# Lilacs

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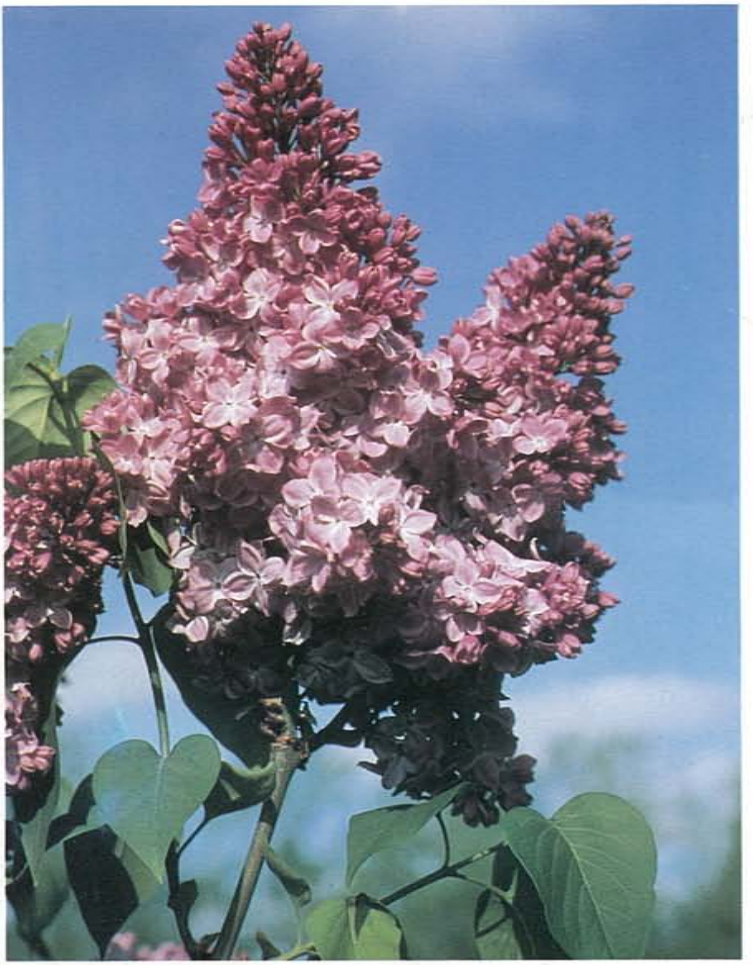


# QUARTERLY JOURNAL

of the International Lilac Society


*IN THIS ISSUE:*


Research on Lilacs

Regional Vice Presidents

VOLUME 26, NO. 4 QUARTERLY JOURNAL

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## International Lilac Society



### Membership Classification *(U.S. Funds)*

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|---|---|
| Single or Family / Annual | $ 20.00 |
| Sustaining | 30.00 |
| Institution/Commercial | 35.00 |
| Life | 160.00 |

*• Mail membership dues to Asst. Treasurer Robert Gilbert*

INTERNATIONAL LILAC SOCIETY is a non-profit corporation comprised of individuals who share a particular interest, appreciation and fondness for lilacs. Through exchange of knowledge, experience and facts gained by members it is helping to promote, educate and broaden public understanding and awareness.



LILACS 1997 PUBLISHED OCTOBER 1997

## Cover Story

### *Front Cover*

'Sesquicentennial' – one of the many lilacs developed by Richard Fenicchia. A single lilac. Father Fiala listed it among the "best" in its color class. Photo credit: Highland Park (Rochester, New York, USA).

### *Back Cover*

The Lilac Court in Pillnitz Castle Park near Dresden, Germany. See the article by Peter Schmidt in this issue. Photo credit: Peter Schmidt.

## Next Issue Deadline

The deadline for the next issue of **Lilacs** will be December 8th, 1997.

This is the Membership Issue so everyone should check their listing in last year's issue. Is the information correct? Do you want any changes made? Now is the time to let us know how you want your name and address sent out.

# IN MEMORIAM

## *Richard A. Fenicchia*

*Dick Fenicchia with lilacs.*

Richard Fenicchia, known for the hundreds of varieties of lilacs, rhododendrons and azaleas that he created during his career, died January 27, 1997, at his home in Webster, New York. He was 88.

Mr. Fenicchia's career in horticulture began in 1924 when, at the age of 16, he took a job with the Rochester Parks Department. He attracted the attention of Superintendent Barney Slavin by his enthusiasm and uncommon interest in plants. He went on to play a leading role in the beautification of city parks, particularly Highland Park where he rose to be superintendent with the Rochester (later Monroe County) parks, a post he held for 15 years.

Dick's first success came in raising a white-flowered *Begonia semperflorens* in the park's greenhouses. Besides tender plants he worked with hardy ornamentals such as barberry, crab apple, hydrangea, magnolia, maple, rhododendron and lilac. Among his greatest successes are the paperbark maple (*Acer griseum* × *nikoense*), the dark-flowered magnolia (*Magnolia liliflora* × *soulangeana 'Nigra'*), the early magenta-flowered rhododendron (*Rhododendron carolinianum* × *dauricum*), and the 'Rochester' strain of common lilac, this latter into the second and third generation. A partial list includes such outstanding cultivars as 'Dwight D. Eisenhower', 'Flower City', and 'Frederick Law Olmsted'.

Overall, Dick Fenicchia created about 250 varieties of flowers including the 'Dwight D. Eisenhower' lilac that was planted at the White House during the Nixon presidency. The International Lilac Society has called him one of the 20th century's most outstanding contributors, and made him the first recipient of their prestigious Director's Award in 1972 "for outstanding work in hybridizing the lilac and producing the new 'Rochester' cultivar." He retired in 1978. His contributions to horticulture and to Highland Park will be remembered with a memorial plaque placed near the entrance to the Rhododendron collection in Highland Park.

Mr. Fenicchia is survived by three daughters, Linda, Ilene Scardino, and Lorraine Jackson; two grandchildren; and one great-grandson.

# Editor's Notes

### *Sherer's Garden*

Regular readers of **Lilacs** will remember the article and back cover picture telling about the Sherer's garden and their open house in 1996. Unfortunately things do not continually go onwards and upward. I share with you an excerpt from a note Connie Sherer sent this spring.

> *"We had a very mild winter then a sudden hard cold spell with lots of snow. Then, this spring, we had late frosts. Our lilacs only bloomed about 35% of what they should. The winter seemed to do the most damage, as bloom buds were there but never developed. So we will have to rest on our merits from last year. We had lovely bouquets this year in spite of the poor bloom. The Russian cultivars from Max Peterson came through the best.*
>
> *At long last I'm back on my feet from my heart attack and bypass surgery. There have been so many complications for over a year. My husband is fairly well since his car wreck (at the same time as my heart attack). He is retiring mid-July and we can hardly wait."*

I'm sure that all true gardeners will commiserate with the Sherer's garden woes and all ILS members will wish them good health and happy retirement. Personally I can't imagine a better place to retire than in the middle of a planting of lilacs.

Did you notice, in the last issue of **Lilacs**, that "Generally speaking, lilacs seem to be less palatable to moose that many other shrubs and trees". I don't know how many of you have a moose problem but their aversion to the plants should certainly be added to our list of reasons for planting lilacs.

### *Correction . . . Correction . . . Correction*

Two mistakes in Dr. Pringle's article *"An Updated Summary of Classification in Syringa at the Ranks of Species, Subspecies and Variety* that was published in Vol. 26, No. 1, pages 19-26 have been called to our attention. The first is the omission of part of a sentence on page 24 (5th

line down from the top). The whole sentence should read:

> "The possibility that the name of a parental species may be changed is one of the reasons that the CODE recommends (but does not require) that **the epithets for hybrids not be formed by combining portions of** the epithets of the parental species."

