Elucidat et Instructiones Omnium Generum Syringae

Or:

How to Grow, Maintain, Propagate, Landscape with and Enjoy All Variety of Lilacs of the Syringa Genus

Compiled & Edited by B.D. Bell

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I was a tad flabbergasted at the lack of discussion and spread-out nature of helpful tips on this most beautiful shrub. Over several years of browsing the web, gardening books and the entire length of Fiala's(and Vrugtman's) great tome I have compiled the instructions, notes, tips, tricks and all such that I could find on the matter. I am sure there is more behind the paywall of the Lilac Society but I am not quite ready to buy my way into that walled garden, so here are the techniques I have found in the wild.

Let us cultivate not as mountaintop masters, but fellow amateurs who still and always will fumble in buttering our bread. I am no authority, and as such you would do well to treat this as a collection of well intentioned rumors rather than a manual or leafy fact book, no matter how long I took to get the details correct. I am new but enthusiastic to gardening, Lilacs, and scholarly diligence. In fact I only determined to do every length in metric after I finished the *second* draft. Do not trust me, do not place faith in me, as this is not a good resource *yet*. With the assistance of the internet, and hopefully correspondents in the future, it *will* be. As such, besides in the restructuring of the taxonomy, I have cited no sources. All information is a composite of various grower sites and governmental extensions. Shoutouts to 'Flora of China' for the most clear, yet dilapidated, information; really helped to differentiate S. *komarowii* from its *reflexa* subspecies, and the Randy Stewart who did a smaller version of what I am doing on his blog in 2011.

Just as the green came back to the blasted ramparts of the iron keep of Morgoth, just as the great glaciers melted to nothing after the ice age, we will green this world as it was always meant to be. Eden is an eternal ideal that, if not literally a place in the past, will be by our making. A bunch of beautiful rolling hills full of lively foliage.

I tell you, when the successful authors of the world say controlled substance abuse is essential for their writing process they do not lie. This is so much easier to write *wired* with dark coffee. I fear the bulk of this would be illegible with brown stains if I hand wrote it.

WIP

Lilac Taxonomy

Order Lamiales
Family Oleaceae
Tribe Oleae
Subtribe of Ligustrinae
Genus Syringa

Subgenus Ligustrina

S. *amurensis* ‡
S. *fauriei* ‡
S. *reticulata*
S. *pekinensis* ‡

Subgenus Syringa

Series Syringa

S. *afghanica* syn. *persica*
S. *oblata* **Subspecies** *dilatata*, *oblata*
S. *pinnatifolia* ‡
S. *protolaciniata*
S. *vulgaris*

Series Pubescentes ‡

S. *pinetorum* syn. *mairei*, *wardii*
S. *pubescens* **Subspecies** *microphylla*, *patula*, *pubescens* syn. meyeri

Series Villosae ‡

S. *emodi* syn. *tibetica*
S. *josikaea*
S. *komarowii* **Subspecies** *komarowii*, *reflexa*
S. *tomentella* **Subspecies** *tigerstedtii* ‡, *tomentella*
S. *sweginzowii*
S. *villosa*
S. *wolfii* ‡
S. *yunnanensis* ‡

Nothospecies

S. × *chinensis*, S. + *correlata*, S. × *diversifolia*, S. × *henryi*, S. × *hyacinthiflora*, S. × *josiflexa*, S. × *laciniata*, S. × *nanceiana*, S. × *persica*, S. × *prestoniae*, S. × *swegiflexa*, S. × *swigitella*, S. × *laughalot*, S. × *nihilletalae*

Footnotes and explanation:

× Marks a Nothospecies, which are hybrids treated as a species in many ways

+ Marks a Chimera, which are a graft mix of tissues of distinctly different heritage

Syn. - References a prior name, usually the result of a misidentification or lack of knowledge of prior observation, or a variety rolled into a subspecies. The greatest example being S. persica which has quite a storied history.

S. Is an abbreviation of genus Syringa for the sake of brevity.

‡ Indicates a tentative, new, taxonomic placement. I made educated guesses at the proper ordering. I may be well off on how it should be changed, but I can clearly see that it should be changed. It feels like a blazon, where there is a clear grammar to the nesting, but botanical vagaries abound. The arguments that convinced me of reclassifications can be found at:

[Kim, Da Yeon & Jeon, Jeong & Yi, Jae & Shin, Hee & Kim, Wan. (2022). Morphological and molecular data support the separate species status of Syringa fauriei in Korea. Nordic Journal of Botany. 2022. 10.1111/njb.03717.]

[Jin-Yong, C., Zuo-Shuang, Z., & De-Yuan, H. (2009). A Taxonomic Revision of the Syringa Pubescens Complex (oleaceae)1. Annals of the Missouri Botanical Garden, 96(2), 237–250. doi:10.3417/2006072]

[Kim, K.-J. and Jansen, R.K. (1998), A chloroplast DNA phylogeny of lilacs (Syringa, Oleaceae): plastome groups show a strong correlation with crossing groups . Am. J. Bot., 85: 1338-1351. https://doi.org/10.2307/2446643]

[Yang Liu, Hongxia Cui, Quan Zhang, Sodmergen, Divergent Potentials for Cytoplasmic Inheritance within the Genus Syringa. A New Trait Associated with Speciogenesis, Plant Physiology, Volume 136, Issue 1, September 2004, Pages 2762–2770, https://doi.org/10.1104/pp.104.048298]

[Long, L., Li, Y., Wang, S. et al. Complete chloroplast genomes and comparative analysis of Ligustrum species. Sci Rep 13, 212 (2023). https://doi.org/10.1038/s41598-022-26884-7]

There are several phantom Lilacs that seemingly do not exist outside of taxonomy lists online, notably S. *luminifera*, and S. *coloradea*. The bulk appear to be the result of long ago misidentifications that have been snowballed into contemporary data as various online 'tree of life' projects are compiled. However for cases like S. *fauriei* this snowballing brought to light data hidden behind language barriers. It is perfectly reasonable that Western sources could overlook a Lilac initially identified in North Korea or from behind the language barrier of fully Mandarin research papers.

I will forgo writing any details on most hybrids, as characteristics in crosses are not consistent, being a broad range of traits between parents and often revealing new traits not found in either. This guide is, by intent, supposed to be a concise yet comprehensive overview to help people get a foundation of knowledge before learning in depth. I'll leave the writing of a sequel to Fiala's opus to a more studious man. If none is written twenty years past this work, I will endeavor to be that level of studious and bother citing my sources, doing a complete overview of hybrids, and slog through that miserable effort.

Altogether that makes 19 species, 5 distinct subspecies. It is going to be quite a trouble to track down the many varieties.

Lastly, a quibble wholly of my own. While Ligustrina most likely holds a true series, I will not list it as such until a crossbreed is made. I can not in good conscience place them together, for such circumstances as S. pekinensis and S. amurensis not mixing despite hearty efforts to. For everyones' want to make them subspecies of S. reticulata, they keep behaving like fully separate species.

⌘**Series Syringa**

The Common Lilac Group. Notably more related to Tree Lilacs than the other series. The vast majority of cultivars are born of these, and likewise the majority of crossbreeds.

Syringa afghanica (syn. *persica*)

Afghan Lilac. Native to Afghanistan and Western China, where it grows in mountainous regions. Be careful not to confuse it with any hybrids called Persian Lilac, as there is a great deal of confusion in that regard due to the hybrid S. × *laciniata* being found before its component sires.

Hardiness	4b-8a
Surculose	? ? ?
Habit	Graceful, ramified, spreading, rounded, Irregular. Leaves at intervals on stems.
Mature Extent	2.5m High, 1.5m Spread
Bark Aspects	Ages grey, lenticellated.
Stem Aspects	Lenticellated thoroughly, purplish-brown. Gives slight impression of fern.
Rich-Lilac Resin	? ? ?
Leaf Form	Pinnate with 3 to 9 elliptic leaflets, almost sessile. 1-3cm by 2-8cm.
Leaf Tinge	Deep Green to Light Green, Yellowing in Fall.
Inflorescence	Dense, bunched, almost capitate, pyramidal, yet ‘light and airy’
Corolla Form	8-10cm long salverform, ovular lobes at half length, Hyacinth-like appearance
Bud Tinge	Pink, consistent.
Petal Tinge	Lilac and Mauve Paling to nearly White. Dark Violet throat.
Bloom Period	Late Spring
Fragrance	Strong, Evoking Violet
Capsule Aspects	Ovoid to cylindric, slightly bent, acuminate, 1cm long by 4mm
Quirks:	Slow growing. Possibly furthest from ‘traditional’ Lilac appearance.

Syringa oblata

-Subspecies dilatata

수수꽃다리, the Korean Early Lilac. It is native to China and Korea, where it grows in gravelly mountains.

Hardiness	2b-
Surculose	?
Habit	Vigorous, upright and spreading shrub or small tree
Mature Extent	3m High, 5m Spread
Bark Aspects	?
Stem Aspects	Medium axis pubescence, reddish-brown tinged, small obvious lenticels
Rich-Lilac Resin	?
Leaf Form	Ovate-orbicular to reniform 8cm, apex acuminate, base truncate, glabrous
Leaf Tinge	Green, paler below, fading to Pink & Purplish Bronze ‘wine’ in Fall
Inflorescence	Large Clusters, lateral, ‘lax’, 12cm by 8cm
Corolla Form	1.7cm Funnelform, lobes 8mm
Bud Tinge	Pink to Lavender
Petal Tinge	Pale-Pinkish Lavender
Bloom Period	Early Spring
Fragrance	Moderate
Capsule Aspects	Dark Brown smooth, obovate-elliptic to oblong-lanceolate capsule. 12mm
Quirks:	Do not plant in frost pockets, as they are early budders that will suffer.

-***Subspecies oblata***

華北丁香, the North China Lilac, Early Purple or Broadleaf Lilac.

Hardiness	2b-7b
Surculose	No
Habit	Shrub to small tree, multi-stemmed regardless
Mature Extent	5m High, 5m Spread
Bark Aspects	Light Gray and Light Brown
Stem Aspects	Occasionally glabrous, pubescent, and puberulent. Light brown.
Rich-Lilac Resin	?
Leaf Form	10cm by 8cm. Ovate, acute tips, cordate base, new leaf Red, Fall turns 'wine'
Leaf Tinge	Bronze at start, Mid Green, fading to red-purple in Fall
Inflorescence	16cm by 8cm, lateral, loose, lax or erect. Pyramidal.
Corolla Form	1.7cm, salverform, Anthers in Throat
Bud Tinge	Almost Fuschia or Papery Pink
Petal Tinge	Purple to Lavender with White throat, Yellow Anthers
Bloom Period	Early Spring, 10 days before S. *vulgaris*
Fragrance	Strong
Capsule Aspects	Smooth obovate-elliptic to ovate, 1.5cm
Quirks:	Founding stock almost exclusively from Peking Chinese gardens. Var. 'Alba', a common cultivated white flower variety, has smaller leaves and slender form. White forms seem to have multiple independent sources. Harvested for its essential oil??? Tends to frost damage from early start on spring growth. Heat tolerant, mildew resistant

Syringa pinnatifolia

羽叶丁香 the Featherleaf Lilac, Pinewood or Pinnate Lilac due to its compound leaves. Previously thought to be its own series for its oddity. Its odd leaves are genetically unrelated to protolaciniata's form, having developed independently.

Hardiness	4b-8a
Surculose	No.
Habit	Upright, columnar, airy bush
Mature Extent	4m High, 2.5m Spread
Bark Aspects	Exfoliating, grey brown.
Stem Aspects	Red, Glabrous, lenticellated.
Rich-Lilac Resin	Present, Strong
Leaf Form	Compound, 6cm long. 7, 9, or 11 lanceolate leaflets, long petiole, 'Marigold' like
Leaf Tinge	'Dull' Dark Green
Inflorescence	Many conical open 7cm clusters, slightly nodding
Corolla Form	Tubular, slightly funnelform. 6cm long, 1cm wide
Bud Tinge	?
Petal Tinge	White to Ivory to Pale Rose-pink
Bloom Period	Late Spring/Early Summer
Fragrance	Strong
Capsule Aspects	Oblong, 1.3cm long, smooth
Quirks:	Endangered, peeled stems used to treat heart disease in Mongolian medicine. Mildew Resistant. Subject of thorough research in china, even gene edited its roots to be hairy?

Syringa protolaciniata

Cutleaf Lilac. A mystery plant for the longest time, being a component that hybridized with S. *vulgaris* to create the beloved Persian Lilac.

Hardiness	3b-
Surculose	No
Habit	Rounded, irregular or 'wild', bushy, flexible, spreading, slow growing
Mature Extent	3m High, 2m Spread
Bark Aspects	?
Stem Aspects	Dark Brown to Purple-Brown, glabrous, lenticelled
Rich-Lilac Resin	?
Leaf Form	3 to 9 7cm pinnate leaflets, entirely lanceolate upper parts
Leaf Tinge	Medium Green, Yellowing in Fall
Inflorescence	Loose Pyramidal Erect Panicles, 10cm long. Paired
Corolla Form	2cm corolla, 12mm subcylindric tube, yellow-green anther 2mm from mouth
Bud Tinge	Light Purple
Petal Tinge	Lilac, Lavender, Dark Violet throat
Bloom Period	Late Spring
Fragrance	Strong, evokes violets, considered more complex than normal
Capsule Aspects	1.5cm smooth
Quirks:	Leaf lacination varies noticeably in the same plant.

