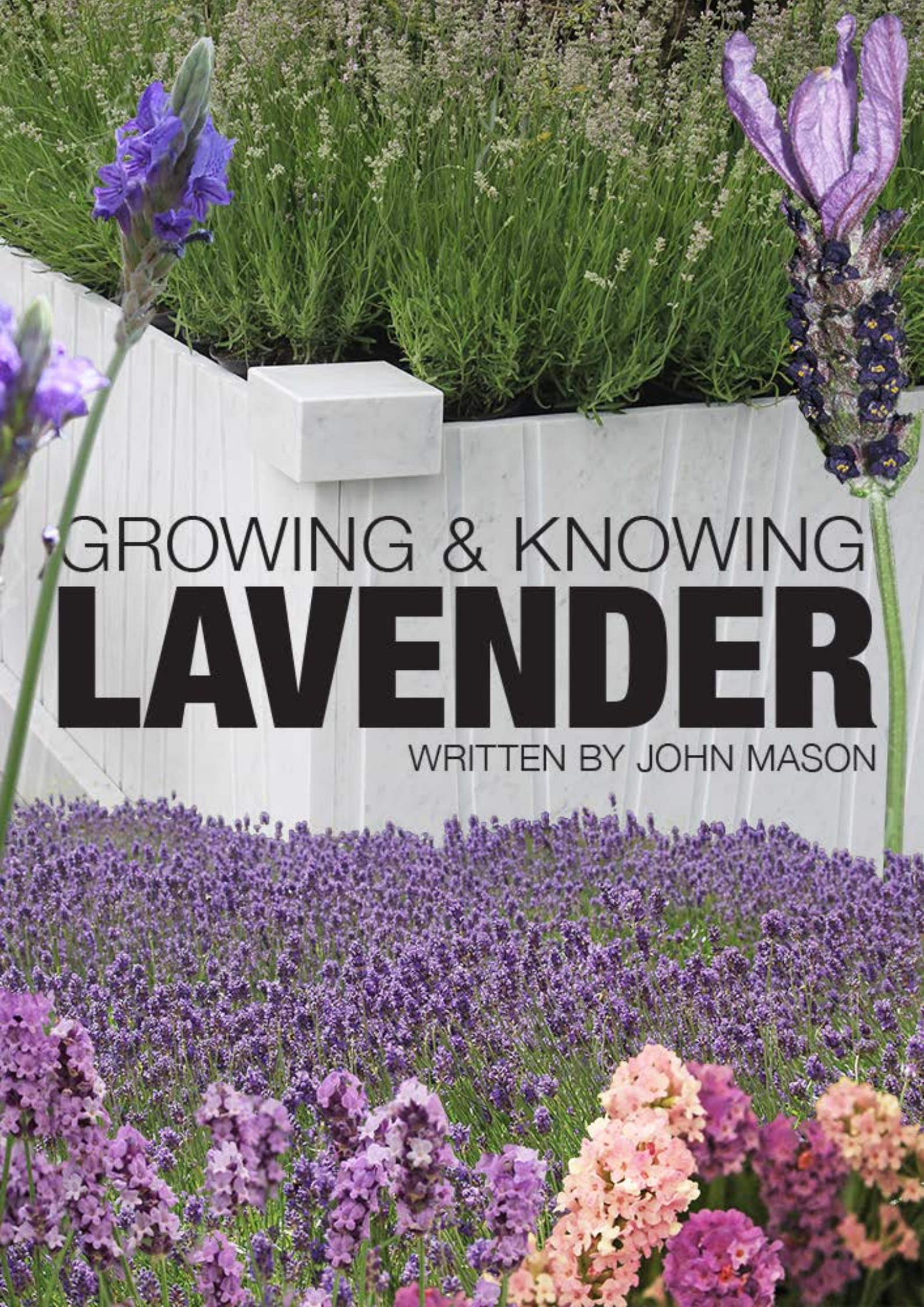

GROWING & KNOWING
LAVENDER

WRITTEN BY JOHN MASON

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Published by
ACS Distance Education

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ISBN: 978-0-9925878-0-2

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CHAPTER 1 DIVERSITY AND CLASSIFICATION

Lavender is perhaps one of the most popular herbs grown worldwide. Thousands of acres of lavender are grown commercially, particularly in Europe, for lavender oil which is mainly used in cosmetics and soaps. The plants are ideal for hedges, garden shrubs and topiary. Dried flowers are used in potpourri, sachets, Sand other crafts. Dried flowers are also sometimes used in cooking (e.g. to flavour bread or biscuits).

Lavender growing at Parc de Floral, Nice, France

Lavenders require a well-drained soil and plenty of sunlight. They prefer lighter soils, however will adapt to most soil types. Lavenders are usually propagated by cuttings.

Lavender can be easy to grow in the right climate; but achieving a high quality lavender crop, may be far more involved. There are many different types of lavenders; and they do vary in their cultural requirements and their ability to produce flowers (both quality and quantity).

The lavender family

Lavender belongs to the mint family. The scientific name of this family was Labiatae but is now more commonly listed as Lamiaceae. You may find either name used in references you encounter.

The Lamiaceae family contains about 180 different genera with more than 3,500 species of mainly herbs and shrubs found throughout the world, with the majority in the Mediterranean region. The family is characterised by having stems that are squarish in cross section, simple, leaves with no stipules, most having glands that secrete volatile oils. The flowers are irregular, in cymes in the axils of opposite bracts or leaves that form false whorls arranged in a simple or compound inflorescence. The calyx is 4-5 lobed, 2-lipped and persistent. The corolla is 4-6 lobed, usually 2-lipped, with 4 stamens, a superior ovary, 2 deeply lobed carpels, single style from central depression of lobes, stigma nearly 2-lobed. Fruits are 4, one-seeded nutlets. Many of the species in this family are widely grown as ornamentals or as herbs for both medicinal and culinary purposes.

Other commonly grown genus in the family are *Ajuga*, *Coleus*, *Hemiandra*, *Hyssopus* (Hyssop), *Melissa* (Balms), *Monarda*, *Ocimum* (Basils), *Origanum* (Oregano, Marjoram), *Phlomis*, *Plectranthus*, *Prostanthera*, *Rosmarinus* (Rosemary), *Stachys*, *Teucrium*, *Thymus* (Thyme) and *Westringia*.

The genus *Lavandula* has leaves that are entire or dissected, opposite and scented. Flowers are in verticillasters in loose or crowded spikes, with small bracts, except for the terminal ones in some species. The calyx is ovoid to tubular, erect, nearly-equally 13-15 nerved, slightly 5-toothed, corolla blue, violet or purple, rarely white or pink, tube longer than the calyx, limb 2-lipped, upper lip 2-lobed, lower lip 3-lobed, lobes ovate in shape and equal, stamens 4 in two pairs, anthers 1-celled, styles shortly 2-lobed. The fruit is 4 glabrous nutlets.

A multitude of different cultivars on display at Hampton Court Flower Show in July 2013. As always, lavenders draw a huge amount of interest.

Classification

Lavenders belong to the same plant family as mint, thyme, rosemary and many other herbs and shrubs (i.e. Lamiaceae, formerly called Labiateae). Plants in this family have square or rectangular stems.

Lavenders attract insects

The common name is lavender (spelled with “e”), and the scientific (genus) name is *Lavandula* (spelled with an “a”). The genus consists of small shrubs and herbs which are native to a widespread region including Mediterranean countries, the Middle East, India, North Africa, the Canary Islands and the Cape Verde Islands.

The classification of lavender can be confusing to many people. Listing the species is difficult as they have frequently crossed with each other in the wild and their common names differ from country to country. Even the botanists don’t always agree on classification of lavenders; and “scientific” classification by taxonomic bodies can be fluid. You may well read two very authoritative things, published ten years apart, which could present very different ways of classifying some lavender.

At the end of the day, it is important to not be too rigid and pedantic in how you approach plant naming. See it for what it is: a tool for understanding differences between the different types of lavender that we grow, but also a system devised by man, and having all the imperfections that man has.

Twenty to Forty Species

Experts vary on how many species of *Lavandula* exist. Some authorities suggest around 20 species and others as many as 40 species. A number of authorities agree on around 28 as the number of species.

There are also hundreds, if not thousands of varieties (genotypes).

The genus is commonly divided into sub groups in different ways by different authorities, for example:

Hardy and Tender Species

Seven sub groups as follows:

- English lavenders – have slender flower spikes
- Spanish lavenders (*Stoechas*) – have fatter flower spikes
- *Pterostoechas* – have pinnate divided leaves

- French lavenders (*Dentata*)
- Arabian (*Subnuda*)
- Indian (*Chaetoctachys*)
- Others including hybrids

The first four sections and the cultivars and hybrids are those most used in horticulture generally.

1. English Lavender or *Spica* Section
(also referred to as the *Lavandula* section).

Species and cultivars in this section are shrubs usually growing to from 30cm to 90cm or more. The former name 'spica' refers to the spike-like nature of the flower heads.