The boldface indicates the portion of the original that was omitted.

The second concerns the authority of the combination *Syringa reticulata* on page 26, (2nd line) which appeared as Hare when it should have been Hara. The full name, with its authority should read as below.

*Syringa reticulata* (Blume) H. Hara

Please note both of these changes to the original article in Vol. 26 No. 1.

### *Inventory Database*

How many lilacs are there in cultivation? Over the years quite a number of collection inventories have been published in **Lilacs** and other ILS publications but this information has never been consolidated into a database nor updated as changes occur. Such a database would be most helpful to people searching for a specific cultivar or the Registrar working on nomenclatural problems.

What we need is an ILS computer buff interested in developing such a database. The person would not need to know everything about databases, Freek Vrugtman would be most willing to supply expertise and the Editor could provide a list of inventories published by the Society over the years. If anyone is interested in more information about being involved in such a project, please contact me (your editor whose address is inside the front cover) and I'll contact all the other resource people.

### *Photo Credit*

Did you enjoy the lilac stained glass picture on the back cover of the last issue? Somehow it got into the issue without photo credit. If you enjoyed the picture, you can thank Brad Bittorf. He has been a faithful picture taker and you can see from the number of times his name appears as a photo credit how much **Lilacs** owes him.

### *"Tips for Beginners" Column*

Does anyone have a suggestion for a new title for the **Tips for Beginners** Column? The problem is that we are all beginners in some area. For example, this issue's question about wood ashes came from a very knowledgable lilac person who had just moved to a house with a wood stove and didn't know much about wood ashes.

Unless someone comes up with a better choice, we shall continue to use "Beginners" but don't let that stop you from asking a question. Experience has shown that for every person who gets up enough nerve to ask the question, there are a dozen or more who would like to know the answer.

## Regional Vice Presidents in the USA and Canada

Inside the back cover of **Lilacs** we always list the Regional Vice Presidents, whose job it is to keep in touch with the people in their region and act as a clearing house for questions from members in the region, or serve as a conduit of information from ILS. The problem is to know to which region you belong. In most cases it is obvious, but where does the Central Region stop and the South Central Region begin and where does Alaska fit in? In an attempt to clarify the situation and to uncover whatever problems exist, we present the following list of Regional Vice Presidents and the States they cover.

***Region 1 . . . New England . . . Peter Ely***

Maine
New Hampshire
Vermont
Massachusetts
Connecticut
Rhode Island

***Region 2 . . . Atlantic . . . John Carvill***

New Jersey
New York
Pennsylvania

***Region 3 . . . South . . . Vacant***

Delaware
District of Columbia
Maryland
plus south and west to the Mississippi River

***Region 4 . . . Central . . . Brad Bittorf***

Illinois
Indiana
Michigan
Ohio
Wisconsin

***Region 5 . . . Plains . . . Max Peterson***

| | |
|---|---|
| Iowa | North and South Dakota |
| Minnesota | Nebraska |
| Montana | Wyoming |

***Region 6 . . . Northwest . . . Marvalee Peterschick***

| | |
|---|---|
| Alaska | Oregon |
| Idaho | Washington |

***Region 7 . . . Pacific . . . Reva Ballreich***

California

***Region 8 . . . South Central and West . . . L.D. Allison***

| | |
|---|---|
| Arkansas | Missouri |
| Kansas | Oklahoma |
| Louisiana | Texas |
| Arizona | Nevada |
| Colorado | Utah |
| New Mexico | |

***Region 9 . . . Eastern Canada . . . Frank Moro***

| | |
|---|---|
| New Brunswick | Ontario |
| Newfoundland | Prince Edward Island |
| Nova Scotia | Quebec |

***Region 10 . . . Western Canada . . . Elaine Peek***

| | |
|---|---|
| Alberta | Northwest Territory |
| British Columbia | Saskatchewan |
| Manitoba | Yukon Territory |

***Region 11 . . . Europe . . .***

including Ukraine and Russia

***Region 12 . . . Asia . . .***

including Japan, China Australia and Israel

Is your state included? Have you ever written to your Regional Vice President? Are there any problems that you can see in our listing?

## Lilac Ties

The New Hampshire Governor's Lilac and Wildflower Commission has lilac ties and lilac scarfs for sale. Both are pure silk and with hand sown edges. They have a dark background with sprigs of lilac bloom and leaves in a repeating pattern. We had a few at the lilac convention on Mackinac Island and they were all snapped up with a number of members asking about ordering additional ties and scarfs. Therefore, we have made arrangements with the Commission for additional orders and have included an order blank as an insert in this issue of **Lilacs**. The insert includes ordering instructions for yourself or as a gift for others. The price is very reasonable. At the regular sales outlet the ties sell for $25.99 and the scarf $29.95.

## Distribution Committee Report

*by Frank Moro*

It has been an exciting year as far as distribution is concerned. The first two lilacs introduced, 'DeMiribel' and 'Elaine', were what I would consider a total success. 'Elaine' alone sold over 75 plants to people all over the continent and even into Norway. 'DeMiribel' was completely sold out of the one gallon size and I am waiting for the new crop to reach proper size in order to fill the balance of orders. Over 150 'DeMiribel' were sold. Orders are already coming in for the 'Royal Purple' and 'Nellie Bean' cultivars. I have some new items such as 'Burgundy Queen' and a dwarf called 'Prairie Petite' coming up shortly as well as a few others that will be exciting.

Again, I think our distribution efforts have been a success in making new varieties available to members of ILS.

If anyone has suggestions I would be happy to discuss them. Being on the production side I have to go with what is available in the inventory also.

## Report from Eastern Canada

*by Frank Moro*

The winter was longer than usual here and it was a tough one. We received heavy rains twice in Montreal and the weather did not warm up very fast this spring. It has been a good year for flowers but it has been a hard one with many broken branches and quite a bit of damage to roots in container production and lilacs planted in lower lying areas. The vulgaris past their peak about June 9th while usually they are in flower around the 24-28 of May.

I have had the chance this year to attend the 3rd Annual Lilac Festival of

Franktown, Ontario where they have some 33 acres of *Syringa vulgaris* that has taken over some old farm fields that were originally settled in the late 1700s. The site is breathtaking. I am going to work with them to help try to develop the site by introducing new varieties and by putting into proper evidence the natural beauty they have of this abandoned farm land. During the festival I also had the pleasure of meeting Mrs. George Kidd. It is also a wonder how people who love lilacs somehow get pulled to each other and begin conversation. If Colin is there this year he will understand what I mean, the same way we spiked up a conversation a few years ago when we met at RBG while taking photos.

I have been working with some junior garden clubs this year. The children range from 3-9 years old. This was set up with Louise Larabie of Arnprior, Ontario. I am supplying some young plants to the children so they can plant them. Mrs. Larabie has been the driving force behind the project. She is even working to put lilacs on the Internet. I feel that with the definite dedication to lilacs that many members have all the little things each one of us does it manages to make a huge difference throughout the year.