Syringa vulgaris

The Common, English or French Lilac. Native to the Balkan Peninsula, where it grows on rocky hills. So diverse that dozens of 'species' were identified, later known to be merely variations of form. Most notably at the furthest extreme being 'Rhodopea' which gave rise to blue tinged and earlier budding cultivars.

Hardiness	3-7a*
Surculose	Yes, occasionally to profusely
Habit	Large Shrub or Small Tree
Mature Extent	7m High, 4m Spread
Bark Aspects	Grey to grey-brown, smooth, longitudinally furrowed with age
Stem Aspects	Older stem bark flakes, otherwise smooth, light brown
Rich-Lilac Resin	Present
Leaf Form	Ovaloid to heart shaped, 12cm long and 8cm wide
Leaf Tinge	Green
Inflorescence	Due to concerted breeding, very diverse. 18cm panicles average
Corolla Form	Due to concerted breeding, very diverse. 10mm long, 8mm across average
Bud Tinge	Due to concerted breeding, very diverse
Petal Tinge	Due to concerted breeding, *very* diverse
Bloom Period	Mid to Late Spring
Fragrance	Strong
Capsule Aspects	2cm long, smooth, brown

Quirks: *Certain varieties have been bred for warmer climes and to bloom with absolute minimum chill, as far as 9a. Likewise certain varieties can go as far North as 2a. The vast majority prefer Zone 5.

Subgenus & Series Ligustrina

The Lilac Trees. Mostly contained to East Asia.. Do not be surprised if your local grocers or cinema's parking lot is filled with their hardy trunks. They fall in the category of 'underwire trees' by urban landscapers for their limited height.
Good with conifer backdrop, in the crook of a turn of a garden path, or surrounded by the latest blooming of the Villosa group to match bloom periods.

They take a relatively long time to seed, and the seed can be highly inconsistent with some being obviously bigger and healthier. Being newer to markets, the subgenera has not yet been subjected to the same intensity of breeding as other types and so every generation has intense variability.

I have read that they do not respond well to heavy pruning, such as renovation.

Syringa amurensis

Furagda (Nahai), 暴马丁香 the Violent Horse Lilac, 荷花丁香 the Lotus Lilac, the Amur or Manchurian Lilac. The Amur river borders China and Russia for nearly 1,000 miles. Prefers open areas in mixed forest valleys near but not under pine.

Hardiness	3a-6b
Surculose	No.
Habit	Triangular, but too round and broad to be called pyramidal. Rarely shrubbing
Mature Extent	2.4m+ High, 2m Spread
Bark Aspects	Old brown bark exfoliates to chestnut-brown inner bark, profusely lenticelled
Stem Aspects	Bark exfoliates, grey, glossy.
Rich-Lilac Resin	Not Present
Leaf Form	15cm Long, 8cm Broad, roughly ovate, taper-pointed, smooth, sunken veined
Leaf Tinge	Dark Green, underside the same
Inflorescence	30cm long by 20cm broad panicles, densely packed.
Corolla Form	6mm tubular, 6mm across apex, Anthers clearly jutting out
Bud Tinge	? ? ?
Petal Tinge	White to Creamy Yellow, Pale Yellow Anther
Bloom Period	Late Spring to Spring-to-Summer Transition
Fragrance	Profuse, pleasant but Privet-like
Capsule Aspects	Blunt ended smooth brown capsule, 25mm long
Quirks:	More rounded and broader than S. *reticulata*. Used to make antiphlogistics in traditional medicines.

Syringa fauriei(tent.)

버들개회나무, the Willow-leaf Manchurian or Fauriei Lilac. Common to sunny areas, lowlands, and forest edges near rivers or valleys from the Southern region of Gangwon-do to Mt. Geumgang. Recently argued to be a distinct species for genetic and morphological reasons, most notably flowering a full week before *S. reticulata* in the same region and being consistently distinct in appearance.

Hardiness	? ? ?
Surculose	No
Habit	Small Trees or Shrubs, Thick Foliage, clustering inflorescences
Mature Extent	6m High, 6m Spread?
Bark Aspects	Olive Grey, cracked or peelingPrimarily Vertical to Mixed Lenticels at trunk
Stem Aspects	Young branches green, Glabrous. Older Light Olive Brown.
Rich-Lilac Resin	Not Present
Leaf Form	12cm Long, 4cm Wide, Narrowly Ovate or Lanceolate, Short Petiole.
Leaf Tinge	Dark Green Above, Bright Yellowish Green Beneath. Bud out Brown-Red.
Inflorescence	Large, Conical, 11.5cm by 8.3cm
Corolla Form	5.7cm Corolla Diameter, 3.3cm Long, 9.7cm Tube, Tubular, clavate stigma
Bud Tinge	Creamy Yellow
Petal Tinge	Stark White
Bloom Period	Spring to Summer Transition
Fragrance	Strong
Capsule Aspects	13mm by 6mm, Smooth, Oblong, Dark Brown to Cinnamon Brown
Quirks:	Due to adaptation to riverside environment, a notably a good developer of ‘advantageous shoots’.

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Syringa pekinensis

北京丁香 the Beijing Lilac, Peking or Chinese Tree Lilac.

Hardiness	3a/4b-7b
Surculose	No
Habit	Arching branches, bushy, spreading, rounded. Can be trained to single stem.
Mature Extent	6.1m High, 4.6m Spread
Bark Aspects	Coppery Red mix, exfoliates and fissures relatively young, paper curling
Stem Aspects	Tawny Brown, corky prominent lenticels
Rich-Lilac Resin	Not Present
Leaf Form	10cm long, 5cm wide, roughly Ovate with variance, smooth
Leaf Tinge	Dark Green above, Grey-Green beneath, Fall turns Brown to Green, or yellow
Inflorescence	Often in pairs, 15cm long, spread horizontally
Corolla Form	5mm long, 7mm wide tubular
Bud Tinge	Yellow, Yellow-Green
Petal Tinge	'Gold', Yellowish-White to Grey-White
Bloom Period	Early to Mid Summer, two weeks after *S. vulgaris*
Fragrance	Strong, privet/honey-like
Capsule Aspects	Loose Clusters of 25mm Acute Pointed Oblong Brown capsules
Quirks:	Rapid growth at first, but slower to bloom than *S. reticulata*, and slower in its blooming action. Also *often* more heat tolerant but equally less cold hardy. Peeling quality is notably variable in the same seed batch. 'Pendula' variety does not readily seed its weeping quality. Leaf shape and cold tolerance variable. Drought, salt, mildew and pollution resistant. Leaf roll resistance variable. Form reminiscent of an apple tree.

Syringa reticulata (tent.)

ハシドイ Hashidoi(Red Lilac Tree?), the Giant/Japanese Tree Lilac. Native to Japan, where it grows on cliffs. Previously all other Lilac Trees were assumed to be subspecies of this.

Hardiness	2b-7b
Surculose	No
Habit	Vaguely Christmas tree shaped with rounded top, single or multi-stemmed
Mature Extent	12m+ High, 6m Spread
Bark Aspects	Reddish-Brown, lenticellated horizontally in cherry manny, may exfoliate
Stem Aspects	Young, glossy brown, highly lenticellated. Ages reddish brown, and peels.
Rich-Lilac Resin	Not Present
Leaf Form	Firm, 15cm by 8cm, Ovate to Broad-Ovate, apex acute, base rounded, droopy
Leaf Tinge	Dark Green above, Greyish Green beneath
Inflorescence	30cm long, 20cm wide, Broad and Rounded
Corolla Form	Tubular, 6mm long with a 6mm across apex
Bud Tinge	Yellow
Petal Tinge	Creamy-White, Yellow Anthers
Bloom Period	Early Summer for two weeks
Fragrance	Strong, musky/privet/honey-esque
Capsule Aspects	25mm Smooth Bright Yellow Brown Oblong Capsules, minorly Warty
Quirks:	The most ‘trouble free’ and tallest of Lilacs. Often used for urban greenery. Clay, salt, pollution tolerant. Mildew, leaf roll and borer resistant.

Subgenus Syringa

Every Lilac that isn't a tree or related to S. *vulgaris*. From Hungary to Japan, and now naturalized much the world over. In your dooryard or some Persian palace, in a zen garden or down a steep valley's creek. This subgenera may not be long for the world, for Series Syringa and Series Ligustrina are far closer genetically to one another than to Series Pubescentes and Series Villosa. Appearance wise it makes more sense *this* way though.

The history of Lilac species can be loosely summarized as such. The common Lilac was brought to France by a bigshot ambassador, whereupon it spread across Europe as a shrub par excellence. Some centuries later some intrepid men tried to trace its origin, finding that Persia merely cultivated it. Rather it was Eastern Europe around Hungary that was its native bounds, and alongside it was Josikae's Lilac. The Great Game era of Imperialism saw a deluge of botanist generals scour China for its foliage. The bulk of Lilac species were named and spread in this period, notably the Villosa group and tree Lilacs. Now, in this era of genetic testing and scrutiny, we get the full picture as we combine or separate species by their internal composition rather than external facing. Such testing has made variants of species and species of variants up and down every subgenera. All the while the French Lilac has been bred, crossbred, back crossed, hybridized, mutated, shocked, irradiated and hothoused into every hue save orange, true blue and green. I assume only Tulips, Day Lilies and Roses have gone through more cultivation in such a relatively short time, but with much greater fanfare.

⌘**Series Pubescentes**

The Littleleaf group, Clove Lilacs, with noticeably smaller and rounder leaves.

Syringa pinetorum

松林丁香, the Piney Lilac. Growing in valleys under pines, at altitudes of 2,200-3,600 meters in Southwestern China and Tibet. No registered cultivars in the whole of the IRCC List. Fairly diverse in appearance, so much so that it was previously thought to have as many as 5 subspecies. Such were 'chuanxiensis', 'mairei', 'rugolosa' and 'wardii'. Most of the qualitative details are my guesses from photos.

Hardiness	? ? ?
Surculose	Possibly?
Habit	Wild and upright, tending to crowd crown
Mature Extent	3m High, 3m Spread
Bark Aspects	Grey, smooth
Stem Aspects	Villous to Puberulent, aging to Glabrescent, minor lenticels
Rich-Lilac Resin	? ? ?
Leaf Form	Ovate to Lanceolate, 2.5cm by 2cm, papery, varies from pubescent to glabrous
Leaf Tinge	Dark Green
Inflorescence	Loose, Erect, 16cm long to 8cm wide
Corolla Form	Salverform, 10mm long tube, 15mm corolla
Bud Tinge	Deep Creamy Pink to Rose Pink
Petal Tinge	Pale Red to Lilac, ending in White, Yellow Anthers 3mm out
Bloom Period	Late Spring
Fragrance	One brief reference to 'stront'
Capsule Aspects	Lanceolate to long elliptic, nearly smooth, 15mm long
Quirks:	Taxonomic revision of Syringa pinetorum complex (Oleaceae) doi: 10.3724/SP.J.1002.2008.06177

Syringa pubescens

-*Subspecies microphylla* (syn. *spontanea; julianae*)

四季丁香, the Four Seasons Lilac, Daphne or Littleleaf lilac. Commonly found in woods in valleys, near rivers, grasslands at mountaintops between 500 and 3,400 meters in the general region between the Yellow and Yangtze Rivers.

Hardiness	2b-8a
Surculose	No.
Habit	Upright bushy and Spreading, Dense, slender branches.
Mature Extent	2.1m High, 4.5m Spread
Bark Aspects	? ? ?
Stem Aspects	Young finely puberulent, Yellow-Green
Rich-Lilac Resin	? ? ?
Leaf Form	Small, Glossy, Narrowly to Broadly Ovate, puberulent below
Leaf Tinge	Mid Green, grey beneath. Yellow in Fall
Inflorescence	Dense Panicles, 10cm Long, stem puberulent
Corolla Form	Tubular 17mm long, 3mm wide lobe
Bud Tinge	Deep Rose, Calyx Light Purple
Bloom Tinge	Rosy-Pink fading to Creamy Rose, Paler Interior, Anthers Pale Purplish-Yellow
Bloom Period	Spring-to-Summer with S. *vulgaris*, may rebloom Summer-to-Fall
Fragrance	Varies, from hardly noticeable to very sweet, ‘delicate and unique’
Capsule Aspects	? ? ?
Quirks:	Wood is relatively weak, train to shrub over tree form. Slow but long Growing. In wetter summers new growth dies back come winter. Flowers traditionally used as a substitute for tea. Some varieties self-sterile. Drought tolerant, mildew resistant, but not to leaf roll. Medicinal bark and leaves???

Three varieties have been recognized in subsp. microphylla: var. microphylla (leaves glabrous adaxially to pubescent or subglabrous except for midrib, sometimes pilose toward base abaxially; corolla purplish red; anthers purple to purple black) is distributed throughout the subspecies range; var. potaninii (C. K. Schneider) P. S. Green & M. C. Chang (leaves pilose abaxially, pilose to villous abaxially especially on midrib; corolla white tinged with pink) is restricted to Gansu; and var. flavoanthera (X. L. Chen) M. C. Chang (leaves glabrous abaxially to pubescent or subglabrous except for midrib, sometimes pilose toward base abaxially; flowers white; anthers yellow) is restricted to Shaanxi (Foping Xian).