Lavandula angustifolia syn L.vera, L.spica, L.officinalis (English lavender)
A shrub to 1 metre tall; leaves linear-lanceolate to linear-oblanceolate to 5cm long to 6mm wide, whitish when young, becoming green; flowers approximately 1cm long usually purple.
Lavandula alba: no botanical standing. This is a white flowering variety of *L. angustifolia.*
L. angustifolia ssp. angustifolia
L. angustifolia ssp. Pyrenaica
Lavandula lanata
Lavandula latifolia syn. L. spica

There are many hybrids within this section.
L. x intermedia (hedge lavender) is a known cross between *L. angustifolia and L. latifolia*. This sub-group within the Spica section has many cultivars; the name Lavandin applies to these cultivars.

Note: when the parentage of a cross is known, you should always place the cross breed name before the cultivar name e.g. *L x intermedia 'Grey Hedge'*. This is not the case when the parentage or one of the parents is unknown.

Lavandula x intermedia and ***L. angustifolia*** are the only two species recommended for culinary purposes.

2. *Stoechas* Section

Plants grow to around 90cm. and have broad round fertile bracts.
Lavandula stoechas ssp. stoechas (Spanish/Italian lavender)
L. stoechas ssp stoechas 'alba'
L stoechas ssp. pendunculata - syn. L. stoechas ssp. canariensis
L stoechas ssp. Sampaiana: a shrub to 1 metre tall; leaves linear to oblong – lanceolate; flowers usually purple.
L. viridis: 1m green/cream flowers, narrow green leaves.

3. *Dentata* (sometimes included in Stoechas)

Plants have toothed leaf margins, inflorescence have reduced sterile bracts compared with stoechas. Spikes are elongated and sterile bracts appear about 1/3rd of the way down the spike.
Lavandula dentata (French lavender): a shrub between 30cm and 1 metre; Grey green linear-oblong leaves crenately toothed to pectinate pinnatifid; purple flowers.
L. dentata var. candicans

Stunning array of different lavenders, in full bloom in Denver Botanic Gardens, USA.

4. Pterostoechas

This less commonly grown group is distinguished by “winged flower spikes”. Shrubs have heavily branched stems. The flower spike is compact and usually without stems.

Lavandula multifida: a shrub to 70cm, grey-tomentose, leaves pinnately or 2-pinnately dissected, to 1.5 inches long; flowers blue-violet.

L. canariensis

Lavandula pinnata: a shrub to 1 metre tall; leaves pinnate, to 5cm long; flowers lavender colour.

L. pubescens

L. abrotanoides

There are also some intersectional crosses i.e. *Lavandula x allardii, L. x heterophylla*.

Note: *Lavandula x allardii* (Mitcham lavender) is thought to be across between *L. latifolia and L. dentata*.

5. *Chaetostachys*

This section, plants of which are not very common in cultivation, consists of herbaceous plants with branched peduncles and spikes. Stems and leaves are thick and do not resemble other species of lavender.

L. bipinnata

L. gibsonii

6. *Subnuda*

A rarely cultivated section; Plants are herbaceous; the fertile bracts are alternate or spiral in arrangement. Adult plants are often devoid of leaves. The following are the three most important species in this section.

L. subnuda

L. macra

L. aristibracteata

Tim Upson's Classification

One lavender authority, Tim Upson, divided the genus *Lavandula* into a number of groups (called sections), placing different species in each section there may be one or several species and/or hybrids. Upson's classification is outlined below:

Section 1: *Lavandula* (previously Section *Spica*)

L. angustifolia
L. lanata
L. latifolia
L. x intermedia (hybrid)
L. lanata x L. angustifolia (hybrid)

Section 2: *Dentatae*

L. dentata var. dentata
L. dentata var. candicans

Section 3: *Stoechas*

L. stoechas subsp. stoechas
L. stoechas subsp. pedunculata
L. stoechas subsp. sampaiana
L. stoechas subsp. lusitanica
L. stoechas subsp. luisieri
L. stoechas subsp. atlantica
L. stoechas subsp. maderensis
L. stoechas subsp. cariensis
L. viridis
L. viridis x L. stoechas (hybrid)

Section 4: *Pterostoechas*

L. multifida
L. canariensis
L. pinnata
L. buchii
L. minutolii
L. maroccana
L. tenuisecta
L. mairei
L. antineae
L. coronopifolia (syn. L. stricta)
L. pubescens
L. citriodora
Hybrids are several

Section 5: *Subnudae*

L. subnuda
L. macra
L. dhofarensis
L. setifera
L. nimmoi
L. galgalloensis
L. aristibracteata
L. somaliensis

Section 6: *Chaetostachys*

L. gibsonii
L. bipinnate

IN ADDITION, there are some species and hybrids that do not fit into any of these six sections. They include:
L. basikensis
L. atriplicifolia
L. erythreae

Inter sectional hybrids include*: L. x allardii; L. dentata x L. lanata,* and *L x heterophylla*
Lavandins: these are *L. x intermedia* cultivars. They are sterile hybrids between *L. angustifolia* and *L. latifolia.*

McNaughton's Classification

Virginia McNaughton also uses the six sections above to group lavender in her book Lavender – the grower's guide (2000).

Section *Lavandula*

This section was formally known as Section *Spica*. Most *Lavandula* species included in this group are native to Mediterranean countries, particularly France. The previous name *spica* refers to the spike-like flower heads. Lavenders in this group are shrubs which can grow more than 1 metre high. Leaves are usually linear, linear-lanceolate, or spathulate, with entire margins and are often hairy. The leaf colour usually changes from grey to green with age. The flower spikes are at least 2-10 cm long. Sterile bracts on top of the spikes are not present. This group is commonly known as "English Lavender". It includes the most fragrant lavenders.

Species in Section *Lavandula* prefer an alkaline soil (pH 6-8). They grow best in a climate with a cool winter and a warm, sunny summer. Lavenders in this group may be affected by severe drought and overwatering and may become susceptible to root rot in highly humid conditions. They are frost tolerant, however will not survive longer periods of snow cover. Lavenders in this group respond well to pruning, which is best done after flowering and before the first frosts arrive. Remove old flower heads and prune into a dome shape.

Section *Dentata* (Dentatae)

Lavenders in this section are shrubs, native to the Mediterranean region, Macronesia and Arabia. Before *L. dentata* was placed in its own section in 1996, it belonged to Section *Stoechas*. *L. dentata* differs from *L. stoechas* in several characteristics. *L. dentata* has leaves with dentate (toothed) margins. The sterile bracts at the top of the flower spike are smaller (compared to *L. stoechas*).

Lavender plants and harvested flowers on display at Melbourne International Flower and Garden Festival.

Lavender plants and products looking great in this nursery display.

Section *Stoechas*

Lavenders belonging to this section are shrubs growing to at least 1 metre high. They are mostly native to the Mediterranean region, while some are found in North Africa, Algeria, Asia Minor and the Azores. Leaves are linear, lanceolate, oblanceolate or elliptic, with entire margins. The sterile bracts are large and petal-like, varying in colour. The entire plant may be covered in hairs. Lavenders in this group have a camphoraceous fragrance.

Species in Section *Stoechas* grow well in most soil types, even in relatively acidic soils. They prefer warm, humid conditions and may be frost-sensitive. Lavenders in this group flower frequently and therefore require pruning throughout summer. They may be pruned into a rounded shape.

Section *Pterostoechas*

This section contains several *Lavandula* species, native to North Africa, the Atlantic Islands, and the Mediterranean region (not including Asia Minor and the Balkans). They are herbs or subshrubs with multiply branched stems. Leaves are commonly pinnate or bipinnate, sometimes with entire or dentate margins. All bracts are fertile; sterile bracts at the top of the flowers spikes are not present. The name *pterostoechas* means ‘winged spike’ and refers to the corollas which look like wings when observed from the side.

All lavenders in this group are frost-sensitive. They prefer warm, humid conditions. Because lavenders in this group flower frequently, they require pruning throughout summer.

Section *Subnuda* (Subnudae)

Lavandula species belonging to this section are herbs, native to South Arabia and tropical Africa. They are rarely cultivated. Adult plants are often devoid of leaves. The fertile bracts are alternate or spiral in arrangement.

Section *Chaetostachys*

Lavandula species in this section (*L. gibsonii* and *L. bipinnata*) are herbs with thick stems, native to central and southern India. Peduncles and spikes are branched. *L. gibsonii* and *L. bipinnata* are rarely cultivated.

CHAPTER 2 GROWING LAVENDER

Growing conditions

Lavenders are generally hardy plants that prefer warm summers and cool winters, but are tolerant of a wide range of climatic conditions; areas with consistent humidity in summer however can cause fungal problems. An annual rainfall of around 900mm is ideal. Heavy snow or severe frost can kill young plants.

Soils

Lavenders also tolerate a wide range of soils, but they do not perform well in badly drained soils or very acidic soils.

Soil should friable (i.e. loose - certainly not rock hard), moderately fertile and ideally be slightly alkaline - pH between 6.4 and 8.2. Many species respond well to applying agricultural lime annually.