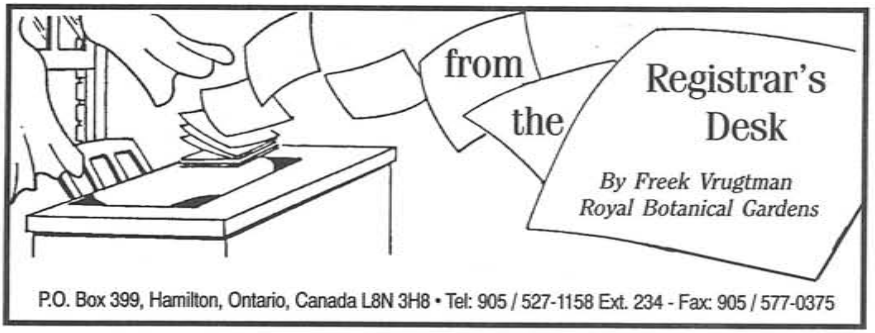
### *Convention 2000*

As discussed last year we are looking forward to hosting in Montreal the convention for the year 2000. Initial contact has been made with the botanical gardens in Montreal and they would be happy to have us again. There are some 225 varieties of lilacs presently planted. Since the last visit the Chinese gardens have been added and the Japanese gardens are now mature. There would also be a visit of Select Plus International Nursery to visit production facilities and our private collection. There will be quite a few of Father Fiala lilacs planted. There should be some 50-60 varieties around the main gardens not to mention a vast collection of rare plants.

We have been busy replanning gardens cutting a few trees down to make way for this. It has been very busy this year again. We opened a tissue culture lab before Christmas and are planning to open a small garden center in 1998 devoted to lilacs and other rare and specialty plants.

I have some very special ideas for publicity to make the convention what I hope will be the most memorable for lilac lovers.

Being the millennium year I want this to be not only a convention, but an event where all young and old can participate to view lilacs, some for the first time, others to bring back memories.




## Lilac Cultivar Name Registration 1996

All correspondence concerned with additional information or plants or propagules of newly registered lilac cultivars should be directed to the registrants listed below, not to the Registrar. Commencing with 1995 lilac registrations, standard portfolios are being established in accordance with Principle 3 and Articles 12, 22 (Recommendations 22G & 22H) and 32 of the *International Code of Nomenclature for Cultivated Plants – 1995 (ICNCP-1995).* Previous registration lists of *Syringa* cultivar names appeared in *AABGA Bulletin* [13(4): 105-110; 14(3)95; 15(3):71-72; 16(4):131-132;17(3):67-69; 18(3)87]; *HortScience* [23(3):458;24(3):435-436; 25(6):618; 26(5):476-477; 29(9):972; 31(3):327-328].

***Syringa vulgaris* L. 'Prairie Petite'** was registered 30 Dec. 1994, by Dale T. Lindgren, Univ. of Nebraska West Central Research & Extension Center/Horticulture, Route 4, Box 46A, North Platte, NE 69101, USA. The ortet was originated by the late Glenn Viehmeyer about 1970 from irradiated seed of unknown parentage, selected in 1982, and named by Dale T. Lindgren. The name 'Prairie Petite' was registered in 1994, but publication was postponed on request. For full description and history of 'Prairie Petite' lilac see: Lindgren, D.T., G. Viehmeyer, and R. Ublinger. 1996. 'Prairie Petite' lilac. *HortScience* 31(1):166. 'Prairie Petite' has been selected for its compact, dense habit and for its potential in lilac breeding programs. 'Prairie Petite' lilac is scheduled for commercial introduction in August 1997, by Briggs Nurseries, 4407 Henderson Blvd., Olympia, WA 98501, USA. A standard portfolio has been opened at Royal Botanical Gardens Herbarium, Hamilton, Ontario, Canada, but is still incomplete.

The following four lilac cultivars were registered 23 Sept. 1996 by Robert E. Hoepfl, Highland Botanical Park, 171 Reservoir Ave., Rochester, NY 14620, USA. The selections resulted from hybridization performed by Richard A. Fenicchia at Highland Botanical Park. Plants of these cultivars have been distributed for trials, but they have not yet been introduced to the nursery trade. Standard portfolios have been opened at Royal Botanical Gardens Herbarium, Hamilton, Ontario, Canada, but are still incomplete.

***Syringa vulgaris* L. 'Bernard Slavin'.** (syn. Barney Slavin, Bernard H. Slavin, R18). Open-pollinated seedling of 'Rochester', 1964. Seedling flowered first in 1971. Shrub to 2.5 m; suckering freely. Semi-open thyrses 18 cm across. Florets single, with some radial doubling, to 2.3 cm in diameter; corolla tube 1 cm long. Flower buds grayed-yellow (160C, *RHS Colour Chart*) opening to white (155D). Flowers quite fragrant. Name and partial descriptions appeared in: *The Newsletter, I.L.S. Convention Issue,* p. 6-7 (May 1972); *Arnoldia* 32(3):133-135 (1972); Fiala, *Lilacs,* p. 91, 219 (1988).

***Syringa vulgaris* L. 'Bishop McQuaid'.** (syn. Bishop Bernard J. McQuaid, Bishop Bernard McQuaid, R63). Open-pollinated seedling of 'Rochester', 1964. Seedling flowered first in 1970. First distributed in 1988. Shrub to 3 m; suckering freeing. Long narrow thyrses to 23 cm long and 16 cm across. Florets single, with radial doubling, to 1.7 cm in diameter; corolla tube 1 cm long. Flower buds purple-violet (81C, *RHS Colour Chart)* opening to purple-violet (87C). Flowers very fragrant. Name and partial descriptions appeared in: *The Newsletter, ILS Convention Issue.* p. 6-7 (May 1972); *Arnoldia* 32(3):133-135 (1972); Fiala, *Lilacs,* p. 105, 219 (1988).

***Syringa vulgaris* L. 'Frederick Douglass'.** (syn. R74). Seedling of 'Rochester' × 'Edward J. Gardner'. 1964. Seedling flowered first in 1971. Shrub to 2.5 m; suckering freely. Thyrses to 18 cm long and 16 cm across. Florets single, with radial doubling apparent, many partially developed corolla lobes emerging from mouth of corolla; florets to 3 cm in diameter, corolla tube 1 cm long. Flower buds purple-violet (80A, *RHS Colour Chart)* opening to blue-violet (92B). Flowers fragrant. Name and partial descriptions appeared in: *The Newsletter, ILS Convention Issue,* p. 6-7 May 1972); *Arnoldia* 32(3):133-135 (1972); Fiala, *Lilacs,* p. 103, 108, 219 (1988).

***Syringa vulgaris* L. 'Independence'.** Open-pollinated seedling of 'Rochester' 1964. Seedling flowered first in 1975. Shrub to 2.5 m; suckering freely. Large tight thyrses to 21.5 cm long and 20 cm across. Florets single, with some radial doubling, to 2.3 cm in diameter; corolla tube 1 cm long. Flower buds gray-orange (163D, *RHS Colour Chart)* opening to yellow-white (158D). Flowers slightly fragrant. An illustration appeared in: Fiala, *Lilacs,* Pl. 8 (1988).

The following four lilac cultivar names were registered 30 Dec. 1996. by Mme. Shu-Ying Zang, Beijing Botanical Garden, Institute of Botany, Chinese Academy of Sciences, Xiangshan, Beijing 100093, People's Republic of China. The cultivars were selected and named by Mme. Shu-Yin Zang and Mr. Ying-Han Fan at Beijing Botanical Garden, Institute of Botany. Standard portfolios have been opened at Royal Botanical Gardens Herbarium, Hamilton, Ontario, Canada, but are still incomplete.