-***Subspecies patula*** (syn. palibiniana; velutina)

털개회나무, the Miss Kim Lilac, Manchurian or Korean lilac. Gravelly or rocky spots in grasslands and woods at 300 to 1,200 meters in the Great Paekdu mountain range, specifically the portion from Liaoning to South Korea.

Hardiness	3a-8b
Surculose	Rarely.
Habit	Dense and slow growing
Mature Extent	2.7m High, 2.2m Spread
Bark Aspects	? ? ?
Stem Aspects	Axis pubescent, gray bark, many lenticels
Rich-Lilac Resin	? ? ?
Leaf Form	8cm long, 7.5cm wide, lightly pubescent above, densely beneath, undulant
Leaf Tinge	Dull Dark Green, Pale Green beneath, Fall turns burgundy, mauve
Inflorescence	Dense, Pyramidal, 15cm Long
Corolla Form	Tubular, 20mm long
Bud Tinge	? ? ?
Petal Tinge	Red Lilac, Pale Pink, Pink, Bluish, White inside
Bloom Period	Late Spring
Fragrance	Strong, ‘spicier’ than average Lilac
Capsule Aspects	Brown to Copper Brown
Quirks:	Heavy seeder, highly variable in progeny

-***Subspecies pubescens***

巧玲花 the Exquisite Flower, 小葉丁香 the Small Leaf Lilac, Downy Lilac. Lives on Slopes, grasslands, woods, thickets, along rivers; 300-3400 m. across much of China and Korea.

Hardiness	3a-8a
Surculose	No.
Habit	Wider than tall without training, dense and mounding, many stems
Mature Extent	3m High, 3m Spread
Bark Aspects	Gray-brown, prominent Lenticels
Stem Aspects	Gray-brown, prominent Lenticels, red on youngest, pubescent
Rich-Lilac Resin	? ? ?
Leaf Form	8cm x 6cm, ovate, nearly palmate venation on *meyeri*, pillose beneath
Leaf Tinge	Green, Fall turns unimpressive Yellow
Inflorescence	16cm long 7cm spread erect, densely packed, many pairs per branchlet
Corolla Form	1.8cm long, ?cm, trumpet shaped
Bud Tinge	Purplish Lilac, or Reddish Purple
Petal Tinge	Purplish red, purple, lilac, pink, White throated, Anthers Purple or Black
Bloom Period	Early Summer
Fragrance	Very Strong, spicy, clove-like
Capsule Aspects	Brown, 20mm, long elliptic to oblong-lanceolate, lenticellate
Quirks:	Suffers from late frosts, notably difficult to cross. Slower growing than average. Good urban Lilac, resistant to powdery mildew. Heat tolerant.

⌘Series Villosae

Collectively known as ‘Late’ Lilacs or the Villosa Group for their ease of crossings.

Syringa emodi (syn. *tibetica*)

Himalayan Lilac. Least related to its compatriots, resulting in compatibility issues in cross. Slopes at 2,000 to 3,000 meters along the Western Himalayas.

Hardiness	2b-7a
Surculose	?
Habit	Limbs grow noticeably upright
Mature Extent	5m High, 4m Spread
Bark Aspects	Silver-grey
Stem Aspects	Silver-grey, upright, many branchlets, lenticellate
Rich-Lilac Resin	?
Leaf Form	9cm x 5cm, Oval to Elliptic, silvery pubescent beneath, venation prominent
Leaf Tinge	Dark Green, almost white beneath, light Yellow Green in Spring
Inflorescence	Upright, dense, 15cm long, not nearly as flashy as relatives
Corolla Form	8mm long salverform, anthers protrude, calyx of bell or hooded shape
Bud Tinge	?
Petal Tinge	Lilac, Purple or white
Bloom Period	Late Spring
Fragrance	Strong, ‘unpleasant’
Capsule Aspects	Slender pointed, 15mm long 4mm broad, lenticellate capsule
Quirks:	Comparatively fast growing but short lived. Mildew resistant. Drought *intolerant*, prone to losing leaves in late summer.

Syringa josikaea

Hungarian or Josika's Lilac. Notable to grow alongside S. *vulgaris* in its native habitat, being an example of an ice-age split species coming back to the same niche in the same geography.

Hardiness	2b-7a
Surculose	No.
Habit	Upright thick stems, Open, settling into umbrella shape with dense foliage.
Mature Extent	5m High, 4m Spread
Bark Aspects	?
Stem Aspects	Slender purplish-red, young shoots pubescent and sparingly lenticellated
Rich-Lilac Resin	?
Leaf Form	18cm long, 6cm wide. Broad-elliptic to elliptic-oblong, variable. Leathery.
Leaf Tinge	Dark Green, bluish pale beneath, persistent orange-yellow in Fall
Inflorescence	20cm Upright 'squat' loose panicles, slender.
Corolla Form	Tubular 1.7cm long, narrow four-lobed apex .7cm across
Bud Tinge	?
Petal Tinge	Purple, Dark Pink, Lavender
Bloom Period	?
Fragrance	Pungent
Capsule Aspects	Oblong, smooth, 13mm long
Quirks:	Withstands slightly wetter roots than the average Syringa, but needs much richer soil in return. Fast growing, yet long lived. Good hedge. Drought tolerant, mildew resistant.

Syringa komarowii

-Subspecies komarowii

西蜀丁香 the Xishu Lilac, Nodding or Komarov's Lilac. Also transliterated as 'Komarova', mainly in Russian texts.

Hardiness	2b-8b
Surculose	No.
Habit	Erect
Mature Extent	6m High, 5m Spread
Bark Aspects	Grey, moderately lenticellated.
Stem Aspects	Brown, aging to grey, unimpressive. Thoroughly lenticellated.
Rich-Lilac Resin	?
Leaf Form	Oval-oblong, rough, 19cm long 7cm broad, prominent veins.
Leaf Tinge	Dark Green.
Inflorescence	Compact cylindrical clusters 25cm long, 13cm wide, 'nodding' or 'drooping'
Corolla Form	Funnelform 2.2cm long, lobes ovate and erect
Bud Tinge	Violet to Creamy Pink, tending towards darker than full bloom.
Petal Tinge	Purple-Red to pale Lavender, white inside. Yellow anthers.
Bloom Period	Late Spring/Early Summer, a month after S. *vulgaris*
Fragrance	Fragrant
Capsule Aspects	15mm, smooth or sparsely lenticellate
Quirks:	Grow in a broader range of heights, 1,000-3,400m, in woods near rivers. Shorter flowering than average, and lignifies growth upwards of a month sooner than other Lilacs.

-***Subspecies reflexa***

垂絲丁香 the Draping Lilac, Nodding or Pendulous Lilac. While definitely close kin, it is distinct enough to be a subspecies.

Hardiness	3b-8b
Surculose	No.
Habit	Erect, Strong, Handsome.
Mature Extent	5m High, 5m Spread
Bark Aspects	Grey, moderately lenticellated.
Stem Aspects	Brown, aging to grey, unimpressive. Thoroughly lenticellated.
Rich-Lilac Resin	?
Leaf Form	Oval-oblong, rough, 19cm long 7cm broad, prominent veins.
Leaf Tinge	Dark Green.
Inflorescence	Pyramidal to cylindrical, often interrupted. Pendulous, 25cm long, 13cm wide.
Corolla Form	Salverform 2.2cm long, lobes spreading, 'reflexing' backwards
Bud Tinge	Dark Red to Pinkish White, tending towards darker than full bloom.
Petal Tinge	Full shade paler than S. *komarowii*, light red to pale lilac. White inside.
Bloom Period	Late Spring/Early Summer
Fragrance	Fragrant
Capsule Aspects	15mm, smooth or sparsely lenticellate
Quirks:	Grow in an average higher range, 1,800-2,900m, in woods near gullies. Resistant to mildew and leaf roll. Flowering reminiscent of Wysteria.

Syringa sweginzowii

四川丁香 the Sichuan Lilac, Chengtu or Sweginzow's Lilac. Also transliterated as "Zvyagintseva" and "Zvegintsov". Zvegintsov's Lilac seems to be how Russian sources mainly refer to it, to clear any confusion.

Hardiness	6b-9b
Surculose	?
Habit	Upright, narrow, Arching branches.
Mature Extent	4m High 2.5m Spread
Bark Aspects	Gray, evenly lenticellated.
Stem Aspects	Slender purplish-gray young shoots, glabrous
Rich-Lilac Resin	?
Leaf Form	7.5cm Long, 4cm Wide. Ovate-lanceolate, Pubescent on veins beneath.
Leaf Tinge	Dark dull Green. Edges tinged purplish-red young.
Inflorescence	30cm long, 11cm width. Narrow Conical Clusters, erect.
Corolla Form	Salverform, 10mm Long, 2.4mm diameter
Bud Tinge	'Flesh' colored.
Petal Tinge	Pale Rosy Lilac to Purplish, White inside. Yellow Anthers
Bloom Period	Late Spring/Early Summer, same as S. *vulgaris*
Fragrance	Strong, spicy, delicate, heady, 'honey like'.
Capsule Aspects	20mm smooth to lenticellate, oblong to conical
Quirks:	Grows faster than S. *komarowii* but lignifies later, possibly making it prone to irregular winter damage. Mildew resistant.

Syringa tomentella

-Subspecies tigerstedtii

I honestly can find little on this one. It has been brought up again and again in research papers and early explorations, but has yet to make its way westward to be judged on its merits. Chloroplast DNA suggests it to be a subspecies. Seems the Lilac Society did its own sorting out in 1979.

Hardiness	Very
Surculose	?
Habit	Graceful, open, older stems spreading and arching. Broad.
Mature Extent	3m High, 4m Spread
Bark Aspects	Gray.
Stem Aspects	Reddish brown, glabrous. Slightly nodding for inflorescence bearers.
Rich-Lilac Resin	?
Leaf Form	13cm Long, 8cm wide mostly Ovate-lanceolate. Pubescent on veins beneath.
Leaf Tinge	Medium Green, paler beneath. ‘No notable’ Fall color.
Inflorescence	25cm Long, 15cm Width. Erect, wide spacing.
Corolla Form	Rounded bud, 10.5mm Length, 9.5mm Diameter. Partially reflexed, hooked.
Bud Tinge	Light Purplish Pink.
Petal Tinge	Very Pale Pink, White inside. Light Yellow Anthers.
Bloom Period	Early Summer.
Fragrance	Fragrant, akin to a ‘Spicy Carnation’
Capsule Aspects	3mm Long. Pointed, smooth, shiny.
Quirks:	

-***Subspecies tomentella***

Felty Lilac.

In a manner S. *tomentella* is a species complex. On one end is arguably S. *yunnanensis*, being the furthest morphologically from the base S. *tomentella*, namely pubescents. Though they share general ranges, traits, and can interbreed, they are still distinct enough to warrant separate taxonomy. For a comparison, the Albatross and the Fern. Variable, interbreedable, but distinct populations.

Hardiness	5b-8b
Surculose	?
Habit	Upright, arcing gradually.
Mature Extent	7m High, 7m Spread
Bark Aspects	Smooth, gray.
Stem Aspects	Pubescent, warty. Light brown. Slightly nodding in youth.
Rich-Lilac Resin	?
Leaf Form	11cm x 5cm. Ovate-lanceolate, variable, often pubescent below. ‘Corrugated’
Leaf Tinge	Dark Green.
Inflorescence	Erect, loose. 25cm Long to 12cm spread.
Corolla Form	Salverform, 1.4mm Long to 1mm Diameter. Anthers just in, or just out. Hooked
Bud Tinge	Purple-Red to pink, ending in White.
Petal Tinge	White, Pale Pink to Lilac-Red, Yellow Anthers.
Bloom Period	Early Summer
Fragrance	Strong, sweet. Similar to S. *vulgaris* but not as strong.
Capsule Aspects	18mm x 7mm, smooth to lenticellate. ‘Shining’ and ‘spindle’ shaped.
Quirks:	

Syringa villosa

红丁香 the Red Lilac, Shensi, Villous or Late Lilac. Grows near gullies, riverbanks, and thickets at 1,200 to 2,200 meters in Hebei and Shanxi, Mongolia, Eastern Russia.

Hardiness	1b-7b
Surculose	No.
Habit	Dense and Erect, Rounded
Mature Extent	5m High, 3m Spread
Bark Aspects	Light Brown aging to Light Gray, Smooth with Lenticels, may become Scaly
Stem Aspects	Slender, purplish-gray young shoots
Rich-Lilac Resin	?
Leaf Form	Ovate Oblong, 11cm Long x 6cm Wide, abaxially pillose to barbate on veins.
Leaf Tinge	Dull Dark Green, poor Fall color.
Inflorescence	Compact Pyramidal erect clusters, 13cm Long, 10cm Wide. Abundant.
Corolla Form	Slender tubular, subcylindric, 2cm Long, 1.5cm diameter.
Bud Tinge	Pale Pink, tipped in White.
Petal Tinge	Rosy, White, Pink or Purple. Yellow Anthers .
Bloom Period	Spring to Summer Transition, 10-14 days after S. *syringa*
Fragrance	Strong
Capsule Aspects	Capsule Oblong, Brown, 15mm, nearly Smooth
Quirks:	More salt tolerant than average. Mildew and leaf roll resistant. Drought tolerant.