Good drainage and mulching are important; keep the soil moist in the warmer months, but not saturated. Most lavender tolerates periods of dryness, but an extended drought can kill them. Despite lavender's ability to withstand dry periods - young plants do need soil to remain moist right through the first dry season. Lack of water or excessive heat can discourage flowering.

Many lavender species grow well in coastal areas.

Fertilisers

Most lavenders will survive with little feeding; but plants will be healthier, more productive and live longer if fertilised at least once a year. Remember, when you harvest or prune a plant, you are taking away nutrients that entered those tissues from the soil. Over time, the ability of the soil to keep replacing what is removed during harvest will diminish. For best results, feed in early spring with a general slow release plant food such as pellets, organic manure or blood and bone.

One way of providing better drainage is to grow lavender in a pot or tub, Wood or porous ceramic pots with good drainage holes may be even better than plastic or glazed pots, particularly in wetter climates.

Watering/Drainage

Lavender needs good drainage they may sometimes die unexpectedly after heavy rain, if the soil becomes waterlogged.

Lavender generally withstands periods of dryness far better than periods of extreme wet, and if soil becomes waterlogged, lavender tends to suffer.

Commercial plantations are often grown on sloping ground, where surface drainage is good. When growing in a garden, choose carefully where you are going to plant lavender. Avoid heavy soils and low lying places; and if need be, provide better drainage.

Minor problems such as damp, low-lying patches or intermittent surface runoff after heavy downpours are often relatively easy to treat. Other approaches:

1. **Soil ameliorants**: these are added to improve the texture and drainage capacity of soils. In heavy sodic clay soils, gypsum can be added to cultivated soil to help break up the clods. Adding organic matter to clay soils or sandy soils will help improve soil texture.

2. **Mulching**: using gravel, wood chips or other organic mulches to halt the flow of surface run-off in heavy rain gives the soil time to absorb the runoff. A thick layer of mulch can also be used to raise the soil level in low-lying areas, and prevents muddy quagmires developing in heavily used areas of the garden.

Lavender does best with good drainage, here planted on sloping ground above a river.

3. **Spoon drains**: these are small open drains used to collect and channel surface water away from garden slopes and paved areas. For minor seepage in garden beds, simply dig a small rounded channel across the slope and fill it with large-size gravel. For heavier runoff, use concrete or plastic pipes to form a spoon drain.

4. **Sand slitting**: this technique involves making narrow cuts in the soil and filling them with coarse sand. These sandy areas drain excess water quickly.

5. **Sub-surface drains**: major problems that are seriously affecting the health of lavenders may need to be fixed with subsurface drains.

Hint: a layer of white sand over the surface of the ground reflects more sunlight and increases flower production in temperate climates.

Cultural controls

Weed Control

Commercial plantations often use weed mat or plastic sheeting around the plants to supress weed growth. (Plastic is not recommended for the home garden as it tends to cause substantial loss to soil life through exclusion of air and water, soil life and oxygen is important in nutrient cycling and soil health). Roots are generally shallow, so controlling weeds with cultivation might not be an ideal method. Chemical weedicides may also be used however there can be a real danger of killing the lavender plants as well.

A coarse sand mulch will also help keep weeds down (more appropriate in cooler climates – in hotter conditions a sand mulch can raise temperatures too high).

In the home garden coarse mulch in a thin layer over newspaper works well, it lets water and air in whilst suffocating weeds.

Pests and Diseases

There are relatively few pests which trouble lavender, though occasionally caterpillars can be a problem. This can be controlled easily with a spray of garlic or pyrethrum, or the powdered bacterial spray Dipel. Fungal diseases are only an occasional problem in temperate climates, but can be more prevalent in warm, humid, wet climates, particularly when the plant is mulched. Root rots such as cinnamon fungus can be a particular problem. Other fungal problems can cause die back on part or all of a plant, particularly in over wet conditions.

Westcott's Plant Pest & Disease Handbook only lists three problems as occurring on lavender, as follows:

1. Leaf spot (Septoria lavandulae) - detected in Ohio and Oklahoma

2. Root Knot Nematode (Meloidogyne sp.)

3. Root Rot (Armillaria mellea) - detected in Texas

Virginia McNoughton, a botanist from NZ lists the following pest and disease problems in her book "Lavender, A Growers Guide" published by Bloomings in 2000:

1. Spittle Bugs/ Frog Hoppers (*Philaenus spumarius*) –can cause deformation of stems and leaves.

2. Aphids (*Myzus sp)* - occasional severe infestations are unsightly on *L. stoechas*. Can transmit alfalfa mosaic virus.

3. Mealy Bugs (*Planococus sp*) can cause stem deformation

4. Phoma Disease (*Phoma sp*) - can cause foliage discolouration and die back (Remove and destroy any affected plants)

5. Phytopthera Root Rot (*Phytoptera sp)* - more likely to affect over wet seedlings and cuttings; or occasionally mature plants (Remove and destroy any affected plants)

6. Bacterial Blast (*Pseudomonas syringae*) –causes die back of young shoots, particularly in high rainfall areas.

7. Alfa Mosaic Virus –causes a bright yellow mottled effect on leaves and sometimes stems; mostly when plant is putting on growth. Foliage can be stunted and flower production on affected plants will diminish. (Remove and destroy any affected plants)

8. Yellow Decline – caused by a mycoplasma, which is a type of pathogen that resembles but neither a virus nor bacteria. It is a serious issue in France, and can reduce the useful life span of a lavender plant by several years. It is spread by a leaf hopper (remove and destroy any affected plants).

Note: Lavandins are hardier to root rot and other fungal diseases than other lavenders. (Most other lavenders are fairly susceptible to fungal diseases).

In Australia, the range of pests is less than in some other parts of the world, however the “Tortricide Moth” can still be a very significant problem and vigorous control is necessary where it occurs. Bridstowe Estate, use a combination of agricultural chemicals and biological controls to keep this pest in check.

Pruning

Most lavender responds well to pruning, to shape, revitalize and encourage flowering. Lavender that is pruned regularly is more likely to live longer. On lavender farms, this is likely to happen as a matter of course, whenever the plants are harvested, but lavenders used in landscaping may not be pruned as routinely. Pruning is best done in spring a few weeks before a new growth flush, and after the coldest weather has past. Prune back by a third to a half as many (but not all) lavender species resent very hard pruning.

- *Spica group* lavenders should be pruned after flowering, but before winter so that new growth can harden off before very cold weather sets in. Prune back old flower heads and about 1/3rd of the foliage to a rounded dome shape. Some cultivars within the spica group produce new growth all over the plant these lavenders should be cut back hard to encourage new bushy growth.

- *Stoechas*, *Dentata* and the *Pterostoechas* groups flower more frequently then the spica lavenders, these plants require pruning during summer. They will withstand hard pruning, some can be cut back to within 15cm of the ground if the plants needs rejuvenation.

Pruning to a Standard

If you like the idea of standard lavender plants (lavenders trained to grow as a ball on a stick), but you don’t want to buy an expensive one at the nursery, you can grow one yourself.

- Buy a small plant at the nursery, preferably in a 5 cm (tube) or 7.5 cm pot. Make sure the main growing tip is undamaged.

- Plant it in a larger pot and tie it to a strong cane to keep the stem straight.

- Pinch back the side-shoots as they appear, to encourage a single strong shoot.

- Repot, fertilise, etc. until the plant has reached the desired height. This may take a couple of years.
- Allow the leading shoot to produce several pairs of leaves and then pinch out the growing tip.
- Pinch out the tips of the new shoots that grow when they reach about 15 cm in length to encourage a bushy head to form.
- Keep pinching out the tips to maintain a dense, well-shaped ball, and rub out any shoots that appear lower down on the main stem.