From the controlled cross *S. oblata* Lindley × *S. vulgaris* L. 'Albaplena'

seed was sown in 1954; flowers were observed on the seedlings in 1960. Evaluated and selected between 1963 and 1982; three clones were named and introduced commercially in 1984. These selections are tolerant to summer heat and humidity as well as to winter and spring cold and aridity. Descriptions were published in *Collected Papers on Plant Introductions and Acclimatization* vol. 3, Chinese Assn. of Botanical Gardens, Science Press (1983); in Chinese. See also: *Acta Horticulturae* 404:63-67 (1995). The three cultivars are:

***Syringa* ×*hyacinthiflora* Rehder 'Luo Lan-Zi'.** (syn. Luolanzi, Luolan Zi). Vigorous shrub with oblique branches and cordate leaves. Compound dichasia dense, to 12 cm long, 6 cm wide, forming large, wide thyrses 20 -25 cm long. Florets 2 cm in diameter, double, with two to three to layers of ovoid-elliptic corolla lobes. Flower buds red-purple (33/2, Imperial purple, *RHS Colour Chart),* open florets blue-purple (37/2, Amethyst violet). In the nursery trade in Japan under the name "Luolan Zi."

***Syringa* ×*hyacinthiflora* Rehder 'Xiang Xue'.** (syn. Xiangxue, Xiung Xue e). Vigorous shrub with oblique branches and cordate leaves. Compound dichasia loose, 7 to 8 cm long, 5 cm wide, forming large thyrses 25 cm long, 10 to 15 cm across; more floriferous and more fragrant than either of the parents. Florets 2 cm in diameter, white, double, corolla lobes long-elliptic. In the nursery trade in Japan under the name "Xiung Xue e."

***Syringa* ×*hyacinthiflora* Rehder 'Zi Yun'.** (syn. Zi Un, Ziyun). Vigorous shrub with oblique branches and cordate leaves. Compound dichasia loose, 13 cm long, 6 cm wide, forming large thyrses 20 cm long, 13 cm across; floriferous and fragrant. Corolla 2 cm in diameter, double, corolla lobes elliptic. Flower bud blue-purple (33/2, Imperial purple, *RHS Colour Chart)* open florets pink-purple (37/2, Amethyst violet), corolla tube blue-purple.

***Syringa oblata* Lindley 'Wan Hua-zi'.** (syn. Wanhuazi). Parentage: open-pollinated *S. oblata* Lindley. First flowered in 1956 at age 10 years. Tested and selected between 1963 and 1982. Introduced commercially in 1984. Description published in Papers of Celebration of the 30th Anniversary of the Beijing Botanical Garden, Institute of Botany, Chinese Academy of Sciences (1985), in Chinese. Shrub with oblique branches and cordate leaves; flowering (at Beijing) from late April until early May, about 15 days later than *S. oblata.* Thyrses dense, 15 cm long, 8 cm wide. Florets single, 2.1 cm in diameter, corolla lobes twisted when fully expanded, pink-purple (37/3, Campanula violet, *RHS Colour Chart).* Tolerant to summer heat and humidity as well as to winter cold and aridity.

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Registrar, International Registration Authority for cultivar names in the genus *Syringa.* Contribution No. 92, Royal Botanical Gardens, Hamilton, Ontario, Canada.

Originally published in *HortScience,* Vol. 32(4) pp. 587-588, July 1997.

# Also From The Registrar's Desk

*by Freek Vrugtman*

## *Syringa vulgaris* L. 'Zukunft' not true-to-name in North America

'Zukunft' was brought out in the late 1920s by H. Rottert of the firm of Stenger & Rottert, Erfurt, Germany. Among of the first offering 'Zukunft' for sale was Späth nurseries in Berlin. The description in the 1930 Späth-Buch reads: "Ein neuerdings entstandener Sport des Hyazinthenflieders mit gefüllten Blüten." (translated: A recently arisen sport of 'Hyazinthenflieder' with **double** flowers). This cultivar and its derivation is also mentioned by Meyer [1952].

Recent efforts to locate plants of 'Zukunft' in Europe have not been successful.

Wister, Lilacs for America [1942 and 1953] reports that The Morton Arboretum, Lisle, Illinois, obtained 'Zukunft' from Späth in 1931. However, 'Zukunft' is described here as having **single** flowers. 'Zukunft' (MA 314-31) was grown at the Morton Arboretum from 1931 until 1073; there is no record showing whether the plants had single or double flowers [Hedborn, personal communication].

The Arnold Arboretum, Jamaica Plain, Massachusetts, obtained its plants of 'Zukunft' (AA 227-33) from the Morton Arboretum in 1933. The records do not show whether the plants had single or double flowers, but Jack Alexander remembers 'Zukunft' as a single, in agreement with the S VII (single, purple) code in Lilacs for America [Alexander, personal communication].

Royal Botanical Gardens, Hamilton, Ontario, obtained propagules of 'Zukunft' (RBG 840351) in 1984, which were re-propagated in 1985 (RBG 851835) clearly show the flowers to be single.

The Morton Arboretum appears to have been the point of introduction of the single flowering 'Zukunft' that had limited distribution in North America. To date we have found no record or evidence of the true, double flowering 'Zukunft' having been introduced on this continent.

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Literature cited:
Alexander, J.H., personal communication [Alexander to Vrugtman, September 18, 1996].
Hedborn, E., personal communication [Hedborn to Vrugtman, May 15, 1996].
Meyer, F., Fleider, 55 [1952].
Späth, Späth-Buch, 308 [1930]
Wister, J.C., Lilacs for America, 60 [1942], and 44 [1953].

# Twisted Growth of Lilac Stems Growing In The Pillnitz Castle Park

*by Peter A. Schmidt*

The baroque Pillnitz Castle near Dresden – formerly a summer residency of the Saxon electors and kings – is not only known for its charming scenic position in the Elbe valley and its architecture (the world's largest building in the Chinoiserie style) but for its park likewise.

It was already prior to the construction of the castle buildings in late baroque style (1720-1723 Water Palace, Mountain Palace) during the period of elector Friedrich Augustus I$^{st}$ (also called Augustus the Strong) that an ornamental and hedge garden existed here, which according to the character of the emerging castle layout and the art of gardening at that time had been converted into a pleasure garden of French style. The castle park was subject to great extension during the rule of elector Friedrich Augustus III$^{rd}$ (1750-1827), who was much interested in botany and gardening. This period of time experienced the establishment of the "English Garden", witnessing the devotion to the landscape garden, and furthermore that of the "Dutch Garden", comprising the greenhouses and the tree nursery, as well as the planting of the famous Pillnitz *Camellia japonica*, about 9 m tall, having a crown diameter now exceeding 10 m, which is supposed to have been one of the four plants, which were brought along by Carl Peter Thunberg in 1776 from Japan to Kew Gardens (England) – that place from where it was transferred to Pillnitz as a pot plant in 1780. In 1801 this camellia was transplanted into the open, and merely during the winter season it is protected by a house. In the beginning it was a wooden structure which was assembled and disassembled annually; in the meantime it is a protective house consisting of steel and glass, that can be moved along rails. This almost 260-year-old plant is supposed to be the oldest specimen of its kind still existing in Europe.

The 19$^{th}$ century left its traces in the castle park mainly due to the fact that numerous exotic species had been planted, thus the Pillnitz Castle Park became also a focus of dendrological interest (e.g. the noticeable "Garden of Conifers" abundant in species), as well as a garden-architectural achievement on a scientific base. Unfortunately, the "Hortus Pillnitziensis" created in 1859, a handwritten compendium of a plant collection which at that time comprised thousands of species, fell victim to flames during the destruction of Dresden at the end of the 19$^{th}$ century. This is a great loss because it contained, among other information, a compilation of 1,000 water-colour paintings depicting plants, which were created by several painters after objects found at Pillnitz.

The "Lilac Court" was also established in the 19$^{th}$ century. Following the construction of the two-wing "New Castle" which supplements the two baroque Palaces, a garden was designed in 1825 in the New Castle's inner court open to one side, that is subdivided into four plots by a crossway.