Syringa Wolfii

遼東丁香 the Liaodong Lilac, 꽃개회나무 the Beautiful Wolf's Lilac, or Wolf's Lilac. Also known as the 'Flower of Heaven' for its 'noble' fragrance.

Hardiness	2b-8a
Surculose	?
Habit	'Handsome' ? 'Attractive' ?
Mature Extent	5m High, 4m Spread
Bark Aspects	?
Stem Aspects	Slender, green young shoots. Age to red then gray, glabrous or pubescent.
Rich-Lilac Resin	?
Leaf Form	Oblong Elliptical, fully pubescent beneath, partial on top. 18cm by 10cm
Leaf Tinge	Burgundy unfurl, smooth bright Green, pale beneath. Muddy Yellow Fall color.
Inflorescence	30cm long by 18cm wide, Erect Compact Conical clusters, 'horn' shaped.
Corolla Form	Funnelform, 1.8cm Long 1.4cm Diameter, hooked.
Bud Tinge	Pale pink to Magenta.
Petal Tinge	Lilac, Pale Purple to Purple Red. Yellow Anthers.
Bloom Period	Spring to Summer Transition
Fragrance	Strong, potent, pleasing.
Capsule Aspects	Bright Brown, oblong, 17mm
Quirks:	Rapid Growing

Syringa yunnanensis

雲南丁香 the Yunnan Lilac.

Hardiness	6a-8b
Surculose	No.
Habit	Erect, upright, and slender
Mature Extent	8m High, 8m Spread
Bark Aspects	Rusty Brown, papery curls.
Stem Aspects	Slender, reddish young shoots that are warty and downy or smooth
Rich-Lilac Resin	?
Leaf Form	Oval to Lanceolate, 30cm x 16cm. Rarely pubescent beneath on vein, leathery
Leaf Tinge	Glossy Deep Green, Blue-Grayish and Glaucous beneath
Inflorescence	Erect, pyramidal, compact, slender, 18cm Long, 12cm Wide.
Corolla Form	Funnelform, 1.2cm Long x .8cm Diameter. Anther up to 2mm inside. Curly.
Bud Tinge	Light Pink tipped in White.
Petal Tinge	White to Soft Pink. Yellow Anther.
Bloom Period	Early Summer
Fragrance	Yes.
Capsule Aspects	Oblong, 17mm, slightly lenticellate.
Quirks:	Var. *pubicalyx* is recognized by lanate calyces and rachis, whereas regularly the rachies are puberulent and the calyces are glabrous. Very fast growing, typical of plants adapted to short growing seasons. Heat tolerant, mildew resistant.

Cultigens

Nothospecies

S. × *chinensis*	S. × *persica* × S. *vulgaris*	Chinese, Persian, Rouen, Siberian
S. × *clarkiana**[1]	S. *komaworii* × S. *wolfii*	–
S. × *diversifolia*	S. *oblata* × S. *pinnatifolia*	Szechuan, Varyleaf
S. × *fialiana**	S. × *lemoineiana* × S × *wolfii*	–
S. × *henryi*	S. *josikaea* × S. *villosa*	Henry or ❦Norrland[2]
S. × *heterophylla**	S. × *hyacinthiflora* × S. *pinnatifolia*	–
S. × *hyacinthiflora*	S. *oblata* × S. *vulgaris*	American/Early Hybrid, Hyacinth
S. × *josiflexa*	S. *josikaea* × S. *komarowii*	❦Arc, Josiflexa
S. × *laciniata*	S. *protolacianata* × S. *vulgaris*	Cutleaf, Feathered Persian
S. × *lemoineiana**	S. *sweginzowii* × S. *tomentella*	– syn. S. × *swigitella*
S. × *nanceiana*	S. × *henryi* × S. *sweginzowii*	Nanceiana, ❦Sweet
S. × *persica*	S. × *laciniata* × S. *afghanica*	Persian, Persian Jasmine
S. × *prestoniae*	S. *reflexa* × S. *villosa*	Canadian Hybrid, Ottawa, Preston
S. × *pringleiana**	S. *reflexa* × S. *yunannensis*	–
S. × *quatrobrida**	S. × *lemoineiana* × S. × *clarkiana*	–
S. × *skinneri**	S. *patula* × S. *pubescens*	–
S. × *swegiflexa*	S. *reflexa*× S. *sweginzowii*	❦Pink Pearl, Swegiflexa
S. × *sweginbretta**	S. *sweginzowii* × S. *villosa*	–
S. × *tribrida**	S. × *lemoineiana* × S. *komarowii*	–
S. × *laughalot**	S. × *quatrobrida* × S. *heterophylla*	Monkey Business, Orangetan(sic)
S. × *nihilletalae*	S. *pinnatifolia* × S. *protolaciniata*	Nonesuch

Chimera

	Type	Origin
S. + *correlata*	Graft	S. × *chinensis* × S. *vulgaris*
S. *vulgaris var.* ‘*Pārsteigums*’	Periclinal	S. *vulgaris var.* ‘Sensation’ × ?
S. *vulgaris var.* ‘Primrose’	Periclinal	S. *vulgaris var.* ‘Marie Legraye’
S. *vulgaris var.* ‘Sensation’	Periclinal	S. *vulgaris var.* ‘Hugo de Vries’

[1] * Marks unrecognized names, yet included for brevity of hybrid formulas. While unofficial, they are used enough to be thoroughly repeated in print.

[2] ❦ marks names translated from Finnish. They sound good, in my opinion.

Compatibility Chart

Updated 8/12/2024

Red **X**	Either attempted numerous times to no avail, or rightly assumed impossible.
Pumpkin **?**	Highly improbable, untested.
Turmeric **?**	Attempted and failed, but with hope or new technique may be accomplished.
Tan **?**	No attempts have been recorded that are digitally accessible.
Green **0**	Successful, or no reason to assume otherwise.
Green **θ**	One way successful, thus far impossible in reverse roles.

Special thanks to the late Dr. Pringle, who did the legwork on Series Villosa cross breeding attempts, and for debunking old attestations to interseries crosses. Special enmity to the various research papers minimally citing his work in Baileya with no link to the *singular* publicly-available digital copy. For posterity and others' sanity, here it is.

> [Liberty Hyde Bailey Hortorium. Baileya. [Ithaca: L. H. Bailey Hortorium, New York State College of Agriculture and Life Sciences, Cornell University] https://hdl.handle.net/2027/uc1.31210003455027]

I should note that, especially in Series Villosa, the cross compatibility is a touch suspect on S. *emodi*. That is to say, where attempts are attested to the authors rarely mention who was mother and who was father, and whether or not the opposing pollination was done in turn. I filled those in with 'successful' in good faith, but difficulties have been noted with viable sprouts and questioning if the result was merely self pollinated, as well as predictions of sterility by way of genetic distance. Paraphrasing, supposed hybrids have shown none of the traits of S. emodi.

The question of s. *pekinensis* and s. *amurensis* is an odd one. At least once a concerted effort was made to no success. Past breeders were perplexed at that. By all appearances, and a glance at their genetics, they s*hould* be close enough. This total lack of tree hybrids informed my taxonomy alterations for the Ligustrina subgenus.

On the opposite end, s. *pubescens* and s. *vulgaris* should *not* work. One prodigious attempt produced 3 albino sprouts. They perished, but their existence left hope. The other cross-series marked by turmeric **?** have similar stories, producing notably more (*admittedly sterile*) seeds than other attempted combinations between series.

With the inclusion of s. *pinnatifolia* into Series Syringa, there are no extant interseries hybrids in the entire genus Syringa. This is most sad. It is genetically closer to S. *vulgaris* than S. *emodi* is to S. *villosa* for comparison, if I read the data right.

Lilacs

How to make them Robust, À Gogo and Splendiferous

X Maternal / Y Paternal	fauriei	amurensis	reticulata	pekinensis	pinetorum	microphylla	patula	pubescens	afghanica	dilitata	oblata	pinnatifolia	protolaciniata	vulgaris	emodi	josikaea	komarowii	reflexa	tomentella	sweginzowii	yunnanensis	villosa	wolfii
fauriei	O	?	?	?	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
amurensis	?	O	?	?	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
reticulata	?	?	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pekinensis	?	?	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pinetorum	X	X	X	X	O	?	?	?	X	X	X	X	X	X	?	?	?	?	?	?	?	?	?
microphylla/julianae	X	X	X	X	?	O	O	O	X	X	X	X	X	X	?	?	?	?	?	?	?	?	?
patula/potaninii	X	X	X	X	?	O	O	O	X	X	X	X	X	X	?	?	?	?	?	?	?	X	?
pubescens/meyeri	X	X	X	X	?	O	O	O	X	X	X	X	X	X	X	X	X	?	X	X	X	?	X
afghanica	X	X	X	X	X	X	X	X	O	O	O	?	ϴ	O	X	X	X	X	X	X	X	X	X
dilitata	X	X	X	X	X	X	X	X	O	O	O	O	O	O	X	X	X	X	X	X	X	X	X
oblata	X	X	X	X	X	X	X	X	O	O	O	ϴ	O	O	X	X	X	X	X	X	X	X	X
pinnatifolia	X	X	X	X	X	X	X	X	?	O	?	O	?	O	X	X	X	X	X	X	X	X	X
protolaciniata	X	X	X	X	X	X	X	X	?	O	O	?	O	O	X	X	X	X	X	X	X	X	X
vulgaris	X	X	X	X	X	X	X	?	O	O	O	O	O	O	X	X	X	X	X	X	X	X	X
emodi	X	X	X	X	?	?	?	X	X	X	X	X	X	X	O	O	?	O	?	O	X	O	ϴ
josikaea	X	X	X	X	?	?	?	X	X	X	X	X	X	X	O	O	O	O	O	O	O	O	?
komarowii	X	X	X	X	?	?	?	X	X	X	X	X	X	X	?	O	O	O	O	O	O	O	O
reflexa	X	X	X	X	?	?	?	?	X	X	X	X	X	X	O	O	O	O	O	O	O	ϴ	O
tomentella/tigerstedtii	X	X	X	X	?	?	?	X	X	X	X	X	X	X	ϴ	O	O	O	O	ϴ	O	O	O
sweginzowii	X	X	X	X	?	?	?	X	X	X	X	X	X	X	O	O	O	O	?	O	O	O	O
yunnanensis	X	X	X	X	?	?	?	X	X	X	X	X	X	X	?	O	O	O	O	O	O	O	O
villosa	X	X	X	X	?	?	X	?	X	X	X	X	X	X	O	O	O	?	O	O	O	O	ϴ
wolfii	X	X	X	X	?	?	?	X	X	X	X	X	X	X	X	?	O	O	O	O	O	X	O

Strains, Sports & Oddities of Note

Please, if someone gets to crossbreeding *S. afghanica* and *S. pinnatifolia* before me, name the cultigen *S. × nihilletalae,* the Nonesuch Lilac.

Bloomerang Lilacs

Bloomerang® forms a compact plant with small leaves. Plants bloom heavily in the spring, take a resting period, and then start up again in midsummer and continue until cold weather. The second period of bloom is not as full as that in the spring, but still showy. Born of the crossing of: S. *patula* × S. *microphylla* × S. *meyeri* × S. *juliana*

Confirmed Polyploids

This information is harder to track down than is reasonable and I am miffed, peeved, and a tad tilted. The Lilac cultivars that absolutely have extra sets of chromosomes are:

S. *vulgaris* Triploid varieties: 'Aucubaefolia', 'Agincourt Beauty', and 'President Grevy'

S. *vulgaris* likely mostly Tetraploid: 'Little Miss Muffet'

Cultivars by Seed

Almost all kinds of Lilac are similar to apples in that a Lilac will not produce the same Lilac from seed, but a phenotype scrambling of traits previously suppressed. There are however a few exceptions. The 'topovariants' of Syringa are:

'PNI 7523', sold as REGENT or REGENT BRAND, S. *reticulata*

'Legacy', S. *villosa* used as mass planted hedgerows for farms and parks.

'Veberöd', S. *vulgaris f. alba*, used in Sweden for hedges.

Fairytale Series Lilacs

'Bailnelle', 'Baildust', 'Bailina', 'Bailming', 'Bailsugar' and more. Bred by Neal S. Holland of Bailey Nurseries in Minnesota. Mostly dwarf, none exceeding 6 feet. Come from a cross of S. *meyeri var.* 'Paliban' × S. *microphylla var.* 'Superba'. Notable for some being dwarf with very red flowers and nearly lime green foliage.

Fenicchia Hybrid Lilacs of the 'Rochester' Strain

Born of seed from S. *vulgaris* var. 'Edith Cavill' and an unknown father. Slow growing, which is indicative of polyploid genetics, but testing proved only diploid. Its leaves are highly textured, flowers are multi-petaled and are pastel to pearlescent. Highly sought after for crossbreeding potential. By the work of one Richard Fennichia, a superintendent of Highland Botanical Park, a slew of multi-petaled hybrids were developed.