Considering flower quality and quantity

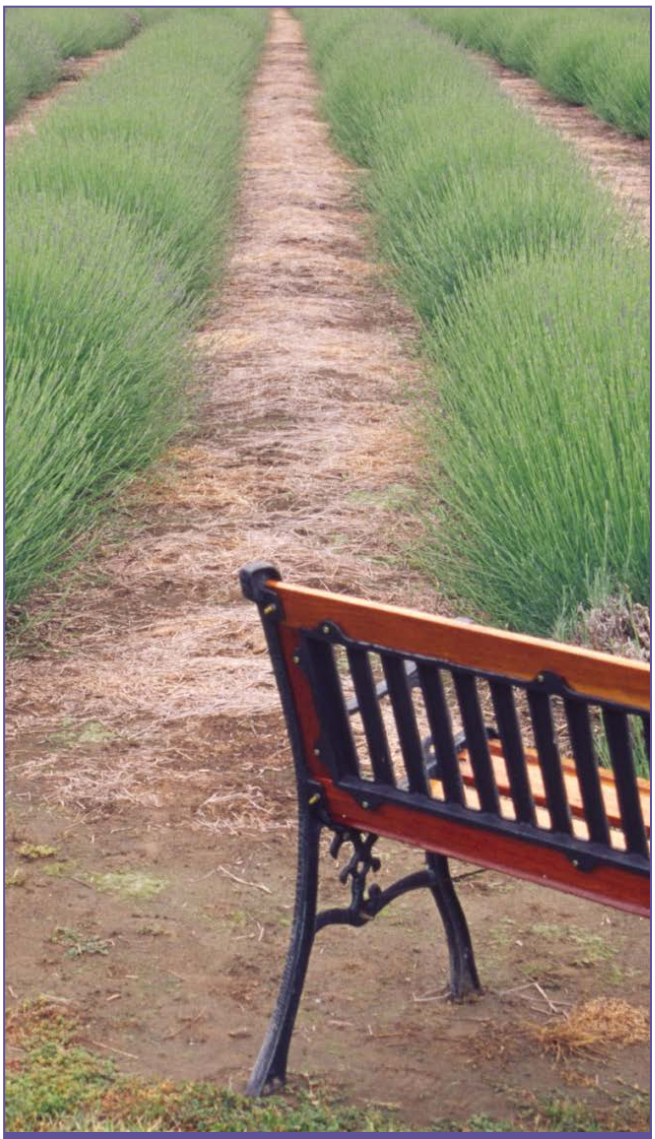
If you are growing commercially you will need to consider the quality and quantity of flowers you produce.

For flower quality considerations can be:

- How attractive are the flowers?
- Are the flowers marked, damaged or blemished, e.g. containing insects, partially eaten, marked by disease (e.g. caused by moisture)?
- How pure is the lavender oil? Some flowers contain more “camphor oil” than others. If there is virtually no camphor oil, the oils can be much more valuable for the perfume industry.

For flower quantity factors that need considering are:

- How many flowers does the plant produce?
- How big are the flower heads produced?
- How long are the flower stalks?
- How many weeks of the year does the plant have flowers?



Farmed lavender is usually grown in rows like this, on a gentle slope for drainage, with particular attention paid to controlling weeds.

Propagation

Lavender is able to be grown from seed or cuttings, but seedling grown plants tend to have unpredictable characteristics. You can never be sure of the oil quality, flower colour and growth habit, amongst other things, if the plant is grown from seed.

Cutting propagation is the most common method of propagating lavender for field cropping or production of nursery stock. Most lavender can be propagated by cuttings at any time of the year, though late summer or early autumn is generally preferred. The best cuttings usually come from vigorous plants late in summer - they have thick stems which root readily. However in colder climates the cuttings may not be developed enough to survive out in the open over winter.

Lavenders are commonly propagated by tip cuttings. Some growers take their cuttings with a heel of previous season's wood.

- Take cuttings from vigorous new, thick, green growth.
- Tip cuttings should be between three to eight centimetres long and taken from mature plants before buds open.
- Carefully remove the leaves from the lower half of the cutting.
- Cuttings can be soaked in a sodium hypochlorite or similar solution to disinfect the cutting material.
- The cuttings will strike readily without hormone, although IBA at around 2000ppm is used by many growers.
- Insert the cuttings into a well-draining propagation mix, such as half perlite and half fine-sieved peatmoss, or half coarse, washed river sand and half fine sieved peatmoss. The propagating mix should be firmed down around the base of the cuttings and then thoroughly watered.
- Cuttings should be protected from hot direct sun and frosts. Many growers prefer to use a cold frame or unheated greenhouse.
- Mist the cuttings several times a day, either with an automatic misting system or by hand spraying.

It is possible to get rooted plants in three to four weeks. This time period may be reduced if the root zone can be heated 4 to 5°C more than the ambient air temperature in colder climates. Pinch the tips of the cuttings when initially transplanting to larger pots, then they will be branched and ready to transplant into the garden in a further six to eight weeks in the warmer months. If the cells in the leaves become damaged by wilting then disease will set in rapidly.

Seed

Lavender can also be grown from seed, but because seedlings will vary in their characteristics, this method is not generally used to produce plants for cropping. Germination of lavender seed can be irregular some coming up quickly, some slow. Some lavender varieties are propagated by seed for sale in pots through nurseries, however if you want plants that are uniform in habit and flowers (such as for examples for hedges) it is best to take cuttings.

Seed propagation is also used in plant breeding programs to develop new varieties of lavender.

Seed can be sown directly into position in specially prepared seed beds or in containers from where germinated seedlings are later transplanted into pots or the field. In general, the following rules should be remembered when sowing seeds:

- Use good quality seed.
- Sow at the right time of year. Environmental factors, particularly temperature and moisture levels play an important role in the successful germination of seeds.
- Do not sow too deeply. In nature seeds are generally dispersed from plants onto the ground surface.
- Do not sow too thickly. Germinating seedlings will compete for space and nutrients. Pest and disease problems are also generally increased.
- Have the soil in your bed well prepared, or use a good quality seed raising mix when using a container.
- Maintain adequate moisture for seeds to germinate but don't over water.

Straight rows can be marked in a bed (or container if it's large enough) using a length of taut string or straight edged piece of wood. Then using a pointed or sharp edged object make a slight furrow or trench a few millimetres deep along the row. Sow your seed thinly along the row. Avoid sowing directly from the seed pack, as it is very hard to get an even distribution of such seed. Seed may be mixed with some fine sand to get a more even spread. Once sowing is completed lightly cover the seed by replacing the soil that has been removed while making the furrow or hole. This soil should then be lightly firmed down.

It is recommended that seeds be given a thorough watering when planting taking care to disturb the soil surface as little as possible. Fine mist sprays or fine nozzle watering cans may be suitable for lavender seeds.

As seeds germinate and emerge from the soil they can be thinned out to the required distance apart. Any gaps can often be filled by seedlings thinned out from elsewhere in the bed, etc.

Seeds are often planted into a pot or seedling tray and germinated in a greenhouse. This allows you to "get your plants started" before the weather is good enough outside.

Tissue Culture

Micropropagation (tissue culture) of lavender is possible, and is carried out commercially by some nurseries. It is a method suited to growing very large numbers of plants when only a small amount of cutting material is available. Unless you intend growing 10,000 or more of one variety of lavender in each batch, it is probably not worthwhile using this technique.

Layering

Lavenders produce many branches near the ground thus the simplest method of propagation is by layering. Remove

foliage from several inches of stem near the ground, cover this area with soil and place a weight over it to peg it to the ground. After four to six weeks, roots should appear along the stem. Cut the branch free and pot in suitable potting mix, pruning the stem back to three or four inches above the soil. Place the plant in a protected position. When the roots are well developed transplant into the garden bed, again prune back the top foliage. This method works well but is more time consuming than other techniques, is wasteful of propagating material, and as such, is generally not used commercially.

Roots formed on a lavender cutting, struck in a pot of perlite. You can get just as good a result with a mix of 75% coarse granitic sand and 25% peat moss.

Growing lavender in a "no-dig garden"

A no-dig garden is the easiest and the least backbreaking way to create a low maintenance lavender patch. Developed by a Sydney gardener, Esther Deans, in the 1960s, the no-dig garden is a method of growing vegetables and herbs in rich, organic seed beds made from layers of paper, straw, hay, manure, compost and other organic materials.

Unlike traditional gardening methods, no soil is used in the construction of the bed, and no digging is required; the beds are simply built on top of the existing ground. This means they can be built just about anywhere, regardless of the soil conditions – on compacted soil, in poorly drained areas, even on top of concrete.

The beds are easy to construct and care for, and give very good results. They're also good for people with back problems – although some lifting and barrowing is still required, the construction of the bed involves much less bending and jarring of limbs compared to the hoeing, digging and forking which is needed for traditional soil-grown plants.

Preparing the Raised Beds

- Prepare the bed where it receives maximum sunlight, removing as many weeds as possible.
- Cover the soil with a layer of newspaper (20-40 sheets thick).
- Cover the newspaper with a layer of organic material such as straw, wood-shavings or hay (10 to 15 cm thick).
- Next spread a thin (2-4 cm thick) layer of well-rotted animal manure to completely cover the surface.
- Spread a layer of lucerne hay over the surface (to 4 cm thick).
- Sprinkle the hay with organic fertiliser or dry poultry manure.

- Finish with a layer of compost. Make sure the compost is free of weed seeds and has an open texture.
- Lavender plants can now be planted directly sown into the top layer of compost.
- Water with a liquid fertilizer.

The heat generated by the decomposing layers aids seed germination (if you decide to sow lavender seeds in-situ) and also the root growth of new plants. The open texture and layers of newspaper retards the growth of weeds. Any weeds that do grow are very easy to pull out. The organic matter gradually decomposes as the plants grow, leaving beautiful, rich soil.

If the bed is built on concrete, first cover the ground with twigs, leaves, small stones and seaweed if available, to a depth of 10 cm. or use a plastic grid drainage base (like those now used under driveways – they are made up of cells and about 3 or 4cm high, providing the perfect drainage under your bed.