After 1860 the edges of the four grassplots were planted with 120 long-boled lilac trees. *(Syringa × chinensis)* At the beginning of this century the long-boled lilac had to be replaced by new plants. Roughly 90 specimens of Chinese lilac do still exist. The remarkable item is not only that they were grown as long-boled plants (Fig. 1), but also the fact that the stems, about 2.5-2.7 m in height, feature a conspicuous twisted growth of stems (Fig. 2)! Lilac belongs to the woody plants, in which twisted growth of stem is not uncommon. The "Lilac Court", however, with its high number of specimens of typically formed twisted grain, carefully selected by the gardener, represents a uniqueness. Unfortunately, I cannot give any facts about the casual development of the twisted growth of stems in lilac. Obviously, twisted growth is initiated by one-sided concentration of growth hormones (growth substances) in the shoot apical growing point (apical vegetation cone). What is, however, the cause of this displacement of growth substances? On one hand, individual stems characterized by twisted growth may occur among normally grown individuals, thus this phenomenon could be attributed to mutation. Moreover, some woody plant genera have an increased proneness to twisted growth (e.g. Syringa, Castanea, Sambucus), while in others it rarely occurs. On the other hand, in extreme site situations, e.g. marginal sites of tree growth, twisted grain occurs more frequently, as can be well observed in pines growing on sandstone rock in the Elbe Sandstone Mountains (Saxon Switzerland) near Dresden. An illustrative example of extreme twisted growth is given by a trunk of such a pine from

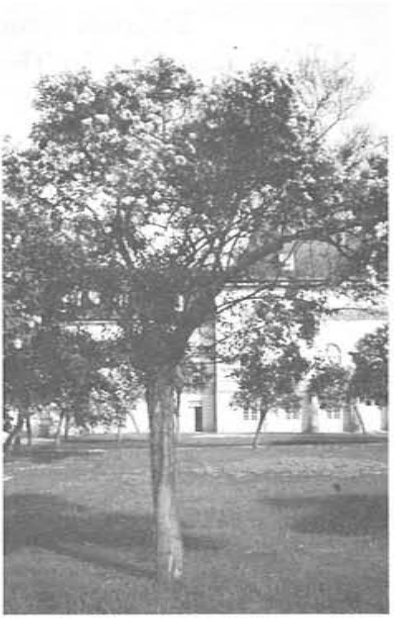


**Fig. 1** – Long-boled Chinese lilac *(Syringa ×chinensis)* in Pillnitz Castle Park near Dresden.

**Fig. 2** – Twisted growth of long-boled lilac.

Saxon Switzerland, being now on display in the Tharandt Forest - Botanical Garden - an arboretum of the Department of Forestry Sciences of Dresden University of Technology. Approximately a century ago this trunk was brought to the Forest-Botanical Garden as an object for demonstration of twisted growth. Until 1984 it leaned against a chestnut tree – in upright position (Fig. 3), thereafter it had to be stored in the horizontal, since it was about to break in two (Fig. 4). At that time seeding and grafting was performed at Tharandt, in order to investigate the heredity of twisted growth. In this connection, a part of the progeny derived from seeds of twisted pines appeared to have a twisted stem likewise.

**Fig. 3** – A pine trunk of twisted growth (*Pinus sylvestris)* in Tharandt Forest - Botanical Garden.

*– Dresden University of Technology, Faculty of Forest, Geo and Hydro Sciences, Department of Forestry Sciences, D-01735 Tharandt*

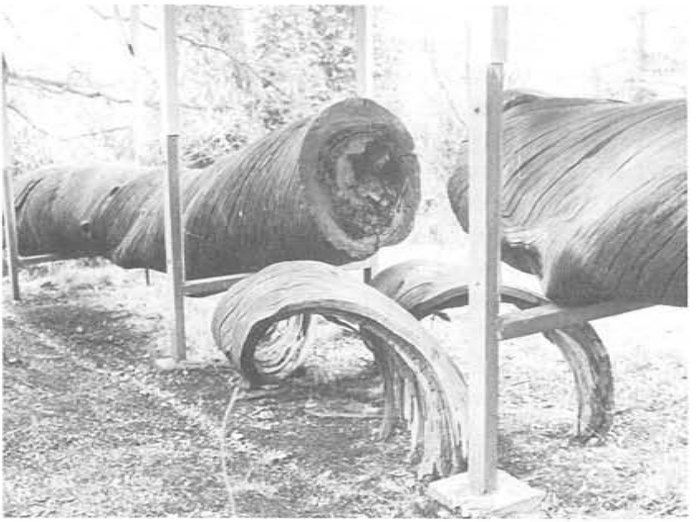


**Fig. 4** – Stem of *Pinus sylvestris* distinguished by extreme twisted growth.

# The Mother of Invention

*by Colin Chapman*

In 1991, I attended the ILS Convention in Lombard, IL. There I met, for the first time, Charles Holetich who kindly offered to send to me in England winter scionwood of thirty cultivars of lilac. This offer I accepted with an alacrity which concealed the fact that I had no horticultural training and had never before attempted to graft a plant of any kind.

The method shown by Fr. Fiala in his book I rejected as being beyond both my comprehension and dexterity, so I scanned the literature seeking a technique I could cope with. I eventually discovered an article by John H. Alexander III called "*Grafting Technique for the Lilac Grower*" (**Lilacs**, Vol. 8 No. 1 1979) which introduced me in clear, understandable, no-nonsense language to the inverted cleft graft. The article also went on to describe how grafted lilacs could be induced to initiate their own roots. Five years later, twenty-eight of those original thirty cultivars still live and I have subsequently grafted about 3000 lilacs of some 500 different species, hybrids and cultivars.

Simultaneously, there have been serious aberrations of our local weather. Winters have become stormier and we have had more snow. From being the driest part of the United Kingdom, East Anglia had become one of the driest spots in Europe and our own local annual rainfall has declined steadily from 22 inches twenty years ago, to only 14 inches last year. Fortunately, most of that rain falls in early Spring which is just when the lilacs require it. Once the lilacs are established they do well but the long sequence of hot and very dry summers has made the planting and establishment of young plants very difficult, particularly when water conservation restrictions are in place. For the first time in its history, this "green and pleasant land" faces a shortage of water and I chose this time and this place to start a lilac collection! Either it is a case of global warming, or an enactment of the ancient truism that the gods first drive into madness those they wish to destroy.

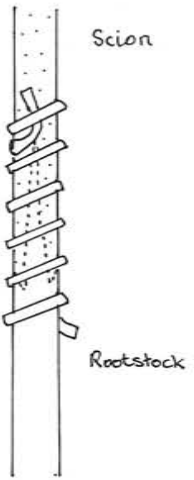
I chose as my rootstock *Ligustrum ovalifolium* but I have also had to use the more vigorous *L. vulgare* when my preferred stock was not available. I have used Green Ash (*Fraxinus americana)* but it has proved to be much too vigorous and not a single graft done on it survives. I will not use any form of lilac understock because the plant responds to the severing of its central stem as though it has been coppiced and sends up countless basal shoots – the so-called "suckers". This below – graft vigour is a response analogous to rejection in a human transplant so the battle is always with the rootstock against the scion. On privet, however, the scion easily outgrows the rootstock in the first year so that, given the right conditions, the probability is in favour of the scion rejecting the rootstock and producing its own roots in order to survive.