French Hybrid Lilacs

Most magnificent S. *vulgaris* of any note come from the painstaking breeding efforts of the Lemoine family, who also performed the first cross breedings with S. *oblata* to form the lovely S. × *hyacinthiflora*.

Low Chill Hybrid Lilacs

Trade named Descanso Hybrids, bred by Dr. Walter Lammerts of San Jose, and later carried on at Descanso in Southern California, made efforts to breed a range of Lilacs that can tolerate heat and a lack of humidity. A mix of S. *vulgaris* & S. × *hyacinthiflora*, though only the 18 S. × *hyacinthiflora* cultivars are commercially sold.

There are also Don Egolf Hybrid Lilacs, consisting of 'Betsy Ross', 'Declaration', and 'Old Glory'. Another go at S. × *hyacinthiflora* for warmer climates. While bred in the early seventies by a Dr. Don Egolf, these hybrids were only released by the U.S. National Arboretum starting in the year 2000.

Moondust

I am caught aghast that such a splendid new Lilac has been left by the wayside. Double flowers with bicolor along the midnerve of the petals, forming white with purple interior in equal measure. A bud mutation of the French Lilac 'Nadezhda'.

Preston/Canadian Hybrid Lilacs

Concurrently Isabella Preston and Frank Skinner, both Canadians, developed novel hybrids of S. *villosa* × S. *reflexa*, now commonly known as S. × *prestoniae*. They were bred to be cold hardy in the extreme North. Further hardy breeding of this line was done by the Polish Kornik Arboretum for similar winters.

Primrose

One forced S. *vulgaris var.* 'Marie Legraye' had a wonderful sport that grew yellow in flower. The yellow hue increases with age. Unfortunately, it seems this trait is not hereditary or is exceptionally recessive as only sports of the same have led to further yellows. Additionally the Lilac may altogether revert back to its parent white.

S. pubescens* subsp. *microphylla* var. *julianae

What may be called a 'Weeping Lilac', or Juliana's Lilac. Growing up to 20 feet high and wide in arches to actual weeping forms. It has ovate to lanceolate leaves that are dark green and papery. It has pale red or lilac flowers that have an almost spicy fragrance and

bloom in late spring in loose, erect panicles. It has brown capsules that contain many winged seeds.

S. pubescens* subsp. *microphylla* var. *spontanea

Wild Lilac. It has small white flowers that are very fragrant and bloom in late spring. This and other *S. pubescens* varieties were thought to be separate species due to the great range of features expressed and a lack of samples taken. While definite differences in traits exist, when observed from afar they seem a complex rather than separate entities. For example a variety named *potaninii* has fuzz on both sides of its leaf, but otherwise shows normal traits.

S. pubescens* subsp. *pubescens* var. *meyeri

蓝丁香 the Blue Lilac, Meyer Lilac or Dwarf Korean Lilac. Found growing in a garden near Beijing, China by Frank Meyer in 1909. Now assumed to be a strain of *S. pubescens* of extreme cultivation. A compact, rounded, slow growing, deciduous shrub that can grow up to 5-8 feet high with a 10 foot spread. The foliage is maroon-red at first, quickly turning to elliptic to obovate glossy deep green then to attractive dark maroon-red during autumn. Pale lilac to violet-purple flowers that are fragrant and bloom in small, dense clusters in late spring to early summer, about the same time as Syringa vulgaris. It also often repeats blooms in August and September.

Red Rothomagensis

'Red Rothomagensis', *S. ×chinensis*, **"...** is a naturally sterile deciduous shrub that is cloned to use in the USA-NPN (National Phenology Network) study to determine the effects of climate in different locations on the phenology or seasonal changes of genetically identical plants. It has opposite, simple, ovate-lanceolate leaves (to 3" long) that, in contrast to the broad leaves of the common lilac, are about twice as long as wide. Its tiny, reddish-purple flowers are grouped into showy, fragrant, terminal, long clusters. 'Red Rothomagensis' grows 12 to 16 feet tall and 8 to 12 ft. wide.**"**

Russian Lilacs

What might be considered an extension of French Lilacs, Russian Lilacs have an almost equally long history. Cultivar production increased during the Soviet era as some of the choicest picks of the Lemoine family were brought into Russian nurseries and arboretums. While the Great Game era had many Lilacs enter from China, their progeny is little known to Western eyes. In contrast the Soviet era produced much that is loved worldwide. Also of interest are Kazakhstani and Ukrainian Lilacs, which have similarly storied and troubled collections that are seeing new interest and proliferation.

Sensation

A mutation of S. *vulgaris var.* 'Hugo de Vries', 'Sensation' has a uniquely picotee flower, being deep purple with a pure white edge. While many Lilacs have more than one color, this one's are starkly defined. This is due to being a periclinal chimera, evident by some flowers being entirely diminutive and white. By unknown means a descendant has been made in '*Pārsteigums*', which shares the white edge but with much redder inside.

Variegated and Gold leafed Lilacs

A number of varieties have leaves in multiple hues. Mottled or striped, this may indicate chimerism and/or polyploidism. As such, one may consider this a list of 'potential' polyploids. Thanks to a Russian Lilac society, here is the extant list of oddballs.

If you are breeding Lilacs, for the love of god please do not toss out seedlings.

["INTERNATIONAL SYRINGA 2018" materials. Moscow, Botanical Garden of Moscow State University, St. Petersburg, Botanical Garden of Peter the Great BIN RAS, Pavlovsk, May 21 - 27, 2018]

S. *vu.* 'Alba Albo-variegata'	Golden Yellow	S. I White
S. *vu.* 'Aucubaefolia'	Yellow Mottling and Blotching	D. III Blue
S. *em.* 'Aurea'	Pale Yellow to Golden, Silver Beneath	S. I White
S. *vu.* 'Aurea'	Golden Yellow to Lime, Copper Tinge	S. II Violet
S. *vi.* 'Aurea'	Golden, Lime	S. V Pink
S. *re.* 'Cameo's Jewel'	Golden Yellow to Cream Mottled, Edged	S. I White
S. *re.* 'Chantilly Lace'	Thickly White Edged	S. I White
S. *re.* 'China Gold'	Yellow	S. I White
S.×*hy.* 'Corinna's Mist'	Golden	S. V Pink
S. *vu.* 'Dappled Dawn'	Creamy White to Yellow Dappling	S. III Blue
S. *em* 'Elegantissima'	Yellow Edged/Rimmed	S. I White
S. *em*? 'Father Fiala'	Golden Lime Green	S. III Blue
S. *re.* 'Golden Eclipse'	Yellow Blotching	S. I White
S. *to.* 'Kum-Bum'	Golden Lime Green	S. II Violet
S. *vu.* 'Lutens'	Bright Yellow, Lime Splotches	S. V-VII Pink-Purple
S. *vu.* 'Marie Legraye Folii Aureis'	Golden Yellow	S. I White
S. *vu.* 'New Patriot'	Yellow Mottling, also Underside	D. II/III Violet/Blue
S. *vu.* 'Quadricolor'	Golden to Light Green	S. IV Lilac
S. *vu.* 'Rubra Major Foliis Aureo Variegatis' -	Golden Yellow	S. VI Magenta
S. *jk.* 'Smaragd'	Golden to Light Green	S. VII Purple
S. *jk.* 'Stropkey Variegated'	Yellow Mottling, Creamy White Edges	S. V Pink
S. *vi.* 'Sun and Moon'	Golden, Copper-tinged to Lime	S. I White
S. *pe.* 'Taff's Treasure'	Pink-tinged, Light Pink Spotting'	S. VII Purple
S. *vu.* 'Variagata'	Blotches of yellow	S. Blue?
S. *em.* 'Variegata'	Dull Yellow Mottling or Blotching	S. I White

S. *vu*, 'Weston's Rainbow'	Golden Yellow	S. II Violet
S. *vi*. 'Zolotoi Amur'	Pinkish Base, Yellow Edging, Green Veins	S. VII Purple

Induced Mutations

Atomic Lilacs

Harnessing the power of radioactivity, often in "Atomic Gardens", seeds are exposed for varying lengths of time to intensely radioactive material. While these two groups may have had their seeds irradiated at the same time, delays in growth mean they likely all have different dates of introduction For instance, at the time of December 2000, only 'Prairie Petite' was recognized as a successful cultivar grown out of the batch that also produced 'Beth' and 'VAN'S PURPLE'. The registered Godzillas and Hulks of Syringa include:

'Beth', S. *vulgaris*, open pollination, thermal neutron radiation
'Prairie Petite', S. *vulgaris*, open pollination, thermal neutron radiation
'SMNSHBBL', S. ×*hyacinthiflora*, open pollination, gamma radiation
'SMNSHSO', S. ×*hyacinthiflora*, open pollination, gamma radiation
'VAN'S PURPLE', S. *vulgaris*, open pollination, thermal neutron radiation

Fiala's Colchicine Mutation Breeding

Using the highly carcinogenic chemical "colchicine" the intrepid Jesuit made a number of mutant breeds in the *attempt* to increase the chromosome count for cross breeding purposes. This may have eventually led to the cancer that ended him. Don't use dangerous chemicals outside of the most stringent protection procedures. While science journal articles suggest this experiment was performed by many institutes, only Fiala's was carried on to produce new cultivars. I should note that the cultivar listings are vague as to whether these were *all* colchicine induced, or merely surmised to be of higher ploidyness.

With T* marking the "assumed tetraploid", the registered ~~survivors~~ cultivars and their immediate progeny are:

'Aloise', S. *vulgaris*, born of 'Flora 1953' same seeded, *T
'China Gold', S. *reticulata*, born of S. *reticulata* × ?, from treated seeds
'Elsie Lenore', S. *vulgaris*, born of 'Sensation' same seeded, *T
'Eventide', S. *villosa*, born of 'Garden Peace' × 'Lark Song', *T
'Garden Peace', S. *villosa*, born of S. *komarowii* × S. *wolfii*, *T
'Hosanna', S. *vulgaris*, born of 'Gismonda' × 'Rustica', assumed mixploid
'Kum-Bum', S. *villosa*, born of S. *tomentella* ×?, assumed *T
'Lark Song', S. *villosa*, born of S. × *lemoineiana* × S. *komarowii*, *T
'Little Miss Muffet', S. *vulgaris*, born of 'Mrs Edward Harding' × 'Macrostachya', *T
'Mother Louise', S. *vulgaris*, born of 'Carley' × 'Flora 1953', *T
'Prophecy', S. *yunnanensis*, same seeded, *T
'Seafoam', S. *vulgaris*, born of 'Rochester' × unnamed octoploid(?) seedling
'Spellbinder', S. *villosa*, born of S. *komarowii* × S. *wolfii*, *T

Bloom Sequence

It is a bit preposterous tying Lilacs to a specific date, given their complete reliance on local climate for the appropriate timing. As such the best I can do is copy the 'general trend' of Lilacs to their local season. Be mindful that this is only in broad strokes. Early spring in California is about midsummer Iceland.

Early Spring	*S.* × *hyacinthiflora*, *S.* × *laciniata*, *S. oblata & dilitata*, *S. vulgaris var.* 'Rhodopea',
Mid Spring	*S.* × *chinensis*, *S.* × *persica*, *S. pinnatifolia*, *S. vulgaris*, 'Low-Chill'
Late Spring	*S. Afghanica*, *S.* × *diversifolia*, *S. fauriei*, *S.* × *nanceiana*, *S. patula & potanini*, *S. pinetorum*, *S. pubescens & microphylla & julianae & meyeri*, 'Bloomerang' large pulse
Early Summer	*S. amurensis*, *S. emodi*, *S.* × *henryi*, *S. japonica*, *S.* × *josiflexa*, *S. josikaea*, *S. komarowii & reflexa*, *S. pekinensis*, *S.* × *prestoniae*, *S. protolaciniata*, *S.* × *swegiflexa*, *S. sweginzowii*, *S.* × *swigitella*, *S. tomentella & tigerstedtii*, *S. villosa*, *S. wolfii*, *S. yunnanensis*
Mid Summer	*S. reticulata*
Late Summer	'Bloomerang' small pulse

Medicinal Uses

Traditional Mongolian medicine 山沈香 Shān Chénxiāng, "Mountain Sinking Fragrance", is made from the purple terpin staining from this plant as an alternative to the traditional Chinese medicine 沉香 Chénxiāng, literally "Sinking Fragrance", also known as *Lignum Aquilariae Resinatum* in medical latin, made from Agar Wood. It is also likewise used as substitute in the Tibetan 八味沉香丸 Bā wèi chénxiāng wán "Eight flavor 'agarwood' pills". As no single word fully denotes the natural purple staining of Lilac wood that doesn't imply an ongoing fungal infection or bacterial disease I propose "Accumulated 'Shān Chénxiāng' Resin Tyloses Stain", or if I may invent a term "Rich Lilac Resin", to describe this phenomenon. Anecdotal evidence suggests only colorfully flowered Lilacs carry this stain as it is not presently known in white flowered Lilacs. Likewise my own experience puts even the colorful Villosa group into question.

French Lilac is another name for Goat's Rue, a medicinal plant. *No relation.*

WIP FORMAT Landscaping

WIP

Plant in odd numbers. 3's, 5's, 7's. Mind the season of bloom amongst group members and never plant in orchard rows. A minimum of 10' separation, but preferably 15'. If the majority are scentless, consider mixing in an especially fragrant one. Tall Lilacs should be 20'-30' away from any forest edge, and should always be in the back row from viewing.