The organic materials used to make the bed will depend on what is available in your area. For example, it may be difficult to obtain lucerne in your area – just substitute it with a similar open textured organic material, such as sugar cane, straw or Rhodes grass.

Wood chips are widely available and can be used in the bed but make sure the toxins are leached out and the material is partly composted. You may need to compost the chips for 8 weeks or more before use.

If using straw or hay be sure it is free of grass or weed seeds.

Try to use organic principles with this method of gardening. Avoid using pesticides and herbicides as these will harm beneficial organisms, including earthworms, which are an integral part of the process.

Liquid fertilisers can be used to assist growth. Liquid seaweed, fish fertiliser and liquid manure are good. To make liquid manure, half-fill a large drum with manure and top up with water. Leave for four weeks and then use well-diluted (about 500 mL to one bucket of water).

Designs for No-Dig Gardens

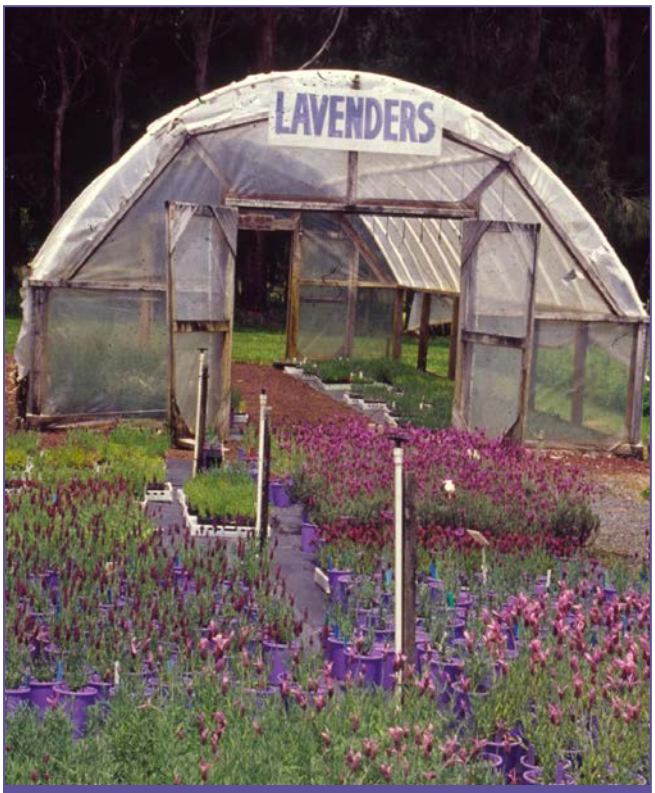
As a lavender patch usually comprises of rows of lavender, the simplest design is a rectangular bed/s, with the sides surrounded by timber sleepers, bricks or whatever material is available and in keeping with the surrounding garden. The sides should be around 20 cm high.

You can also incorporate lavender into a more stylish design for example a design based on the French potager gardens which feature a series of kitchen garden beds planted with edible and ornamental plants. You could use lavender as the edging or hedging plant to line the beds and then plant other herbs or vegetables inside the hedge.

A simple four-bed potager could be adapted for no-dig gardens, with each bed built to the same size and shape, and separated by paths for easy access. Ideally the paths would be paved, but gravel or sawdust also gives a clean neat surface.

The beds can be as large or small as you like, depending on the number of plants you want to grow. As a guide it

generally looks better if 3-5 plants are grown in each bed, with the selection of plants repeated in each bed. A sundial or standard lavender makes an attractive centre piece.



Kerri Kerri lavender nursery in New Zealand uses an inexpensive tunnel house to start off the new plants; moving them outside once they are growing well, to acclimatize to a more exposed environment.

Buying lavender plants

When selecting lavender plants for purchase you should always consider the following points:

- Choose only plants with a healthy appearance. Plants should have no obvious discolouring, stunted growth, signs of damage.
- Reject any plants with obvious signs of pest or disease damage.
- Do not choose plants that appear too big for the pot, or have extensive root growth protruding from the container. These plants will often not transplant as readily as smaller ones that are not pot-bound.
- Be wary of very small plants that appear very soft. These may have recently come out of a protected raising area such as a greenhouse and have had insufficient time to 'harden' up before being offered for sale. If you buy these plants you will need to keep them sheltered for at least a week and gradually harden them off by placing then into a more exposed position ever couple of days. Pruning of the soft floppy material off also helps.

Summary for lavender

- Generally very hardy
- Prefers full sun. May need protection from sun in hot northern areas.
- Best with perfect drainage. If not, provide raised beds.
- Tolerates very dry conditions
- Most species not very suitable in humid tropical conditions.
- Pruning may be needed to maintain shape. Do not prune below green growth.
- Flowers can be eaten by grasshoppers and grubs. Remove grubs from foliage by hand.
- Propagate by fresh heel cuttings in autumn or spring.

CHAPTER 3 LAVENDER SPECIES

The species outlined (in alphabetical order) in this chapter include some of the more widely cultivated ones.

Lavandula abrotanoides

Synonyms: *L. multifida* subsp *canariensis see L. canariensis*

Lavandula alba: this has no botanical standing as a species name.

Lavandula angustifolia

Synonyms: *L. officinalis, L. vera, L. spica*

COMMON NAME: ENGLISH LAVENDER, TRUE LAVENDER

Appearance: A shrub, up to 70 cm tall. Linear, grey-green leaves. Fragrant, light to deep purple flowers appear in compact spikes.

Culture: Best in sun to partial shade it tolerates to minus 10°C, needs excellent drainage and a pH 6.1 to 7.5 (depending on cultivar).

Apply up to 100kg of nitrogen fertilizer spread over 3 to 4 dressings per season; to a broad acre crop, each year. Phosphorus and potassium needs are relatively low. Over feeding can be more of a problem than under feeding. Excessive nitrogen fertilizer can cause decreased oil quality; and may reduce health of plants and increase weed issues.

Irrigation and weed control can be important for the first 2 years or while plants are developing.

Plants are spaced between 1.2 to 2 metres apart; giving 8,000 to 28,000 plants per hectare for a commercial farm.

Uses: Often (if not always) has negligible or no camphor oil. As such this species is considered the best for most commercial oil uses; in particular perfumery, culinary and aromatherapy applications.

Oil contains over 100 different chemicals. Linalyl acetate can be up to 40%. Other constituents include linalol, lavandulol, lavandulyl acetate, turpineol, cineol, limonene, ocimene, caryophyllene and others. The ester content tends to be higher with plants grown at higher altitudes.

Used more widely than other species in aromatherapy, pharmaceuticals, cosmetics, soaps, detergents, foods, alcoholic and soft drinks and elsewhere

Cultivars/Species:

Subspecies: *L. angustifolia ssp. angustifolia* and *L. angustifolia ssp. pyrenaica*

Lavandula angustifolia English Lavender

Lavandula aristibracteata

From Northern Somalia – grows on cliff faces; large pinnate leaves – it is easily distinguished by the long bristle -like bracts which are easily seen within the flower spike.

Lavandula bipinnata

Listed by botanists as a separate species; native to India, herbaceous plant with thick stems and many leaves; rarely cultivated.

Lavandula buchii

Lavandula buchii

Synonyms: *L. formosa* and *L. pinnata* var. *formosa* - sometimes considered a cultivar of *L. multifida.*

Appearance: Grows up to 90 cm tall. Grey-green leaves and purple flowers, mostly in mid -summer to mid-autumn.

Culture: Full sun to partial shade. Drought tolerant; pH 6.1 to 7.8 but prefers 6.6 to 7.5

Uses: Container plant. And also attracts bees, butterflies and birds. Xeriscaping plant

Cultivars/Species:

Lavandula buchii var. *buchii*

L. canariensis

Lavandula canariensis

Synonyms: *L. abrotanoides*, *L. multifida* var. *canariensis*

Some authorities consider this as a subspecies of *L. multifida*

COMMON NAME: CANARY ISLAND LAVENDER

Appearance: Violet coloured flower heads occur as several branching narrow spikes at tops of stems. Greyish green, pubescent leaves, pinnate with rounded lateral processes. Variations exist amongst different cultivars.

Culture: Occurs naturally in a climate where temperatures are almost always beyond 20°C.

Uses: ornamental plant for milder climates.

Cultivars/Species:

L. canariensis var. canariensis

Lavandula chaytoriae

Status as a species is uncertain. It was listed in 2013 on a list developed by Kew & Missouri Botanic Gardens; as being an unresolved plant name. Some references list this as a species others list a range of different hybrids as *Lavandula x chaytoriae.* Some list these hybrids as being cultivars of *Lavandula officinalis*.

Lavandula x chaytoriae Gorgeous

Appearance: Green leaves to 57 X 3mm, flower spikes up to 5cm long, Flowers have a purple corolla, white tube, grey to purple calyx with brown bracts.

Culture: A tough lavender species that suits very cold conditions and grows on rough, rocky outcrops often on calcareous soils; alkaline soil and free drainage are important to the health of this species.

Uses: the species and its several cultivars are widely used as hedges.