The next step came through happy chance: it was sired by "Ignorance" but its dam was "Observation". The diagrams show the essential steps in my interpretation of the inverse cleft graft. Not knowing of the existence of

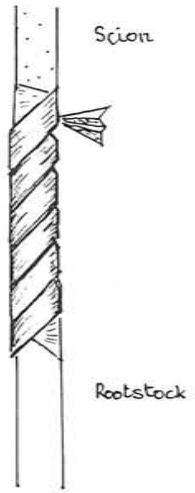
1. Scion with 3 pairs of buds. Incision and lower buds removed.

grafting wax I bound the grafts with black plastic tape (actually, strips cut from thick, black plastic trash sacks). When the buds started to move in April I removed, in logical sequence, the clear plastic bubble, the tape and rubber tie in order to prevent the rubber tie throttling the rapidly thickening union. However, one day a bird perched on my No. 2 *S.v.* 'Rochester' and broke the graft union. As a consequence, I bound all the unions again with tape simply to give some added support against my inconsiderately intrusive wildlife. What happened next I mentioned in the Fall 1994 Edition of **Lilacs** (Vol. 23 No. 4) and described my discovery of a scion of 'Miss Canada' thriving on a dead understock because it had produced roots to exploit the moist and dark conditions which lurked behind the black plastic tape. That plant is, happily, still alive and looks full of flower for the coming season. The following September, I was prompted to plunge 120 grafted plants into deep raised beds with their graft unions 2 to 4 inches below the soil. As I removed the tapes, I encountered numerous cases of scion roots already being formed. The two photographs show a grafted plant of *S.v.* 'Clyde Heard' eight months after grafting with scion roots forming underneath the freshly removed tape, and the same plant after being lifted two years later with substantial own roots and a small privet stem and root ready to be severed.

2. Inverted Saddle-graft



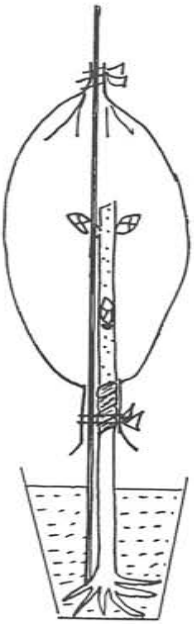

3. Graft secured with strip of rubber band




4. Light excluded by black plastic tape.

By this time we were well into the pattern of recurring summer droughts so I decided to miss the nursery bed stage and plant the "double deck" plants *in situ*, reasoning that the scion roots would spread during the moist periods but the plant would get a helping hand by having the weaker, but operational, privet roots working at a deeper, more moist, level during the drought periods. To this we added a mulch regime, explained in the diagram, in which the newsprint preserved moisture but also attracted earthworms which then worked the paper, straw, and compost into the plant-growing area over the succeeding year. The final photograph shows these growing areas and in almost every case, the lilac is now thriving on its own roots.

There is nothing new in this but I have been able to combine accessible practical hints with personal observations to adapt to my two needs. The first was to produce lilacs in the permanent collection growing their own roots. The second was to establish those lilacs through times of stringent drought when restrictions on the usage of water were in place and garden irrigation was



5. Plastic bubble limits the drying of buds.

PHOTO CREDIT - COLIN CHAPMAN

*S. vulgaris* 'Clyde Heard' scion roots forming at the union originally under black plastic tape.

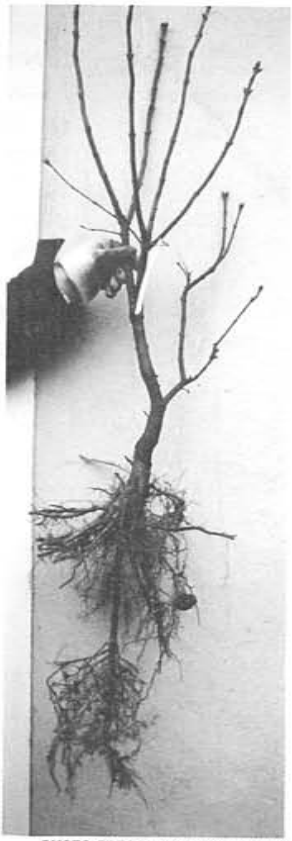


PHOTO CREDIT - COLIN CHAPMAN

*S. vulgaris* 'Clyde Heard'. Same plant two years later.

frowned upon as against the National Interest. I am now producing some duplicate plants so that I can, from time to time, risk lifting a plant to find out if it has completely rejected the privet root, or retained it as a kind of insurance. I have also air-layered some of the graft unions of container grown plants by tieing in a large bag of moist compost. By this means I saw the transformation, in one year, of a sickly *S.v.* 'Prince of Wales' into a strongly growing plant with a ball of fibrous roots at the union the size of a small coconut.

I do not urge you to do as I do, but I do want to incite you to go out and do what **you** do. I just ask that you observe and record and share your experiences with us all. It is amazing what we can achieve when we are impelled by necessity.

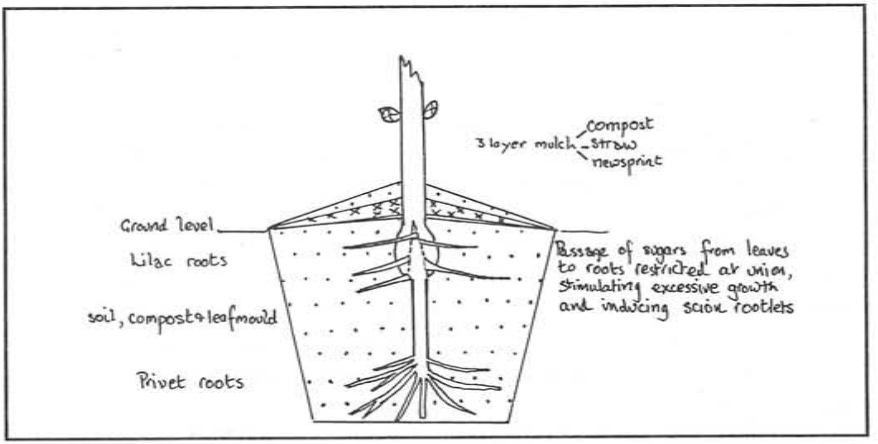



PHOTO CREDIT - COLIN CHAPMAN

*Direct planting of lilac grafts (see text).*

# Plants Under Attack By MLOs
## Mycoplasma-like Organisms

*by Thomas Green, Plant Pathologist*

Before 1967, many puzzling plant diseases were thought to be caused by viruses. Symptoms of these diseases included gradual, uniform yellowing or reddening of leaves; small, stunted leaves; stunted plants; excessive proliferation of shoots, known as witches' brooming; sterile flowers and reduced flower yields; fall flowering or bud break; and a more or less rapid dieback, decline, and death of plants. Now, more than 200 distinct plant diseases affecting several hundred species of plants are known to be caused by mycoplasma-like organisms (MLOs). MLOs have given plant pathology some very colorful names, such as Aster Yellows, Apple Proliferation, Peach X-disease, Apple Rubbery Wood, Pear Decline, Elm Phloem Necrosis, Coconut Lethal Yellowing, Citrus Stubborn, Corn Stunt, Ash Yellows, and Lilac Witches' Broom.

While this story might sound like the plot of a science fiction novel, it is really quite ordinary. In 1967, MLOs, Microorganisms with cell walls, were first seen with the electron microscope in the phloem (cells that move sugars from the leaves to the roots) of diseased plants. Mycoplasmas and MLOs are grouped with prokaryotic (pro = first, karyon = nucleus) microorganisms like blue-green algae and noncellular bacteria. They are classified as procaryotes because their nuclear genetic material is not bounded within a membrane. In animals and plants the nucleus of each cell is bounded by a nuclear membrane, and they are classified on that basis as eukaryotic organisms (eu = true).

In addition to being without a nuclear membrane, MLOs do not have cell walls. In this respect they resemble typical mycoplasmas found in animals and humans and those living saprophytically; that is, on organic matter rather than on living tissue. However, MLOs differ from mycoplasmas in that they cannot be grown on artificial media. Thus far, no plant disease has been reproduced on healthy plants when directly inoculated with MLOs from diseased plants.