Color coordination, plant lighter colors farther and darker nearer. Human eye brings lighter colors closer and darker colors farther. It is also harder to make out darker details.

Be mindful, some cultivars like 'Agincourt Beauty' demand drainage more than others. Species *Syringa josikea* can tolerate wetter roots than most, but mind you the whole genus, nay, everything that isn't swamp adapted needs dry roots to breathe.

The current recommendation from the Municipal Arborist Association is that no more than 5% of any species, 10% of anyone genera and 20% or any one family should be planted in a street tree mix. This is a good protection for tree Lilacs, and disease control as a whole

✔Companion Planting; Pest Control

There are a good number of insects that dine on Lilacs. Here are some plants that deter or outright kill borers and sap suckers, and more importantly are just about guaranteed to survive Zone 5 without sheltering. I consider this important as a Lilac is often a standalone affair, and thus a companion will be provided to boons in winter. I included only the most potent and notable of annuals, and highlighted any references to moths or mildew, the chief woes of most Lilacs.

~~Agastache~~

foeniculum, Anise\Blue\Fragrant\Giant\Lavender Hyssop

While licorice smelling and a good border, they carry no insect repelling qualities without processing their essential oils, and *can host powdery mildew*.

Ageratum

houstonianum, Floss Flower/Blue Mink

An annual, but contains a *strong* insecticide.

Allium

The genus of garlic and onions.

The ornamental Alliums are very good at warding off many kinds of pests, that delicious taste being a neurotoxin that we happen to be immune to. While not the best smell to mix with Lilac, **Chives actively fight mold** such as powdery mildew.

Artemisia

Wormwood, Absinthe, Mugwort, Tarragon, etc.

All seem to have insect repelling qualities, **notably against moths**.

Borago

officinalus, Borage/Starflower

Repeller of many pests, attracter of parasitic wasps.

Chrysanthemum

A good number of types are hardy even to Zone 2.

Has insecticidal chemicals.

~~Chamomiles~~

While often used as organic insecticide, they are seemingly all *prone to powdery mildew* and thus are a poor partner with Lilac.

Clinopodium(formerly Calaminta)

grandiflorum + ssp. *variegata*, Greater\Showy Calamint/Mint Savory; Menthifolium, Common\Woodland Calamint/Sylvatica/Ascending Wild Basil; Nepeta, Lesser Calamint/Nepitella, these are the most cultivated and hardy.

As the name suggests they are similar to mints in essence.

Collinsonia

canadensis, Horse Balm/Stone Root/Richweed

May have insect repelling qualities, unclear.

Cunila

origanoides, Stone Mint/Horsemint, American Dittany

Much as Mints, a repeller of pests.

Daucus

carota, Carrot/Queen Anne's Lace

Attracts predators and parasitic wasps, **wards off some kinds of moth**.

Foeniculum

vulgare, Fennel

Attract ladybugs, hover flies, and tachinid flies. Wards off aphids.

Galium

odoratum, Sweet Woodruff

A shady ground cover that deters much, possibly **moths as well**.

Hedeoma

pulegioides, Mock\Squaw\American-False Pennyroyal

A noted **moth repellent**, as it is much like mint.

Hyssopus

officicinalus, Hyssop

Moth repellent, amongst other pests.

Lavandula

augustifolia + *pyrenaica*, English Lavender and its many, many cultivars.
Moth repellent, amongst many other pests.

Levisticum

officinale, Lovage/Bladderseed
Attract Ichneumonid(parasitic) Wasps and helpful ground beetles.

Medicago

sativa, Alfalfa/Lucerne
Attract Ichneumonid(parasitic) wasps amongst other predators

Melissa

officinalis, Lemon Balm
Bugs generally dislike the stuff, except bees.

Mentha

M×*piperita*, Peppermint; *spicata*, Spearmint; *suaveolens*, Applemint; M×*villosa*, Heart-leafed Mint, these are the most cultivated and hardy.
Mint is effective at warding away many pests, **including moths**.

Monarda

The whole genus containing Bergamot and Bee Balm
Has insect repelling qualities, save against pollinators.

Ocimum

basilicum, Basil and its many, many cultivars.
Potentially insecticidal chemicals, at very least a great deterrent.

Origanum

vulgare, Oregano and its many, many cultivars
Attracts hoverflies, a predator of many insects. Wards off aphids.

Pastinaca

sativa, Parsnip
Apparently wards off many pests, and attracts many predators.

Pycnanthemum

beadlei, Beadle's Mountain Mint; *clinopodioides*, Wild Basil/Short-toothed M.M.; *flexuosum*, Appalachian M.M.; *incanum*, Hoary M.M.; *longifolium*, Long-leaved; *muticum*, Cluster M.M.; *pilosum*, Hairy M.M.; *virgianum*, M.M.; *tenuifolium*, Long/Slim Leaf M.M.

Minty goodness, a known companion plant for **moths repelling**.

Salvia

rosemarinus, Rosemary; *officinalis*, Sage, and their many, many cultivars.

Both ward off many pests like **moths**, but Sage as well **fights mildew**.

Sinapis

Mustards, particularly *alba*, White Mustard.

Insect repelling, practically insect immune, and can be green manure.

Tanacetum

vulgare, Tansy; *balsamita*, Costmary/Balsam Herb/Mint Geranium

Repels most things that do not come for its nectar.

Tropaeolum

majus, Nasturtium

I could not escape references to the efficacy of this annual. Brings all the predatory boys to the yard, while warding off much.

Thymus

vulgare, Thyme and its many, many cultivars.

Attracts hoverflies, **repels moths**.

Companion Planting; Ornament

Clematis

"Clematis vines are light and need support. When planted with lilacs, the clematis can use the lilac as a trellis, scaling its length and growing towards full view of the sun. Your lilac branches and stems are not harmed in this process.

Instead, the clematis blossoms when the lilac's flowers have already faded. This way, vibrance, color and beauty are added to your garden space. The clematis ensures that your lilac plants do not lose their relevance when their flowers are done."

Passionflower

"Another kind of plant that serves as a good companion for lilac bushes or trees is maypop. This species may also be more known as purple passionflower, true passionflower, wild apricot or wild passion vine.

It belongs to the passionflower genus Passiflora. Maypops are fast-growing hardy perennial plants that have climbing or trailing stems. Their blush purple flowers are large and very sophisticated. They may be found as wildflowers or cultivated for their fruit which have many seeds and edible juice.

Much like clematis, the maypop plant has light vines which need trellises for support. Lilac bushes can serve as good supporting trellises for maypops and even for the vines of other passionflower species.

The large, bordered flowers that appear when the maypop is in bloom are usually noticed after the flowers of lilacs have already faded so they are a beautiful addition to your garden when lilac bushes are no longer blooming.

Maypops can grow well and thrive whether they are placed in full sun or beneath partial shade. For this reason, avoid planting them in areas where they will be completely blocked from the sun by the tall lilac bushes. They can grow under the shade but should be allowed to receive sunlight too."

~~Rhododendron~~

Do not mix. There is a difference in preferred PH, and some of the more debilitating diseases may transfer between Lilac and them, including deadly *Ramorum.*

WIP format Colors

WIP

Here is a collection of advice on color coordination. Like a Jackson Pollock, there is no reason to the order here. Unlike his art, however, the individual pieces should impart something of import.

The Yellow cultivar 'Primrose' will fade to White if left in full sun.
Likewise darker Purples lighten to Magenta, and Pinks will lighten as well.
White lilacs and such light colors are best for water reflection.
Hot sun enhances Magentas.
Be mindful darker Purples are mostly late bloomers.
Those with single-flowers are best in deeper colors.
Pale Pinks and Lavenders pair well with white birch.
Yellow is the last color to disappear with sunset. Bright Whites catch moonlight.
Cool and damp weather deepens colors.
There is yet to be a true pure Blue flower.
Pink is the color most affected by PH.
Light Roses, Pinks, Lilac-Violets and Blues need Neutral PH or become 'muddy'.
Bees prefer blue flowers over all others.

The standard of floral color identification in the U.S.A. is the Munsell Color System. A fact surprisingly difficult to find out through internet browsing, and one I have hardly ever seen applied to Lilac listings despite its extreme utility. Visit the website andrewwerth.com/color/ for a simple web app to notate on the fly. Likewise the website Munsellcolourscienceforpainters.com has some many resources for finding affordable books and swatches, as such resources can be mind numbingly expensive. Some conversion charts in .pdf and excel forms lie there to exchange between other color standards, most notably the computer common RGB.

One reason that the Munsell Color System may be unused is due to Lilac's variability. One must test a cultivar against both PH variability and individual flowers color grading from inner to outer. A complete system of emblazoning the complications of a Lilac flower has yet to be devised to my knowledge.

Research has shown that lilacs are great for our eyes. In a Scientific American article, it was reported that among the significant determinants of floral color are carotenoids (organic pigments found predominantly in plants), especially lutein. Lutein and zeaxanthin are the only carotenoids found in the retina and lens of the human eye.

In flowers of the lilac, the lutein is contained in a highly specific, rare form not found in many other foods. This has been linked to improved eye health, specifically, reduced risk of macular degeneration and cataracts.

The wood seems to have been often used for potter's wheel work. It seems that the Ainu also took advantage of the wood's non-perishable properties and used it for important parts of houses and other buildings. It is said that fresh wood burns well, so it was useful as firewood for the first time, but you had to be careful as it would bounce around a lot when burned.

✔Soil Lasagna & Compost Tea

Or dirt parfait if you prefer. Large and small, for architectural landscaping or simply making a poor substrate plantable. Unless you are blessed with a sandy loam with a relatively low water table, you will likely need to raise a garden bed for your Lilacs. They are almost entirely a well drained soil shrub, with only Josikaea approaching tolerance of soggy.

Hügelkultur

Mound beds for soil fertility, water retention, and recycling of otherwise useless green waste. Best applied in regions of particularly poor soil nutrition and/or little rainfall. This produces a swale that will lower over the course of 4-7 years, at which time the process may be started over. Be warned, despite initial appearance this is not a solid earthwork and should not be used for the redirection of water. The below recipe is without quantities or ratio, as local material and desired height are too variable to account for.

- Logs and branches, preferably rotting
- Branches and sticks, untreated lumber is welcome too
- Green waste, from sod to leaves and all between
- Subsoil, sandy or clay filled is fine
- Topsoil, followed with hay or bark mulch to cover

Lilac Bed: Fiala Method

- 6-8” Sand and Gravel
- 6-8” Sandy-Gravelly Loam
- 4-6” Aged Manure(compost) or Humus
- 6” Soil Mix (Loam, Sharp peabody gravel Sand, Humus in equal parts)

Slope sides gently, let Lilac grow roots to manure layer. Cover Lilac roots in soil mix.

- 3-4” Mulch over mound

Final bed should be 30” tall, settling eventually to 6”.

Lilac Bed: Holden Arboretum Method

- 3” Sandy Gravel
- 9-12” Topsoil
- 3” Well Rotted Manure
- 3-4” Bark Mulch

Compost with leaf mold. Amend drainage issues with sand-based soil mix.

Garden Bed: Modern Techniques

Permaculture and its adjacent fields have brought a great deal of wisdom to garden design. I can nary find a design *not* influenced by hügelkultur in some way. Be mindful that proportions and amount are to taste, and the specifics of ingredients differ. A Lilac bed lilac does not need as many logs or manure, preferring sandier soils. This is presented as is for gardeners in dryer environments, where water retention is key.

- ➢ Cardboard
- ➢ Sticks, logs and untreated timber
- ➢ Twigs and dried plant matter
- ➢ Hay and grass cuttings
- ➢ Manure
- ➢ Compost
- ➢ Good-quality Potting Mix

Garden Bed: French Intensive Bio-Dynamic

"The French Intensive Bio-Dynamic Garden Bed is a raised bed that is about 5 feet wide and 8 to 12 feet long. **...** The bed is dug about two to three feet into the ground. Using a pickaxe, the soil at the bottom of the hole is broken up for deeper drainage and root penetration. The excavated dirt is mixed with compost and the dirt clogs are broken up, and the soil is returned to the hole. Not only is compost added to the excavated soil, compost is added to the bottom of the hole, another layer is added half up the hole, and another layer of compost is added close to ground level. The three layers of compost are referred to as breakfast, lunch and dinner. Breaking up the soil and adding compost is why the bed becomes raised."

-Via William Dire Wolff, *Organic Gardening and Landscape Maintenance*

"To obtain well-drained, well-aerated, fertile, and friable soil, French intensive gardening uses deep digging by hand. This can either be single digging to a depth of 12 to 15 inches or double digging up to 2 feet deep, breaking up the top layers of the soil and replacing them with soil amended with fine, well-matured compost. While this is physically demanding, the goal is to break up the soil deeply, allowing roots to grow vertically instead of competing with neighboring plants for nutrients. After the first year (with lots of hard labor digging), worms and other insects do the work by moving through the soft soil, breaking it up, and keeping it loose."

-Via Nadia Hassani, *The Spruce*

There may be something to learn from this technique developed to feed the burgeoning population of France in the middle ages. Keeping the soil in a well drained yet moist state is vital for young Lilacs in planting or transplanting.