Cultivars/Species:

L. chaytoriae ‘Gorgeous’; L. x chaytoriae ‘Sawyers’; L. x chaytoriae ‘Richard Grey’; L. x chaytoriae ‘Silver Sands’.

Lavandula chaytoriae Richard Grey

Lavandula coronopifolia

Listed by botanists as a separate species, but horticultural information is relatively scarce

Lavandula delphinensis

A subspecies of *L. angustifolia*

Lavandula dentata

Lavandula dentata

Lavandula dentata

COMMON NAME: FRENCH LAVENDER, FRINGED LAVENDER OR SPANISH LAVENDER

Occurs naturally in Spain.

Appearance: Spreading shrub, growing 1 m tall and 1.5 m across. Linear-oblong, dark green leaves. Purple-blue flowers; can flower most of the year in milder climates (e.g. Southern Europe, California, Sth. East Queensland).

Culture: Grows well across a wide range of climates from temperate to sub-tropical. Cut back 50% of the foliage each spring, after coldest weather has gone (some cultivars may tolerate minimum temperatures around 12 degrees Celsius; but most best kept above minus 5 Celsius). At the same time side dress soil with agricultural lime and apply a general fertilizer.

Grows and flowers better in warmer, more humid climates e.g. in sub-tropical South East Queensland, this species

can flower for 9 months of the year, and live in the ground for well over a decade.

Uses: Container plant, garden shrub, hedging plant and cut flower.

Particularly useful in areas where humidity can be higher.

Cultivars/Species:

L. dentata var. candicans

Lavandula dentata

Lavandula gibsonii

Native to India, herbaceous plant with thick stems and many leaves. Rarely cultivated.

Lavandula x intermedia

Known as Lavandin, L. intermedia is strictly not a species, but rather a hybrid between *L. angustifolia* and *L. latifolia*. It occurs naturally in southern France and is cultivated in various parts of the world, including France, Spain, the Baltics and Argentina.

Appearance: Variable, can be larger than L. angustifolia, woody stems. Flower colour can vary from blue to greyish

Culture: Tolerates to around minus 10°C.

Uses: Has significant quantity of toxic camphor –making it less useful for quality perfumes. It produces more oil per kg of flowers than L. angustifolia.

Oil is around 30% Linalyl acetate, together with linalol, cineol, camphene, pinene and a variety of other minor constituents.

It is blended by some aromatherapists with other oils for use in massage or in candles (blends well with clove oil, citronella, cypress, citrus, bergamot and lime. Do not use too high a % of Lavandin in the mix though. It tends to have a sharper scent than L. angustifolia. Also used sometimes in soaps, detergents or room sprays.

Cultivars/Species:

Most varieties have blue or lavender coloured flowers. At least one variety is white.

Lavandin ‘Alba’: white flowers

Lavandin ‘Dutch’: often been sold as L. vera (but it is not), grows around 90cm.

Lavandin ‘Grappenhall’: Large growing 1m or more, becomes very woody after about 5 years and should then be replaced.

Lavandin ‘Hidcote Giant’: The oil is very similar to that of the commercially grown oil crops of Italy and France.

Lanvandin ‘Grosso’: Introduced in the early 1980’s to the U.S.A. from Europe where it is grown commercially for oil.

NB: There are also many other varieties available in different parts of the world.

Lavandula lanata

Similar in appearance to L. angustifolia subsp angustifolia; Leaves are covered with white woolly hairs. It is indigenous to the mountains in Spain.

Lavandula x intermedia Lavandin

Lavandula latifolia

Synonyms: *L. spica*, *L. spica* var. *latifolia*

COMMON NAME: SPIKE LAVENDER

Lavandula latifolia

Appearance: Upright shrub to 1 m tall with elliptic to oblong-lance-shaped, grey-green leaves and mauve-blue flowers.

Culture: Does not grow well in shade, prefers well drained soil, tolerates drought, grows well in dryish or moist soil, but also grows in sandy loam or clay.

Uses: Used in massage for rheumatism and arthritis; as a control for lice, as a disinfectant for cleaning and in soaps and deodorants. Sometimes used in varnishes and lacquers. It is very aromatic. The leaves sometimes eaten raw in a salad, but should only be consumed in small quantities. Oil sometimes used as an edible flavouring. The oil is mostly cineol and camphor (40-60%); along with linalol and linalyl acetate. It has been listed as non-toxic and only an irritant in high concentration; however, its use in food may be best approached with caution given the fact that camphor is toxic.

While the plant is cultivated widely around the world; oil has been mostly produced in France and Spain.

Cultivars/Species:

None listed.

Lavandula maroccana

Listed by botanists as a separate species, but horticultural information is relatively scarce

L. minutolii

Lavandula minutolii

From the Canary Islands where it is found at altitudes from sea level up to 1500 metres high.

Appearance: 80cm tall, 70 cm diameter. Deeply divided, grey-green leaves covered with fine woolly hairs appear feather like. The violet blue flowers appear on branched spikes, emerging well above the foliage.

Culture: Frost sensitive

Uses: Winter flowering in England; sometimes grown as a container plant in greenhouses.

Cultivars/Species:

Kew Gardens recognise two varieties:

L. minutolii var minutolii

L. minutolii var. tenuipinna.

Lavandula multifida

Lavandula multifida

Occurs naturally in Western Mediterranean including Spain, Portugal, across North Africa from Morocco to Egypt; Sicily and Canary Islands

COMMON NAME: FERN LEAF LAVENDER, EGYPTIAN LAVENDER

Appearance: Grows up to 60 cm tall and can be an irregular shaped shrub. Deeply lobed, grey-green leaves. Blue-violet flowers from spring through to autumn.

Culture: Full sun. It tolerates temperatures to around minus 5°C some cultivars even lower and withstands heat and wet conditions better than many other species; grows well in sub-tropical Florida and also Queensland. It grows best in well drained loam soils.

Uses: Essential oil has been shown to have anti-microbial properties.

Cultivars/Species:

L. multifida ‘Blue Wonder’

L. multifida ‘Spanish Eyes’

L. multifida ‘Spanish Lace’

Lavandula nana

This one has no botanical standing. Generally refers to low growing cultivars of *L. angustifolia.*

Lavandula officinalis

syn. *L. angustifolia*

Lavandula pedemontan

No botanical standing; sometimes a synonym for *L. stoechas.*

Lavandula pedunculata

A sub species of *L. stoechas.*

Lavandula pinnata

Lavandula pinnata

Lavandula pinnata

From Madeira and Canary Islands - some experts consider it synonymous with L. buchii

COMMON NAME: FERN LEAF LAVENDER, JAGGED LAVENDER, PINNATA LAVENDER

Appearance: Spreading shrub, growing up to 1 m tall and 1 m across. Pinnate, grey-green leaves. Blue-purple flowers; flower buds can develop up to a metre high, well above the foliage, before opening.

Culture: Full sun. Tolerates to around minus 5 degrees Celsius, prefers to not go below freezing point though; it is drought resistant.

Uses: Container plant, greenhouse plant, garden shrub in mild or warmer climates.

Cultivars/Species:

L. pinnata ‘Sidonie’: a pest tolerant, drought resistant cultivar.

Lavandula praecox

No botanical standing; usually synonymous with a cultivar of *L. angustifolia.*

Lavandula pubescens

According to some authorities, this is *L. multifida; others list it as a separate species.*

Lavandula pyrenaica:

A sub-species of *L. angustifolia*

Lavandula rotundifolia

Syn. *Stoechas rotundifolia*

COMMON NAME: CAPE VERDE LAVENDER, ANGELS CUSHION

This species occurs naturally in the Atlantic Islands off the coast of Africa, at altitudes of over 800m in semi humid to arid environments. Recorded as a distinct species in botanical literature however published information on the species is relatively scarce.

Appearance: This species grows 30 to 70cm tall, to 90cm diameter, its green foliage is nothing like the 'normal' lavenders; leaves are round and broad and its purple flowers appear in three spikes atop the stems.

Culture: Full sun, good drainage. It does need protection from harsh weather in cooler climates.

Uses: unusual lavender planted as a garden ornamental shrub in milder climates or a protected environment.

Lavandula rotundifolia

Cultivars/Species:

L. rotundifolia var. crenata, L. rotundifolia var. incise, L. rotundifolia var. subpinnatifida

Lavandula serrata

This species has no botanical standing, but sometimes used for *L. dentata*

Lavandula spica

Sometimes used for *L. angustifolia* (a very old name for this latter species).

Lavandula stoechas

Lavandula stoechas

COMMON NAME: SPANISH LAVENDER, ITALIAN LAVENDER

From Mediterranean and Portugal

Appearance: 50 to 80cm tall and 60cm diameter; grey green foliage, dark purple flower bracts

Culture: Some cultivars can tolerate as low as minus 15 degrees Celsius; others not below minus 9°C; it prefers pH 7 to 8. Needs good drainage; be careful to not over-water. Susceptible to fusarium root rot and leaf spots in wet conditions. Tolerates deer grazing.

