

PRODUCTION OF LILAC PLANTS FROM CUTTINGS

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This paper will describe our experience over the past three years in rooting and growing lilacs from cuttings. An examination of the literature on this subject revealed a surprising lack of information. Only four references were found, one by a professional, one by an amateur and a mention in two books. In "Plant Propagation Practices" by J. S. Wells, a chapter is devoted to Lilacs, one page describes Lilacs from cuttings, while three pages are used to describe his method by grafting. The page that describes Lilacs by cuttings quotes the professional previously mentioned. Wells ends the chapter with a paragraph on the controversial aspect "Cuttings versus Grafts". McKelvey's book, "The Lilac" devotes many pages to the propagation of Lilacs, a host of growers prefer grafting, only two favor growing by cuttings but no directions are given for this method.

The professional mentioned above is H. Kirkpatrick, Jr. of The Boyce Thompson Institute who writes in the *American Nurseryman*, April 1, 1939 on results of rooting Lilacs with the aid of the root inducing agent indolebutyric acid. The results ranged from failure on most of the untreated check lots to results of 50-75-100% on lots of treated cuttings. He used varieties of *Syringa vulgaris*. This work was done before the advent of any form of mist propagation.

The report by the amateur is interesting for it follows the frequent and peculiar methods employed by these people. This is a report by Francis C. Wilson in the "Gardeners Chronicle of America," April 1947, page 101. The varieties used were not named but all were forms of the common lilac. Eight inch cuttings from vigorous shoots were taken on June 3 and treated with a hormodin powder. Cuttings were stuck in sand to their full depth, leaving only the terminal bud and the two top leaves above the sand. In a shallow frame, results of 75% were obtained, but when she moved to a deep frame, results moved up to 98%. He attributed the better results to a more humid condition found in the deep frame. An additional irony is that in the experience of Kirkpatrick and myself, these long cuttings from vigorous growing shoots have given us the poorest results.

When the results of today's discussions are published, the void in the literature on the propagation of lilacs by cuttings will be filled, and we will leave unsettled the controversial question of cuttings versus grafts.

Our cuttings have been taken from plants of all ages and sizes, but all of blooming age. The cutting material was selected from the upper half of the plant and all were the stronger growing side laterals, 3 to 6 inches long. The very long and vigorous shoots common on younger plants and made into long tip cuttings or second cuts have produced very poor results. The time for taking the cuttings ranged from June 12 to July 11. Results were equally as good from those taken on the later date as any taken earlier. On July 11 this year 14 lots were taken,

10 of which were *Syringa vulgaris* varieties and of these 14 lots, 10 lots rooted nearly 100% without any treatment — of these 10 lots well rooted — 7 lots were *Syringa vulgaris* varieties. Cuttings were made 3 to 6 inches long and the two top groups of leaves were left after trimming them back about one half their surface. The basal cut was made just below a node, when made above a node very poor results were obtained. All lots were small, from 2 to 15 cuttings per lot and were divided into check lots and those treated with Hormodin No. 3 and this year a 1% mixture was also used.

Cuttings were inserted in flats that are 4 inches deep and filled with a local torpedo sand, cuttings were pounded in and watered down. A small greenhouse was used that was provided with a fogging machine set to create 90% humidity. The first two years slated lath shades were used on the roof. This past year the house was provided with intermittent mist and no shade was used on the house.

We have found lilacs in the cutting bench to be sensitive to an excessive amount of water, due to extra watering that can occur or to any form of drip. The cuttings respond by a water logged appearance of the leaves and defoliation, followed by rotting of the cutting.

Cuttings were allowed to go dormant in the greenhouse and lifted in early December and packed rather tightly in polyethelene bags long enough to take their entire length. A small amount of damp sphagnum moss was placed in the bottom of the bag, the top of which was left open. The bags were packed into apple boxes and wintered in cold storage.

In the spring the cuttings have either been planted directly to nursery beds or potted and placed in a warm greenhouse and transferred to beds in the late spring. The cuttings will quickly make a length of growth, depending on the growth characteristics of the particular variety, and then go dormant. Attempts have been made to force additional growth after mid-summer by foliar feeding but the results are not satisfactory. This early dormancy condition we believe, arises from the type of cutting used, and is carried over from the plant furnishing the cutting. With some varieties, especially the *vulgaris* types, this one flush of spring growth and then going dormant persists through the second year. In the third year this growth habit breaks down and plants continue growth through the growing season.

In 1954, 8 lots were taken and all lots rooted from 50-100% with almost the same rate of survival. In 1955, 128 lots were taken and 104 lots rooted from a low percent to a high percent. Of these 104 lots 10 lots failed after being planted in pots and into beds later on. Most of the lots that failed in 1955 were retaken in 1956. In 1956, 51 lots were taken and 38 lots rooted with all degrees of success, while 13 lots failed. A number of these failures have been tried twice.