- ➢ Compost mixed into heavily tilled Soil, for drainage

- Soil
- Compost
- Soil
- Compost
- Soil

Rooting Soil: Fiala Recipe

- 2 Parts Humus (such as well rotted leaf mold)
- 1 Part Sharp Sand
- 1 Part Good Garden Loam

Compost Tea

While a recipe would be nice, there are too many. The general premise is to steep rotting material in a few gallons of water, maybe use stone aerators to get it really full of bacteria. This material can be leaves, kitchen compost, or old manure. Worm castings appear to be a common ingredient. There are specialized compost bins and buckets sold to assist in the making of this foul and powerful fertilizer.

At its absolute simplest it goes like so:

- Put compost into a mesh bag.
- Put the mesh bag into a bucket.
- Fill the bucket with non-chlorinated water.
- Place the bucket in a cool, dark place.
- Stir the mixture every day for one week.

WIP FORMAT Transplanting

As a rule a Lilac may be transplanted whenever, save for blooming and the two weeks thereafter. This may vary between species, but I have not yet heard of any differences.

WIP sections Propagation

Almost every method of conventional propagation works on Lilacs, even some unconventional ways. Vegetatively there are many, from high tech tissue culture micropropagation to the lowest tech cutting of suckers. From seed only the basics are covered here, as that mostly falls under *Crossbreeding for Cultivars*.

✔ Etiolation & Hardwood Techniques

Etiolation, the "Growth process of plants grown in the absence of light, characterized by long, weak stems, fewer leaves and chlorosis". This process is used in Forcing for the flower industry, but in propagation is in regards to tricking a stem into believing it should be root. Etiolation can drastically speed up rooting of cuttings, and may be necessary to propagate elderly Lilacs and non-suckering species.

Air Layering

A useful technique for Lilacs in good growth. Best applied in young growth of good length and sturdiness.

- ➢ Remove the leaves 1-2 feet from the tip of the selected branch.
- ➢ Use a knife to cut the branch just enough to score the bark. Make another shallow cut just below the first cut.
- ➢ Peel the bark between two cuts, then apply rooting hormone.
- ➢ Spread Sphagnum moss over the exposed area and cover it with a plastic bag such that no air can pass in. Make an airtight seal to retain moisture.
- ➢ Do not let sunlight enter the branch. Possibly use black trash bag or similarly dark plastic for the moss wrap, or else fully shade by some other means.
- ➢ After the root forms in about 2-3 months, cut and separate them from the mother plant.
- ➢ Remove the Sphagnum moss and plant the shoots in garden soil mixed with peat moss, or similar root endorsing soil or good drainage.
- ➢ Place the container in a shady location until the Lilac settles nicely into the soil.

Branch Layering

One of the oldest methods, and quite reliable. The easiest method for non-suckering cultivars, if a little lengthy in time. This forces the imitation of the natural propagation technique of Dogwoods and Mints. That is, they form 'stolons', stems that run parallel to the ground and often dip into and back out.

- ➢ On a low and long branch already near the ground, nick or wound the lowest reaching portions below leaf buds. Dust these wounds with rooting compound.
- ➢ Bend down and cover the branch in 3-4 inches of soil, mounding with sandy soil if needed. A portion of the branch should poke out. Keep the mound moist to encourage root and callus growth.
- ➢ Add a stone or large stick to secure the weight if you fear the stem will rebound.
- ➢ Keep in place for at least a year, preferably two. Then cut, and leave another year.
- ➢ After the roots have properly formed, freely transplant your new plant.

Blanching

This is a preparation technique rather than full propagation technique, and even now a bit experimental. A propagation power combo pioneered by the Department of Floriculture and Ornamental Horticulture at Cornell University in the late eighties. Results may vary by cultivar and whether or not you have access to a greenhouse. While enshrouding and blanching work separate, they are most effective together. This can improve the chances of cuttings taking root by *substantial* amounts, and extend the time period of cuttings on any Lilacs which otherwise have a narrow window before hardening.

- ➢ At the start of spring growth enshroud the plant in near or complete darkness, while still allowing full airflow. This induces etiolation, where chlorophyll is not suppressed and the stems grow much longer amongst other effects.
- ➢ After 3-5 inches of growth, at approximately 2 weeks, band the base of stems you wish to procure with black velcro, tape or similarly full-shading yet removable material. 1 to 2 common tape widths should do. This continues the blanching on the selected area while letting the rest of the plant properly prosper.
- ➢ At the time of banding remove the North side of the covering, and over the week remove the rest of the enclosure. This is to wean the plant back to green.
- ➢ A week after the enclosure is removed and the plant has greened, cuttings may begin. Treat these cuttings as any soft or green wood cuttings.

Stool Layering, Old Wood Method

An age-old method, refined by the East Malling Research Station at Kent, England. Its chief use is in gathering new stems from old plants, without risk of killing.

- ➢ Nick, score, wound bark on the base of stems. Dust with rooting compound.
- ➢ Hill the plant in moist soil up to halfway up its height. Maintain moisture.
- ➢ In 4-6 months a callus forms and roots begin. Leave hilled for a year more.

Stool Layering, New Wood Method:

Again, an old one refined by East Malling. If the mother plant is more robust, but equally expendable, this technique produces stronger rooted stems and much sooner.

- Prune back older stems to 4-6 inch stubs.
- Nick, score, wound the new pencil thick growth and apply rooting compound.
- Hill soil that is good for rooting up to the last two buds of new growth.
- Keep damp, rather than wet.
- After a year separate new plants and uncover mother plant.
- Care for new growth in a lath/shade house for a further year.
- This process can be repeated every 3 to 4 years if the mother plant rests.

WIP sections Softwood Techniques:

The methods for acquiring sports and species unlikely to sucker from young stems. Be mindful to give them time to harden for winter, or else protect them in a sheltered environment. Green and soft wood techniques benefit greatly from preparation by etiolation, but are not strictly necessary if one has proper knowledge and facilities.

Cuttings, Limited Sample

If you have a connection with a greenhouse, it would be best to go there to revive the line of a nearly dead heirloom. This method is the delicate process to do it yourself with limited living stems.

Cuttings, Strong Growth

Cuttings, Under Mist

Micropropagation

Tissue cultures fostered in a sterile environment. Only attempt if experienced and/or in a commercial setting, and at that point you do not need this brief how-to for home gardeners.

Roots, Shoots & Suckers

By far the most common technique of propagation, and the most successful.

- Identify your

WIP Grafting

Not even once. Do not graft. This is not a pear or apple tree, it is an ornamental of good heritage that benefits little to any from being off its own roots. Only the eldest French Hybrids or most prolific corporate producers may be found to be grafted, and so is likely not a problem one needs to deal with. Some commercial sellers may graft, but eventually they let the young shoot root itself and repot.

If somehow you came upon a grafted Lilac, as unlikely as that is, build the soil up to the proper plant's height. Let it develop roots of its own for some years, then cut out the rootstock of the prior plant.

If you find yourself grafting Lilac, you wayward soul, the best stock plants are White and Green/Red Ashes, *Fraxinus americana* & *pennsylvanica*. This root stock is notable for feeding the Lilac for a year, before withering and falling away as the scion forms its own roots. As grafting is a somewhat complicated procedure best left to visual diagrams, I will leave further tutorial to other resources. The common approaches to grafting Lilac appear to be Saddle Grafting, Cleft Grafting, the Green-Grafting of Cuttings, and the grafting of Summer Buds in a tricky procedure that intimidates this writer.

WIP Seed Germination

Be mindful that like an apple tree the seeds of a lilac will not produce the same lilac, save for the 'topovariants' Japanese tree Lilac *Syringa Reticulata* subspecies *Reticulata* which is marketed as *Regent* or *Regent Brand*, and the *Syringa Villosa* cultivar *Legacy*. All other Lilac seeds will inevitably produce some remix of the genes they come from, whether self pollinated or crossed.

WIP Crossbreeding for Cultivars

WIP format **Maintenance**

Add ground Limestone every 3rd year. UNFINISHED, WHY?

Never use fresh compost, age for three years at least.

For maximum health remove ¼ to ⅓ of the oldest stems a year. Hedging Lilacs can be cut down by a third of height.

Most species respond well to 'renovating', being plants generally adapted to watersides and gullies where intense damage is likely.

Old and worn out trunks/stems may begin to 'blueberry', bearing small flowers on short twigs. This is also a sign of waterlogging. Renew by cutting trunks to stump, spacing the cutting over three years for larger bushes with multiple old trunks. Do so in winter or the beginning of the growing season so the boom of new stems have time to harden for the coming winter.

There may be times when your lilac has gotten too large (12 feet or higher), or there are too many branches crowding the shrub. In these cases, renovating or cutting back the bush completely can help to bring it back to its natural glory.

This is known as thinning your lilac bush. Thinning opens up the bush to allow for greater airflow and helps to shape the lilac and control its height. It also helps to keep the branches healthy and should be done annually, as needed.

This is a process called deadheading. Do this annually to remove spent foliage and encourage new growth.

These shoots, or suckers, are the new growth coming up from the ground around the base of the lilac. This should be done annually.

Trimming should be completed in the early spring or late winter before the bush has bloomed.

The second way to renovate a lilac bush is by cutting the entire shrub down to less than a foot above the ground. New growth will begin with the spring season and blooms should arrive around the third year although this happens sooner for some lilacs. The lilac should reach its mature height within a few years.

The bushes generally don't need to be pruned until they reach about six to eight feet. Blooms aren't able to form unless the stems are at least three years old. Up until this point, you do not need to prune. Once you notice more branches and some buds (after three years), you can begin deadheading annually again.

You can cut as far back as within a foot of the ground through the renovating process. Most seasonal pruning should be much less. Usually, if you're going to cut a branch or limb, you should try to cut back to another branch or to 6-12 inches from the ground. This method helps to protect against disease in the shrub and also adds to the aesthetic look of the bush.

If your shrub has been left unpruned for many years, it may have formed a dense little forest of thick shoots, a bit intimidating to take on. Also, basal shoots tend to grow more aggressively a year or two after a hard pruning. So the best way to stay ahead of them is to reduce their numbers each year rather than wait every few years and then face a big job.

Prune to minimize bare stubs — cut to just above a branch node or bud lest you leave an unsightly stub that will die off. It's wise (and cleaner-looking) to cut to redirect growth to a significant side branch, and away from the center of the plant. We strongly recommend this for more delicate plants such as Japanese maples, but with sprouting shrubs such as lilacs, it's not as essential. They will sprout close to wherever you cut. The same goes for sawing thicker trunks — close to a side branch or at the ground will look better, but the shrub is likely to sprout from anywhere.

As with most shrubs, don't obsess with cutting every last branch that you "need" to, or making every cut perfect. I often describe pruning as "nudging" your plant toward a certain direction or behavior rather than strictly controlling it. A lilac can be a strong-willed child - better to redirect it gently and frequently, rather than try to control its future with one heavy-handed pruning session.

> It might take a couple of years to reform bloom buds and bloom significantly.
> Significantly reducing the natural size of any tree or shrub can trigger aggressive new growth and create a situation where you need to maintain it more often. Try to not reduce its size too often, perhaps every five years or more.

Many lilac shrubs over time develop a somewhat twisted, multi-branched, tree-like character with textured bark. If height is not an issue, this character can be enhanced by thinning out younger, straighter, fast-growing shoots and leaving the older ones. Then do some typical shrub thinning

If your lilac has achieved Monsterhood, or all the blooms are now twelve feet up, you might just choose to start over. As with many fast-growing, multi-trunked shrubs, lilacs will survive being cut all the way to the ground, sending up new shoots the following growing season and approaching mature height within a couple of years. Forsythia, spiraea, mock orange (Philadelphus), and shrub dogwood can also survive this method, known as *coppicing*. The new crop of shoots can then be thinned out to allow a few stronger ones to develop into the new structure of the shrub.
View fullsize

In some regions, coppicing is regular practice every few years to control shrub growth. We don't recommend it on a regular basis, but it's an option for renovating your lilac. Keep in mind that, as with other size reduction techniques, it might not set flowers for a few years after being coppiced. It is best done in late winter, just before new growth starts to emerge.

If flowers are desired, and especially for Bloomerang cultivars, snip off twigs the moment they are done flowering so energy is not spent upon seed production,

In warmer climates where winter could be said to be mild or non-existent, do not irrigate Lilacs for two weeks of the hottest month. This induces a heat dormancy that is a good alternative to winter dormancy. Flowers may bloom.

‘Green Water’, or commonly known as ‘Compost Tea’, may increase flower buds.

✔✔✔ Diseases

While resistant to much, there are a number of diseases that specifically target our darling shrub. Given its soft heartwood, it seems to be particularly susceptible to blights that target leaves. The spore or bacteria laden leaves go back up the roots in a continuous cycle. This list is presented with a checklist and note line for your convenience.