MLOs are most often transmitted from plant to plant by insects. An insect that transmits a disease from an infected plant to a healthy plant is known as a vector. In order to pick up the MLO, the vectors must feed on the phloem tissue where the MLO is found. Therefore, most of the vectors for MLOs are leafhoppers, psyllids, and planthoppers, insects related to cicadas that have sucking mouth parts and feed on the sap in phloem tissue. The MLO has the ability to survive and multiply in the vector. It usually takes some time before the organism moves from the intestine to the salivary glands where the insect's feeding can introduce the MLO into a new host. The MLO will survive as the vector molts (sheds its skin as it grows), but it will not pass into the egg. However, succeeding generations will continue to pick up the MLO as they feed on infected plants.

Transmission is also possible by grafting infected tissue onto healthy

plants. This is probably one of the major ways that Lilac Witches' Broom is spread. MLOs can also transfer from one plant to another through the vines of such parasitic plants as Dodder. It has been suggested that plants that are naturally root grafted may also transmit the disease. However, no work has demonstrated root graft transmission. At the Arboretum, MLOs have caused considerable damage to our lilac collection. A witches' broom is a very dense, broom-like cluster of shoots. It is often caused by pathogens (disease causing organisms), by insects or mites, or it can occur naturally. Witches' broom in lilac was first reported in 1951, and a virus was thought to be the cause. In 1986, C.R. Hibben, *et al.* reported that the causal agent was an MLO rather than a virus. Much of the information and diseased plant material for Hibben's study was supplied by Arboretum Collections Group Administrator, Charles Lewis, a coauthor.

Mr. Lewis had observed a dramatic decline in the Arboretum's lilac collection of more than 1,200 plants over a ten-year period. Symptoms observed included: necrotic (dead), blotched, and scorched leaf margins; chlorotic (yellow) leaf margins; mottled, mosaic, rolled, stunted, and rugose (leather-like) leaves; premature growth of buds; fall flowering and bud break; axillary shoots proliferation (witches' broom) in some species; and dieback of shoots and branches. Witches' broom symptoms were observed in *Syringa ×josiflexa* cultivar 'Royality'; *S. ×prestoniae* cultivars 'Elinor', 'Juliet', 'Paulina', 'Regan'; *S. sweginzowii;* and *S. villosa ×sweginzowii* cultivar 'Hedin'. Cultivars containing crosses of *S.×josiflexa* and *S. ×prestoniae* are no longer recommended for use.

In 1988, Ann Holtz, an Arboretum intern, found a positive correlation between yellowing leaf symptoms and the presence of MLO in lilac roots. She found that the MLO rarely caused witches' broom or killed *S. vulgaris* cultivars. Yet those with leaf symptoms are infected and possibly provide a reservoir for the pathogen. Lilac Witches' Broom has been reported in the Japanese tree lilac, *S. amurensis* var. *japonica,* but no symptoms have been observed at The Morton Arboretum. At the present time, the once great lilac collection of the Arboretum is rapidly declining. Sadly, no attempts to restore it will be made because of the presence of this pathogen.

There are no known controls for MLO infections other than plant destruction. In the science of plant pathology this is known as sanitation by eradication. Suppression of symptoms has been demonstrated with the use of antibiotic chemicals, such as Tetracycline. However, when antibiotic treatment is stopped in infected plants, MLO symptoms reappear. At the present time there is very little research being done on MLOs. Yet, the potential for major epidemics caused by MLOs continues to increase. The adaptability of the microorganisms that result in new plant diseases represents a never-ending challenge to plant pathologists.

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# Research Abstracts

Editor's Note:

These abstracts are reports of published research. They are included here as a sampling of lilac research being done around the world.

PILARSKI, J. **[Photosynthetic activity of shoots and leaves of lilac (*Syringa vulgaris* L.).]** Fotosyntetyczna aktywnosc pedów i lisci lilaka (*Syringa vulgaris* L.). *Sylwan* (1996) **140** (1) 53-58 [Pl, en, 4 ref.] Zaklad Fizjologii roslin PAN im Franciszka Górskiego, Kraków, Poland.

Photosynthetic activity in the shoots and leaves of lilac was studied in April and July in Poland. Levels of $CO_2$ assimilation were many times higher in leaves than in shoots, and decreased with age in shoots. Oxygen production by chloroplasts isolated from shoots (bark) and leaves was compared. Leaf chloroplasts released more oxygen than those from bark, and oxygen production decreased with age in bark chloroplasts, in which activity in April was higher than that in July. The potential for chloroplast photsynthesis was greater than that shown from $CO_2$ assimilation measurements.

*Horticultural Abstracts* 1997,
Vol. 67, No. 4, pg. 424

**3535** LAVEE, S.; AVIDAN, N.; PIERIK, R.L.M. **Chlorogenic acid – an independent morphogenesis regulator or a cofactor.** In *International symposium on natural phenols in plant resistance, Volume I, 13-17 Sep., 1993, Weihenstephan, Germany [edited by Geibel, M.; Treutter, D.; Feucht, W.].Acta Horticulturae* (1994) No. 381, 405-412 ISBN 90-6605-356-9 [En, 10 ref., 5 pl.] Inst. of Horticulture, Volcani Center, Bet Dagan, Israel.

The involvement of intermediates of the cinnamic acid-lignin pathway on flower bud differentiation and callus development was studied in olives (cultivars Manzanillo, Barnea, Uovo de Piccione and Koronaiki). The endogenous level of chlorogenic acid (CHA) in leaves of fruit-bearing trees was 34-times higher than that of non-bearing ones. This increase was accompanied by an increase in total proteins, and 14, 32 and 60 kDaprotein contents. These changes were cultivar specific. Application of CHA decreased the number of differentiating buds when injected prior to flower bud induction but had no effect when applied thereafter. CHA could replace the auzin (IAA) requirement of callus growth *in vitro*. A similar but weaker response was found with cinnamic acid. The growth of callus prepared from *Quercus robur* var. *fastigiata, Syringa vulgaris, Fraxinus excelsior* and apples was promoted by some phenolic acids either in the presence or absence of IAA. The rooting ability of *in vitro*-grown *S. vulgaris* was enhanced by CHA and caffeic acid when applied alone or in the presence of IAA.

*Horticultural Abstracts* 1997
Vol. 67, No. 4, pg. 446

## Nematodes on Lilacs

Just when you think we have at least identified all the problems facing us a new one rears its ugly head. Dr. A.H. Epstein, a member of the Board of Directors of the Bickelhaupt Arboretum in Clinton, Iowa, writes:

> *"At our annual board meeting on May 9, 1997, I examined the arboretum's plant inventory for diseases and other problems as I do each year. I noticed that a number of the lilacs that had been in poor vigor the previous two years had deteriorated further. Worse, a number of adjacent lilac plants were beginning to exhibit the same condition. I collected root and soil specimens from several of these plants. I find that these are infested with several free living nematodes known for their ability to cause extensive damage to roots of a wide variety of woody plants."*

Dr. Epstein is proposing research to identify, specifically, the nematodes attacking lilacs and develop a biological control to correct the situation. He suggests a) antagonistic or competitive soil organisms, or b) naturally occurring inhibitory compounds as possible areas of investigation.

Bailey Nurseries have already supplied plant material but it is hoped that other commercial firms or arboreta would contact Dr. Epstein and volunteer help or dollar support. His address is: Department of Plant Pathology, 351 Bessey Hall, Ames, Iowa 50011-1020.

