table 1).

Secondly each cutting was rated on a scale of 0 to 5 according to the quality of roots:

0 = Cutting is dead

1 = Cutting is alive, no callus or roots

2 = Cutting is alive with one root, survival is doubtful

3 = Cutting is alive with several roots, little branching, survival is questionable

4 = Cutting is alive with several roots, all with some branching, survival is likely

5 = Cutting is alive with abundant vigorous branching roots, survival is very good.

The cuttings which were most likely to survive (ratings 4 and 5) were then added together and presented as a "Percent of cuttings likely to live."

The findings show that using 5000 ppm IBA in alcohol is slightly better than using 8000 ppm IBA in talc. 'Krasavitsa Muskovy', 'Madame Lemoine', 'Professor E. H.

Wilson', and 'Oakes' Double White' all had high percentages of rooting. On viewing the column of Percent of Cuttings Likely to Live only 'Krasavitsa Muskovy' had a high total making it the preferred cultivar to root.

Table 1. The effects of IBA concentration and application method on lilac cutting rooting.

Cultivars	Number of cuttings	IBA concentration (ppm)	Cuttings rooted (%)	Cuttings likely to live (%)
Krasavitsa Muskovy	100	8000 talc	96.0 ¹	82.0 ²
	100	5000 alcohol	92.0	79.0
Madame Lemoine	100	8000 talc	83.0	51.0
	100	5000 alcohol	94.0	63.0
Professor E.H. Wilson	75	8000 talc	76.0	40.0
	75	5000 alcohol	78.7	46.6
Oakes' Double White	100	8000 talc	78.0	42.0
	100	5000 alcohol	61.0	39.0
Rochester	75	8000 talc	34.7	17.3
	75	5000 alcohol	44.0	20.0
McMaster Centennial	40	8000 talc	10.0	0.0
	40	5000 alcohol	15.0	0.0
Saint Joan	100	8000 talc	6.0	0.0
	100	5000 alcohol	4.0	1.0

¹Any cutting that had just one root was recorded as rooting.

²Numbers 4 and 5 from the scale to measure the quality of roots were added together to make the column "Cuttings likely to live".

LITERATURE CITED

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- Rogers, O.M.** 1976. Tentative international register of cultivated names in the Genus *Syringa*. New Hampshire Agriculture Experimental Station. University of New Hampshire Durham, New Hampshire. pp. 37, 48, 62, 53, 65, 67.