Armillaria Root Rot

A. melea. Suffering foliage. Root black 'strings' and fan shaped mycelium beneath bark. Honey colored mushrooms. **Uproot, burn, and do *not* replant.**

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Bacterial/Lilac Blight

Pseudomonas syringae pv. syringae. Common to areas with cold moist mornings and warm days. Resembles symptoms of Fire Blight. Watery blotches on newer foliage lead to wilting and blackened streaks. Improve air circulation, prune with sterilized tools on dry days. Avoid high Nitrogen fertilizer in Spring, it makes much susceptible growth. **Treat with Bordeaux or equivalent.**

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Leafroll Necrosis

The 'bronzing' and general dieback of leaves. Caused by smog and pollution, and once very common in areas prone to acid rain. Not much to be done.

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Leaf Spot/ Foliar Blight

Alternaria alternata, *Septoria* & *Pseudocercospora*. In humid and wet weather, these fungi spot the leaves of shrub and tree from the lower branches up, eventually defoliating if conditions persist. Remove leaves to prevent the cycle from continuing. **Apply fungicides** if present in Spring foliage. Spores of most fungi may persist in leaf litter for 2 years. Proper airflow prevents growing conditions for fungi, so make sure shrubs get good circulation.

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Lilac Ring Mottle/Spot

A virus that causes yellow or target marks on the leaves, which drop out of season. Superficially similar to variegation in leaves. Death is inevitable. **Uproot, burn, and wait a year to replant.**

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Graft Blight

The natural result of grafting Lilac to Privet. Eventually an incompatibility forms and the Lilac lacks for nutrition. Let it root itself.

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Gray Mold

Botrytis cinerea. Flowers and young shoots may be blighted in long rainy seasons, fading fast and causing leaves to shrivel. Quickly falls away with any dry weather.

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Phytophthora Blight

*Phytophthora syringae***.** A Fungal infection. Conditions and symptoms are much the same as Bacterial Blight, but root oriented and brown. Rhododendrons and Elderberries are also susceptible, try not to mix plantings. No action but pruning necessary, unless symptoms were exceptionally bad previous year, in which case **Treat with Bordeaux or equivalent.**

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Powdery Mildew

Erysiphe(formerly Microsphaera) syringae. Besides in the earliest part of Spring where it may smother new growth, it is merely a cosmetic issue. **See Treatments** for several sprays to reduce and eventually do away with, but most importantly remove dead leaves in fall and maximize air flow with proper pruning. The leaves carry the spores, and any unduly wet areas allow the mildew to thrive.

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Sudden Oak Death *or* Ramorum

Phytophthora ramorum. Similar symptoms to the Blights, but take up to 3 years to fully effect. **If suspected, alert your locale's Agricultural Addresser** who will help quarantine and eradicate. I.e. U.Maine.

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Stem Blight

Asochyta syringae. Much the same as other blights, more common to the United Kingdom. Avoid top down irrigation in Spring. **Treat with Bordeaux.**

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Verticillium Wilt

Verticillium albo-atrum. Not common to Lilacs, but may occur in soils previously used to grow potatoes, tomatoes or eggplant. No external effect but loss of leaf gloss before wood discolors in death down to root. No treatment. **Uproot, burn, and do *not* replant.**

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Witches Brooms

Candidatus phytoplasma fraxini. Thick twiggy growths at branch ends. May be caused by pollution in more urban environments, but mostly caused by Phytoplasmas. Caution! 'Charisma' and 'Shantelle' Lilacs sold by some garden markets are infected by Witches Broom. **Uproot, burn, and wait a year to replant.**

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Further Notes

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✔✔✔ Pests

Luckily only a couple of creatures specifically target Lilacs. Not often a regular issue, but on occasion your plants may be tested.

Cicadas

Syn. 'Katydid', Cicada septendecim. That wonderful summer scorch buzz making bug. Many species spend years or even decades in the ground, nibbling soft roots, only to emerge in one odd year all at once in June or August. While not preferring Lilacs to lay eggs upon, they may still if circumstances are unfortunate. On young branchlets they slit a vertical line and lay their eggs within, then scores the branch about to weaken it. The branch withers, dies, and the hatched larva leaves to burrow the soil and attack roots.

During mating years, **cover choice Lilacs in cheesecloth or other such bug screening**. The mating period lasts usually three weeks. Where damage has been done cut the damaged limb as soon as possible and burn if you can. No bug spray is effective as their numbers are too daunting. Grub kill may be effective in large lawns, but Cicada grubs usually persist below frost lines and can travel great distances, rendering local extermination moot. **Besides large scale commercial treatment, pray to weather them**.

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Eriophyid Mite

Aculus massalongoi. Create rust or silver color on leaves, sometimes resulting in leafroll. Luckily **not resistant to any normal methods of pest control**.

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Fall Webworm

Syn. 'Tent Bugs', Hyphantria cunea. Moth born noxious caterpillars that weave those ugly nests of silk and detritus. Lilacs are an attractive target to them. As weather permits there may be as many as three generations in a year.

Gather nests in the evening after the caterpillars have returned, and burn the wee beasts. A number of products exist *specifically* to fight them.

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Great Hornet

Syn. 'European Hornet', Vespa crabro var, germana. Resembles a yellow-jacket, but reddish brown with orange markings. During late Summer to early Fall the Great Hornet strips bark off young Lilacs to make their paper-mache nests. Very defensive, seemingly immune to most sprays.

Find their nest and exterminate in safe ways. Encircling in a trash bag, smoking them out, what have you. In the U.S. they are invasive, having come from Europe. **Show these xenos no mercy, for they show none to your garden.**

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Japanese Beetle

Popillia japonica. The iridescent green scarab plague that haunts many a backyard. Usually not interested in Lilac, but will resort to it if all else has been stripped. Not to mention their grubs upon roots. The real risk of letting them proliferate is attracting moles, a far more damaging pest.

Coating your lawn in **Milky Spore Powder** is the most natural answer, and depending on your climate can inoculate your property for years. It is not advisable to use the pheromone traps often sold specifically for this pest, as they attract more beetles to your general area.

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Lilac Scales

Oyster Shell Scale, Lepidosaphes ulmi & San Jose Scale, Aspidiotus perniciousus. The more common Oyster Shell is formed by two gray or brown segments, while the larger San Jose Scale is rounder and scalloped. Not specific to Lilacs, but often they are host to the wind blown or bird clinging mites. On days above 60°F they loosen their barnacle-like grip and slowly move around. Full extermination is difficult, as it is resistant to sprays and prolific in egg laying. There is an unknown connection between cow manure application and Scale infestation. Perhaps mites ride upon other bugs' backs? Large scale data is unavailable for which cultivars are most susceptible, except the vague knowledge that early hybrids, S. *Pubescens* and tree Lilacs are less susceptible.

In small numbers it is easy enough to rub or crush them with sticks or tools. In greater numbers one must spray them with **Scaleicide on those above 60℉ days in late May, June, and then in August or early September** to catch them at various stages of hatching. Hopefully your Spring cleansing is enough. Dormant oils appear ineffective specifically in Lilac protection.

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Lilac Borer

Syn 'Ash Borer', Podesia syringae. Inspect old trunks in June. If sawdust 'floss' is found near roughed up bark, often with a hole, your plant is being attacked. A cream colored grub is nestled within. In late May to early June it emerges and molts into a clearwinged moth, possibly camouflaging itself in the appearance of a paper wasp. Often the victim of Ichneumonidae parasitoid wasps, fully taking over a third of borers each spring. Not related to the Emerald Ash Borer, which is a type of beetle.

Clearwing Moth Borer pheromone traps, using the compound '18-carbon acetate', are the best for dealing with infestations. Borer effective insecticidal sprays will kill many beneficial pollinators as well.

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Lilac Leaf Miner

Gracillaria syringella. More common to France and England. Small moths lay their eggs upon the underside of leaves, whereupon the caterpillars hatch out and nestle within the layers of the leaf. Nearing pupation they roll the leaf with silken thread. At maturation they descend on a thread to the ground, cocoon and pupate, then repeat the process. April, May, and August are the three waves of this pest.

Insecticide spray upon the caterpillars, or else removal of afflicted leaves. See also Beneficial Nematodes.

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Nematodes

Lesion Nematode, Pratylenchus. Once found to infest a *Syringa xPersica*'s root system, but not since. Just a word of caution, and a request to **report any such occurrence**.

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Notes

✔✔ Treatments

While I have listed some interesting ones here, most garden shop antifungals, antibacterials, insecticides and the good old Dawn in a spray bottle are just as effective for their respective tasks. Just as important, do your own research. Don't take this as gospel.

Bordeaux

A tried and true mixture for many ailments of many plants. While undoubtedly effective, it is illegal to use in many places for its deleterious effects in the long term. Eventually the person spraying and the surrounding environment will become poisoned by the accrual of copper. A commercial fungicide or germicide will likely work just as well depending on your blight and legality. I can not recommend this unless you are genuinely wise in these things, or a seasoned professional.

- 2 Pounds Copper Sulfate
- 2 Pounds Hydrated Lime
- 50 Gallons Water

Common Insecticide

Generally not harmful to flora or fauna, so long as it is applied under 90℉. Apply well and regularly. Many variations exist, here is one of the most common.

- 2.5 Tablespoons liquid dishwashing soap, like Dawn
- 2.5 Tablespoons vegetable oil
- 1 Gallon of warm water

Powdery Mildew Sprays

A common ailment with many solutions, borne over the centuries and over many places. The key seems to be messing with the alkalinity or outright killing the spores of fungi. Here are the ones I have come across.

1: I don't know the mechanism behind it, but it works? Might work better with fresh milk, attempted twice with shelf stable high-pasteurized with noticeable results.

- 1 Part Milk
- 10 Parts water

2: Note: Do not use this mixture, or any containing soap, in weather over 80℉.

- 2 Tablespoons Baking Soda
- 1 Gallon Water
- 2 Drops Ivory or Insecticidal Soap.

3: 2-3 applications in a week, followed by re-applications once a month.

- 3 Pounds Wettable Sulfur
- 100 Gallons of Water

4: Boiled Horsetail, *Equisetum*. Similar results as milk, touted as antifungal.

Deer Repellent

A novel deer repellent for those areas most overburdened. Only apply above 40℉, and reapply after rainfall.

- 2 Ounces Vapor Gard
- 1 Gallon of Water, mix thoroughly
- 2-4 Ounces of High Capsaicin Hot Sauce.

Milky Spore Powder

Often sold at larger garden care stores, or orderable from Home Depots and the likes. Doesn't last as long in soils prone to frost, but gets the job done. A form of mold that specifically preys upon Japanese Beetles in their grub state. It lies in wait as a cold hardy spore until it is ingested, upon which it proliferates within the grub and turns it into a new source of spores.

Beneficial Nematodes

'*Millennium®*' *Steinenema carpocapsae* can consume miner larvae within the leaf, along with a number of other pests and parasites elsewhere. In fact, if you have them, spread these little worms everywhere you have a problem. Just don't look up how this sausage is made, truly *disturbing*.

Clearwing Moth Trap Bait

This mixture is alluring to, at very least, Peach Borer Moths and so may help with catching other Clearwing Moths. The commercial pheromone traps work on both at least.

- 8 Parts Water
- 1 Part Apple Juice, grape is an acceptable substitute
- 1 Part Vinegar
- 1 dash of Sugar, it seems to help and can't hurt

Elden Insecticides

From "*Henley's Formulas for Home and Workshop*" come a number of recipes of questionable expense, toxicity, and legality. What was a perfectly reasonable recipe book of chemicals and salves is now an arcane tome of witches' brews with unknowable and strange ingredients. Much like Bordeaux mix, I can not in good faith recommend these unless you *really* know what you are doing.

1. Plant Insecticide
    - 2 Gallons Kerosene
    - ½ Pound Soap
    - 1 Gallon Water

    Heat Soap Water, churning in Kerosene. For Scale bugs, mix into 9 parts water. For other insects, mix into 15 parts water. For 'soft' insects like plant lice, 25 parts water.

2. Root Insecticide
    - 5 Pounds Caustic Soda, that is lye, Sodium Hydroxide
    - 40 Pounds Rosin
    - 50 Gallons of Water, plus just enough to dissolve dry mix

    Dissolve Soda, then boil to mix in Rosin. Slowly add water enough for 50 gallons. Top use, 1 part mixture to 10 parts water. 5 gallons poured into a depression by an afflicted tree will kill most pests affecting it.

3. Scale Specific Insecticide #1
    - 4 Parts Black Soap, mixed in:
    - 15 Parts Hot Water, then cooled to 104℉, then adding in:
    - 10 Parts Petroleum

    Shake until it looks like *café au lait*, coffee with milk.
    For use, 1 part mix to 10 or 20 parts water.

4. Scale Specific Insecticide #2
    - 3½ Pounds Rosin
    - 1 Pound Caustic Soda
    - 8 Ounces Fish Oil
    - 20 Gallons Water

    Boil initial ingredients with just enough water, mix in rest after it's emulsified.
    Halve water for Jan Jose scale, but only apply such to a dormant tree.

5. Moth & Caterpillar Specific Insecticide #1
    - 200 Parts Venice Turpentine, nowadays a hoof hardening product
    - 1,000 Parts Rosin
    - 140 Parts Turpentine
    - 80 Parts Tar
    - 500 Parts Lard
    - 240 Parts Rapeseed Oil

- 200 Parts Tallow

6. Moth & Caterpillar Specific Insecticide #2
    - 50 Parts Rosin
    - 40 Parts Lard
    - 40 Parts Stearine Oil, which *may be* unseparated Stearin & Olein?