A list of the results for these species and varieties is included at the end of this paper. Results, except for this year are based on survival after rooting, storage and subsequent planting.

Results in the cutting bench vary according to variety. Most Varieties of *Syringa oblata dilatata* and *S. oblata giraldu* and *S. Prestonia* root quickly with excellent results and equally high survival. Results

with *S. vulgaris* varieties vary from those that will not root through all the possible results to those that root with a high percent and provide the same rate of survival. In most instances when rooting was above 50%, both check and treated cuttings were rooted but treatment provided more and stronger roots and a better survival. When rooting was below 50% the treated cuttings proved to be the better ones, in a few cases the check or untreated lots were the only ones rooted, treated material would form little or no roots.

ROOTING CLASSIFICATION OF LILACS

The number preceding the variety name indicates the final percentage of rooting:

1—75 to 100%	2—40 to 75%	3—below 40%	4—Failure to root.
4 - "Carlton" RS		3 - vulgaris "Amethyst"	
2 - chinensis "le Troyers"		3 - vulgaris "Anne Schiach"	
3 - "Germinal" HT		3 - vulgaris "Arthus William Paul"	
2 - "Grace Mackenzie" CD		3 - vulgaris aurea	
1 - "Hedin" VS		2 - vulgaris "Candeur"	
1 - "Hunting Tower" VS		4 - vulgaris "Capitaine Perrault"	
2 - EH-D "Assessippi"		3 - vulgaris "Carolyne Mae"	
2 - EH-D "Evangeline"		1 - vulgaris "Christophe Colomb"	
1 - EH-D "Excel"		3 - vulgaris "City of Kalama"	
3 - EH-D "Fraser"		3 - vulgaris "City of Longview"	
1 - EH-D "Laurentian"		1 - vulgaris "Claude de Lorraine"	
2 - EH-D "Minnehaha"		2 - vulgaris colmariensis	
1 - EH-D "Nokomis"		2 - vulgaris "Comte de Kerchove"	
2 - EH-D "Pocahontas"		2 - vulgaris "Crampel"	
1 - EH-D "Swarthmore"		3 - vulgaris "Crepuscule"	
2 - oblata Giraldii nana		1 - vulgaris "Dame Blanche"	
4 - EH-G "Kate Sessions"		3 - vulgaris "Danton"	
2-EH-G "Montesquieu"		3 - vulgaris "De Jussieu"	
4 - EH-G "White Hyacinth"		2 - vulgaris "De Saussure"	
1 - persica laciniata		2 - vulgaris "Desfontaines"	
4 - Potanini		2 - vulgaris "Deuil d'Emile Galle"	
1 - Prestone "Dawn"		3 - vulgaris "Diderot"	
2 - Prestone "Ethel M. Webster"		2 - vulgaris "Doyen Keteleer"	
1 - Prestonae "Handel"		2 - vulgaris "Dr. Charles Jacobs"	
1 - Prestonae "Hecla"		2 - vulgaris "Dr. Maillot"	
2 - Prestonae "Hiawatha"		3 - vulgaris "Dr. Noble"	
2 - Prestonae "Kim"		2 - vulgaris "Duc de Massa"	
2 - Prestonae "Regan"		2 - vulgaris "Edmond Boissier"	
4 - pubescens		3 - vulgaris "Elizabeth Mills"	
2 - villosa aurea		3 - vulgaris "Emile Gentil"	
3 - vulgaris "Admiral Farragut"		3 - vulgaris "Emile Lemoine"	
4 - vulgaris alba grandiflora		2 - vulgaris "Emil Liebig"	
2 - vulgaris "Alice Harding"		2 - vulgaris "Etoile de Mai"	
4 - vulgaris "Allison Gray"		3 - vulgaris "Fraicheur"	
4 - vulgaris "Alma"		3 - vulgaris "Frank Klager"	
3 - vulgaris "A. M. Brand"		2 - vulgaris "Fred Payne"	