Uses: Attracts butterflies. Fragrant flowers. Garden beds, border plant, container plant, rockeries. Dried Flower.

Cultivars/Species:

There are many named cultivars available for *Lavandula stoechas*.

Lavandula subnuda

This species belongs to the “subnuda” section which includes species that range from the Arabian Peninsula through to tropical Africa. Subnuda refers to the fact that adult plants can have almost no leaves.

Lavandula viridis

Lavandula viridis

COMMON NAME: GREEN LAVENDER

Appearance: Upright shrub growing up to 70 cm tall, 80 cm diameter. Oblong, light green leaves. White flowers emerge from lime green bracts in late spring or summer. A very fragrant species.

Culture: Can tolerate to minus 5°C. Prefers full sun or very light partial shade,

Uses: Hedge or border plant

Cultivars/Species:

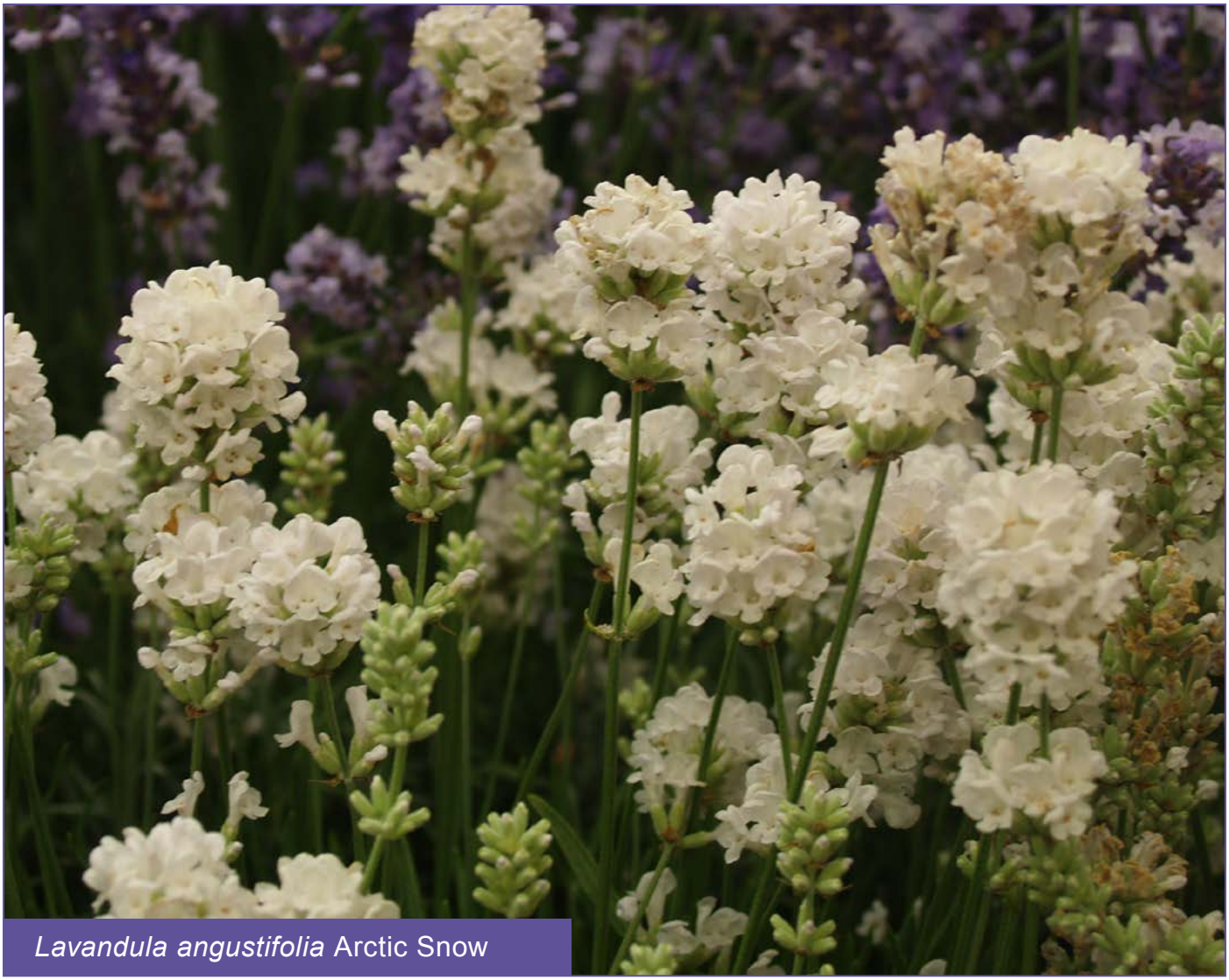
There are many named cultivars for this species.

CHAPTER 4 CULTIVARS

This chapter presents a range of cultivars that are grown either in gardens or on lavender farms. The list is by no means comprehensive, but it does provide a perspective on the diversity that can be found across the genus.

Lavandula angustifolia cultivars

Lavandula angustifolia 'ARCTIC SNOW'



Lavandula angustifolia Arctic Snow

Appearance: Grows up to 45 cm tall. White flowers.

Culture: Prefers full sun. Drought-tolerant.

Uses: Container plant. Flower spikes are suitable for drying and can be used in floral decorations.

Lavandula angustifolia 'ASHDOWN FOREST'

Lavandula angustifolia Ashdown Forest

Appearance: Grows up to 60 cm tall; bushy habit with mid-green leaves and violet-blue flowers.

Culture: Fun to partial shade. Drought-tolerant.

Uses: Container growing; hedging; ornamental use. Flower spikes are suitable for drying and can be used in floral decorations.

Lavandula angustifolia ‘BACKHOUSE PURPLE’

Lavandula angustifolia Backhouse Purple

Synonyms: ‘Backhouse’, ‘Backhouse Nana’

Appearance: Grows up to 70 cm tall; bushy, upright habit with mid-green leaves and violet-blue flowers.

Culture: Best in full sun on free draining light, loamy or loamy clay soil.

Uses: Hedging; ornamental use.

L. angustifolia 'BETTY'S BLUE'

Lavandula angustifolia Betty's Blue

Appearance: shrub 760- 75cm tall, flowers corolla violet and calyx dark purple.

Culture: Best in full sun on free draining light, loamy or loamy clay soil.

Uses: fresh and dried cut flowers, ornamental garden plat, low informal hedge.

L. angustifolia BLUE ICE

Lavandula angustifolia Blue Ice

Appearance: Lovely small, rounded shrub to 50cm tall with a profusion of pale blue, very perfumed flowers in mid-summer.

Culture: free draining soils in full sun for best results.

Uses: edging, under-planting roses, fragrance.

Lavandula angustifolia ‘CEDAR BLUE’

Lavandula angustifolia Cedar Blue

Synonym: ‘Hidcote’

Appearance: Grows up to 70 cm tall; upright and bushy habit. Grey-green leaves. Violet-blue flowers.

Culture: Full sun, well drained soils; drought-tolerant.

Uses: Hedging; container growing; ornamental use and as a container plant. Flower spikes are suitable for drying and can be used in floral decorations.

Lavandula angustifolia ‘CLARMO’

Lavandula angustifolia Clarmo Little Lottie

Lavandula angustifolia Little Lottie

Synonym: ‘Little Lottie’

Appearance: Grows up to 45 cm tall a small compact shrub with pink flowers.

Culture: Full sun and drought-tolerant.

Uses: Container plant; edging plant, small informal edging hedge, under-planting around roses.

Lavandula angustifolia ‘FOVEAUX STORM’

Lavandula angustifolia Foveaux Farm

Appearance: stunning NZ variety with stunning deep purple flowers and a compact form to 50cm.

Culture: light, free draining, moist soils in full sun.

Uses: ideal for picking and drying as it retains its colour well; great little garden ornamental as well.

Lavandula angustifolia 'HIDCOTE'

Lavandula angustifolia Hidcote

Lavandula angustifolia Hidcote

Appearance: Grows up to 70 cm tall; compact; slow-growing. Silver-grey leaves. Dark violet flower spikes.

Culture: Free draining soils in full sun; like all lavenders it requires pruning to keep its shape.

Lavandula angustifolia 'HIDCOTE PINK'

Lavandula angustifolia Hidcote Pink

Appearance: slow growing bushy to spherical habit to 70cm. Grey-green leaves and pink flowers.

Culture: Full sun free draining moist soils for best results

Uses: Hedging; mass planting, edging.

Lavandula angustifolia ‘IMPERIAL GEM’

Lavandula angustifolia Imperial Gem

Lavandula angustifolia Imperial Gem

Synonym: ‘Nana 1’

Appearance: Grows up to 70 cm tall; bushy habit with grey-green leaves and violet flowers.

Culture: Full sun to partial shade; drought-tolerant.

Uses: Ornamental use; feature plant; mass planting. Flower spikes are suitable for drying and can be used in floral decorations.

L. angustifolia 'LADY ANN'

Lavandula angustifolia Lady Ann

Appearance: compact, bushy, clump forming, lavender with highly scented pink flowers in summer.