## Is This Really Improvement?

Horticulturists and hobbyist introduce up to 1,000 new hybrid plants each year, and every spring nurseries offer cultivars, proudly boasting that they are "new and improved." Hybridizers serve as godparents to giant tulips and dwarf sunflowers, to junipers as slender as an obelisk and shade trees twice as wide as they are tall. Hybrids now make up about 70 percent of the shrubs on the market; the percentage climbs even higher for peonies, rhododendrons, and roses. Each year gardeners produce hundreds of new iris, hosta, dahlia, and daylily hybrids. For the ever increasing numbers of hobbyists there's one supreme goal: larger and more numerous blooms.

But crossbreeding has its casualties. "When you breed for a certain kind of leaf or more flowers, you often lose the scent," says National Arboretum botanist Ruth Dix. "The gene for the scent is the first to go." New varieties of famously fragrant shrubs like viburnums in fact have little or no fragrance. The lilac, long a favorite among hybridizers, may be getting more beautiful, but it rarely smells as sweet as grandmother's perfume. Unless bio-engineers spot the scent gene and learn to insert it right, floral fragrance could become just a memory.

*– Charles Fenyvesi*

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## Seven Major Reasons Plants May Not Flower

*by Cal Schroeder*

Last May, a gentleman called who was quite distressed that his prize crabapple did not flower. He explained that the tree was planted two years ago in May, and it flowered very well last year. He never pruned the tree. The tree was growing in full sun with no competing large trees in the vicinity. Late frost damage was ruled out, since the flower buds were not swollen when the last frost hit. Since crabapples are very hardy, winter injury to flower buds was also ruled out. He fertilized the tree with 5-10-5, according to label instructions last May. Fertilizer applied in spring produces growth that can harden off before winter. What went wrong? Why did the tree fail to flower?

Seven major reasons can cause plants not to flower:

- ❑ **Insufficient Light** – Most fruiting and flowering trees require at least ½ day of full sun in order to flower properly. As shading increases, the amount of flowering decreases. Certain plants will flower with less light, but usually insufficient light is a major reason why plants do not flower.
- ❑ **Pruning** – Pruning at the wrong time of year and excessive pruning are common causes of failure to bloom. Heavy pruning promotes vegetative growth and may prevent flower bud set. If you prune a plant after the flower buds have formed, you will remove next year's flowers. Generally, prune spring flowering shrubs in early summer shortly after bloom.
- ❑ **Plant Immaturity** – Many plants undergo a juvenile stage of growth. During the juvenile stage, the plant does not flower. This stage can vary from a few weeks for most annuals, to 10 or more years for some trees. Unfortunately, you can't rush this normal phenomenon.
- ❑ **Winter Injury** – The flower buds are the least cold tolerant part of a plant. Some years you will notice that after an exceptionally cold winter, a plant may not flower above the snow line. Snow acts as a natural mulch, protecting plants from temperature extremes. Planting trees and shrubs that are completely cold hardy for your location is the best way of controlling winter injury. Marginally hardy plants like flowering dogwood (Corpus Florida), can be damaged by winter injury. Summer flowering shrubs that flower on new wood are usually not subject to winter injury.
- ❑ **Frost Injury** – All spring flowering plants, regardless of how cold-hardy they are, are susceptible to frost injury. Plants that flower early in spring are more susceptible to damage.

  Flower buds are more tender than young leaf buds. A late spring frost can kill or damage some or all of the flowers without causing damage to the leaves.
- ❑ **Improper Fertilization** – Excessive amounts of nitrogen fertilizer can prevent a plant from flowering. Nitrogen tends to cause a plant to produce lots of vegetative growth and flowering may be inhibited. Plants growing in lawn areas that are heavily fertilized may be affected by this.

Deficiencies of other elements, such as phosphorus, can result in poor flowering.

- ❑ **Alternative Flowering** – Plants like flowering crabapples and flowering dogwood are alternate flowering plants. As it turns out, the gentleman who telephoned last spring was probably dealing with an alternate flowering crabapple. His crabapple may flower heavily one year, and then fail to flower for the next one or two years. The only way to prevent this is to select plants that are not alternate flowering.

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– *Cal Schroeder is the extension educator in agricultural resources for the Strafford County UNH Cooperative Extension. Article reprinted from the* Foster's Daily Democrat, *Dover, N.H., July 23, 1997, page 15.*

## Tips For Beginners

### *Can I use wood ashes on my lilacs?*

Yes. Wood ashes can be a good source of potassium and calcium and may serve as an alternative liming material. Wood ashes are very variable in composition and without a full analysis you have to make some guesses as to how much to use in the garden. Normally about five to ten pounds per 100 square feet can be used on most soils. A soil test before applying wood ashes is always a good idea since, if the pH is above 6.5 or calcium levels test high, wood ashes are not recommended. Also, since wood ashes contain anywhere from one to ten percent potash and about one and one-half percent phosphorus, you should be sure to get a soil test before using wood ashes a second year to see how much this year's application has raised the nutrient and pH levels. Wood ashes should never be stored open to the rain because the potash will leach away. They can be mixed with other fertilizing materials, side-dressed around growing plants or used as a mulch. Avoid contact between freshly spread ashes and germinating seeds or new plant roots by spreading ashes a few inches away from plants. Only wood ashes, and not coal ashes, should be used in soil or compost.

# Summer Care for Newly Planted and Mature Trees and Shrubs

*by H. Bruce Hellerick, Regional Horticulture Specialist, The Brinkman Group, LTD.*

Summer is a time for swimming, picnics in the park, baseball games and vacations. But don't forget to care for newly planted trees and shrubs. Watering is the essential ingredient. The amount depends on the type of soil, drainage, type and texture of mulch you have applied, and of course, rainfall.

Watering on a weekly basis during the first year is critical to ensure long-term plant viability. It is very important to thoroughly soak the root ball and the back-fill soil. A deep root system will produce a better and stronger plant able to withstand dry periods later in its life. Light watering will only moisten the surface of the soil, encouraging undesirable shallow root development.

Attention to the following items will ensure proper establishment of newly-set plants, whether they are specimen, shade, evergreen trees, small flowering trees, or shrubs set in the landscape border.

- Maintain optimum moisture in the soil at all times. Do not over water so the soil becomes saturated.
- On larger plants that are staked or guyed, remove the support after one year to prevent damage.
- Keep the mulch layer at an optimum depth of 2 to 3inches.
- Apply fertilizer in the fall when plants lose their leaves. This aids in the establishment of the new plants.

Mature trees can be damaged from prolonged drought conditions as the soil dries out and fine roots become less absorbent. In extended periods of drought, the deeper soil also dries out causing the roots to die and the leaves to wilt. The invisible root damage that occurs leaves the tree vulnerable to protential problems from insects and diseases.

Wood Borers are attracted by the odors of plants that are stressed by drought. Attacks by boring insects can permanently deform or even kill the tree. A good preventive management program, combined with additional watering when needed, will help to increase the plant's health and resistance to insect attack. Birch, oak, maple and white pine are at higher risk than other trees during a drought and for several years afterward.

Sphaeropsis tip blight (*Sphaeropsis sapinae),* formerly known as Diplodia tip blight, and Cytospora canker *(Leucostoma kunzei)* are diseases that more readily attack drought-stressed mature trees. Often the trees are infested with these diseases, but the disease is made active only after drought stress. Keeping the trees healthy and vigorously growing is the best defense.

Shrubs and trees are a great asset to a property and with a little extra work when planted and some proactive planning during drought conditions, you will be rewarded with healthy, long-lived plants that will enhance and beautify your grounds for years to come.

International Lilac Society

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## — VI. MEMBERSHIP

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