- 1 - vulgaris "Geant des Bataille"
3 - vulgaris "General Sherman"
2 - vulgaris "George W. Aldridge"
1 - vulgaris "Glory of Aalsmeer"
3 - vulgaris "Henri Robert"
3 - vulgaris "Henry W. Long-fellow"
3 - vulgaris "Herman Eilers"
3 - vulgaris "Hiram H. Edgerton"
4 - vulgaris "Hyazinthenlied" "
3 - vulgaris "Jan Van Tol"
2 - vulgaris "Jeanne d'Arc"
2 - vulgaris "Joan Dunbar"
1 - vulgaris "Jules Ferry"
4 - vulgaris "Julien Gerardin"
3 - vulgaris "Justi"
3 - vulgaris "Katherine Haver-meyer"
1 - vulgaris "Lady Lindsay"
1 - vulgaris "Languis"
3 - vulgaris "La Tour d'-Auvergne"
3 - vulgaris "Leopold II"
1 - vulgaris "Louise Henry"
4 - vulgaris "Marceau"
3 - vulgaris "Marechal Foch"
3 - vulgaris "Marengo"
4 - vulgaris "Marie Finon"
1 - vulgaris "Martha"
3 - vulgaris "Massena"
3 - vulgaris "Maurice Barres"
3 - vulgaris "Maurice de Vilmorin"
3 - vulgaris "Maxime Cornu"
2 - vulgaris "Midwest Gem"
2 - vulgaris "Mme Abel Chatenay"
3 - vulgaris "Mme. Kreuter"
2 - vulgaris "Mont Blanc"
3 - vulgaris "Monument Carnot"
3 - vulgaris "Mrs. Flanders"
1 - vulgaris "Mrs. W. E. Marshall"
3 - vulgaris nana
3 - vulgaris "negro"
3 - vulgaris "Paradise"
4 - vulgaris "Pasteur"
2 - vulgaris "Paul Hariot"
3 - vulgaris "Paul Thirion"
4 - vulgaris "Planchon"
4 - vulgaris "President Fallieres"
2 - vulgaris "President Loubet"
3 - vulgaris "President Massert"
3 - vulgaris "President Monroe"
1 - vulgaris "Prince de Beauvau"
2 - vulgaris "Princess Camille de Rohan"
2 - vulgaris "Princesse Clementine"
3 - vulgaris "Professor Sargent"
4 - vulgaris "Professor E. Stoekhardt"
3 - vulgaris "Rabelais"
2 - vulgaris "Reine Marguerite"
3 - vulgaris "Renoncule"
3 - vulgaris "Roi Albert"
2 - vulgaris "Ronsard"
1 - vulgaris "Rosace"
3 - vulgaris "Saturnale"
3 - vulgaris "Siebold"
2 - vulgaris "Sonia Collax"
3 - vulgaris "Souv. de Claudius Graindorge"
2 - vulgaris "Souv de Henri Simon"
3 - vulgaris "Splendor"
3 - vulgaris "Todmorden"
3 - vulgaris "Tomboucton"
1 - vulgaris "Toussaint l'Ouverture"
3 - vulgaris "Triomphe de Orleans"
3 - vulgaris "Triste Barbaro"
3 - vulgaris "Turenne"
1 - vulgaris "Versaliensis"
3 - vulgaris "Verschaffelt"
3 - vulgaris "Vesuve"
2 - vulgaris "Virginia Becker"
3 - vulgaris "Virginite"
4 - vulgaris "Volcan"
3 - vulgaris "William C. Barry"
2 - vulgaris "William Robinson"
4 - vulgaris "W. K. Mills"

PRESIDENT SCANLON: Thank you, Roy. Our last speaker this afternoon will be our good friend, Carl Kern, Wyoming Nurseries, Cincinnati, Ohio

THE USE OF GRAFTS TO OBTAIN OWN-ROOTED LILACS

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Recently I became the well-pleased owner of a copy of *The Lilac*, a monograph by Susan Delano McKelvey. My interest was aroused concerning the most satisfactory method of propagation of the hybrids of *Syringa vulgaris*, better known to the trade under the term of 'French Lilacs.' The work of this author is an outstanding achievement in the annals of writings in horticulture, especially of a genus possessing such complex aspects as the lilac with its many garden forms and varieties.

I have studied the able comments made by many authorities, such as the late E. H. Wilson, E. O. Orpet of California, the late John Dunbar of Highland Park at Rochester, N.Y., the eminent hybridizer of lilacs, Mr. Emile Lemoine, Nancy, France, and many other European and American experts. I am impressed by the many theories as to methods of propagation and as to desirability of suitable understocks. A summary of opinions, however, clearly shows that hybrid lilacs on their own root are the most desirable.

There are only three possible ways for the increase of lilacs on their own roots by the usual vegetative methods of propagation: Cuttings, layers, and suckers

Cuttings: Cuttings may be made from partly-ripened green-wood during April and May depending upon the locality. They are treated in the usual manner as soft-wood cuttings of woody plants. The production of saleable plants from such cuttings is often a long and tedious process and entirely too costly from the viewpoint of the producing nurseryman, as he must meet the competition of budded or grafted lilac plants in the open market.

Layering: This is a good method which perhaps has been most practiced in Europe and especially in England. Here again we are confronted with the important factor of the time involved.

Suckers: The practice of taking suckers or runners from own-root plants is feasible. They are often produced freely with some varieties but others will sucker very sparingly or not at all. This erratic behavior of many of our hybrid lilacs is proof enough that we could not depend entirely upon this way of propagation for general satisfactory results.

In the conclusion of an article written by the late John Dunbar of Highland Park on lilac propagation (Florists Exchange, Sept. 1923) he stated: "There is an urgent demand for lilacs on their own roots for permanent plantings, and, whatever methods nurserymen adopt, the aim should be ultimately to establish them on their own roots."