Culture: Free draining soils, full sun, clip to retain bushiness after flowering.

Uses: dried flowers, edging, low informal hedge.

L. angustifolia ‘LADY LAVERNA’

Lavandula angustifolia Lady Laverna

Lavandula angustifolia Lady Laverna

Seen growing in the Denver, USA. Information is scarce. It may be the same as the Lavandula angustifolia cultivar “Lady”, which matches the description and is more commonly listed. This should not be confused with “Lady Ann” and other similarly named cultivars that are different in appearance.

Appearance: Low growing, around 30 to 40 cm tall, flowers tend to be more blue than purple. Flowering is prolific and fragrant.

Culture: Full sun, good drainage, alkaline soil.

Uses: Hedging, borders, container plant, shrubberies.

Lavandula angustifolia ‘MELISSA LILAC’

Lavandula angustifolia Melissa Lilac

Appearance: Grows up to 90 cm tall with grey-green leaves and violet flowers.

Culture: Full sun to partial shade; drought-tolerant.

Uses: Flower spikes are suitable for drying and can be used in floral decorations.

L. angustifolia 'MISS DAWNDERRY'

Lavandula angustifolia Miss Dawnderry

Appearance: a new, neat mounding cultivar; flowers appear on thin wiry stems retain their deep purple colour without fading for almost the entire flowering season.

Culture: a very low maintenance shrub – needs good soil drainage and full sun.

Uses: as cut flowers, dried flowers (because they retain their colour), easy care ornamental shrub.

Lavandula angustifolia ‘MISS KATHERINE’

Lavandula angustifolia Miss Katherine

Appearance: Grows up to 70 cm tall; bushy habit with grey-green leaves and lilac-pink flowers.

Culture: Full sun to partial shade; drought-tolerant.

Uses: Borders; hedging; ornamental use. Flower spikes are suitable for drying and can be used in floral decorations.

Lavandula angustifolia ‘MUNSTEAD’

Lavandula angustifolia Munstead

Lavandula angustifolia Munstead

Synonyms: ‘Munstead Dwarf’, ‘Munstead Variety’, ‘Munstead Blue’, ‘Dwarf Munstead’.

Appearance: Grows up to 70 cm tall; bushy habit with mid-green leaves and blue-purple flowers appearing continuously throughout summer.

Culture: Full sun; drought-tolerant.

Uses: Hedging; ornamental use; fragrant plant.

Lavandula angustifolia ‘NANA ATROPURPUREA’

Lavandula angustifolia Nana Atropurpurea

Synonym: ‘Atropurpurea’

Appearance: Grows 40-60 cm high; compact growth. Dark coloured flower spikes.

Culture: free draining soils in full sun, cut back after flowering.

Uses: Hedging; ornamental use; fragrant plant; feature plant.

Lavandula angustifolia 'PETER PAN'

Lavandula angustifolia Peter Pan

Appearance: Grows up to 60 cm tall with grey-green leaves and purple flowers.

Culture: Full sun to partial shade; drought-tolerant.

Uses: Container plant.

Lavandula angustifolia 'PRINCESS BLUE'

Lavandula angustifolia Princess Blue

Lavandula angustifolia Princess Blue

Synonym: 'Nana 2'

Appearance: Grows up to 70 cm tall; upright, bushy habit with mid-green leaves and violet-blue flowers.

Culture: Full sun, free draining soils, prune after flowering.

Uses: Ornamental use; fragrant plant; feature plant.

Lavandula angustifolia 'ROSEA'

Lavandula angustifolia Rosea

Synonyms: 'Nana Rosea', 'Pink'

Appearance: Grows up to 60 cm tall; upright, bushy habit; vigorous growth. Light green leaves. Mauve-pink flowers have a sweet fragrance; early flowering.

Culture: Full sun to partial shade; drought-tolerant. Pruning is necessary to maintain compact growth.

Uses: Adds contrast e.g. when planted with dark-flowered cultivars; great for hedging. Fragrant crafts.

Lavandula stoechas cultivars

Lavandula stoechas 'AVONVIEW'

Lavandula stoechas Avonview

Appearance: Grows up to 80 cm tall; vigorous growing; compact with green to grey-green leaves. Purple flowers.

Culture: will grow on a wide range of soils even clays – but they must drain freely. Cut back after flowering (may need to be pruned twice a year to retain a compact shrubby appearance – will also flower more than once per season in temperate areas).

Uses: Hedging; ornamental use; mass planting.

Lavandula stoechas ‘BALLERINA’

Lavandula stoechas Ballerina

Appearance: Grows up to 60 cm tall; bushy habit with green to grey-green leaves and violet-blue flowers with sterile bracts changing in colour from white to purple-pink.

Culture: Full sun. This one requires regular pruning.

Uses: Ornamental; the flowers make this an interesting edition to the garden.

Lavandula stoechas ssp. pedunculata ‘BUTTERFLY’

Lavandula stoechas ssp. pedunculata Butterfly

(syn. *L. stoechas* ‘Butterfly’ and L. s. ‘Papillon’) Ref. RHS.

Appearance: Grows up to 80 cm tall. Green to grey-green leaves. Red-violet flowers.

Culture: Performs best in full sun on light, sandy dry to medium dry poor soils.

Uses: Hedging; feature plant.

Lavandula stoechas ‘BELLA PURPLE’

Lavandula stoechas Bella Purple

(often listed as ‘Bella Purple’; Bella™Purple is part of the Bella™ a trademark/selling name rather than the cultivar).

Appearance: Grows up to 60cm – 90cm tall with grey-green leaves and lots of highly fragrant, dark purple flowers with paler bracts.

Culture: Full sun. Dry-tolerant, but like all in this species prefers some summer moisture during the driest months. Prune lightly in spring and or summer.

Uses: Container plant; garden ornamental, informal hedge.

Lavandula stoechas ‘DEVONSHIRE COMPACT WHITE’

Lavandula stoechas Devonshire Compact White

Appearance: a low growing compact shrub 60-90cm with short, dense spikes of dark purple flowers which contrast well with the lilac bracts. This one flowers in summer but pruning after flowering often promotes a second flowering. There is also a white flowering variety L. stoechas ‘Compact Devon White’.

Culture: Full sun and medium to low water requirements. Prune after flowering to promote another bloom.

Uses: great informal hedge or ornamental garden plant.

Lavandula stoechas subsp. stoechas f. rosea 'KEW RED'

Lavandula stoechas subsp. stoechas g rosea Kew Red

Syn. Lavandula stoechas 'Kew Red'

Appearance: Grows up to 60 cm tall. Grey-green leaves. This is a showy variety with red-purple flowers with pale mauve bracts.

Culture: Full sun, well drained dry to moist soils.

Uses: Ornamental, hedging.

Lavandula stoechas ‘MADRID PURPLE’

Lavandula stoechas Madrid Purple

Appearance: Grows up to 45-90 cm tall. Grey-green leaves. Abundant purple flowers topped with purple bracts – a showy variety.

Culture: Full sun. Drought-tolerant but prefers some soils moisture during the hottest part of summer.

Uses: Rock garden, edging, border, filler and container plant.

L. stoechas ssp lusitanica 'LUSI PINK'

Lavandula stoechas ssp lusitanica Lusi Pink

Appearance: a new compact lavender (from Dutch breeders) with purple flower spikes topped with pinkish bracts. There is also a purple variety 'Lusi Purple'. Flowers are large appearing in mid to late summer and again in late autumn.

Culture: Prune after flowering, prefers full sun and a dry to moist free-draining soil.

Uses: Strongly scented, bee attractant, ornamental.

Lavandula stoechas 'MARSHWOOD'

Lavandula stoechas Marshwood

Lavandula stoechas Marshwood

Appearance: Grows up to 1 m tall, upright habitat with grey-green leaves. Some authorities describe flowers as reddish-pink and others purplish to reddish.

Culture: Sun to partial shade; drought-tolerant; requires intensive pruning to maintain its form.

Uses: Mass planting; ornamental plant; container plant.

Lavandula stoechas ssp. pedunculata ‘PUKEHOU’

Lavandula stoechas ssp. pedunculata Pukehou

(syn. *L. pedunculata* ‘Pukehou’; L. stoechas ‘Pukehou’)

Appearance: Grow up to 70 cm tall; bushy, rounded habit with green to grey-green leaves and showy blue-purple flowers.

Culture: Free draining soils in full sun; prune after flowering to promote bushiness.

Uses: Mass planting; feature plant; hedging.

Lavandula ‘WILLOWBRIDGE CALICO’

Lavandula Willowbridge Calico

Appearance: Grows up to 70 cm tall; bushy habit with bright green leaves and purple and white bi-colour flowers.

Culture: this variety is half-hardy in cold areas; plant in full sun in well-drained soils.

Uses: Hedging; container plant; ornamental plant (when young).

Lavandula stoechas ‘WITH LOVE’ (‘With Love™’ is also a USA trademark name for this plant)

Lavandula stoechas With Love

Lavandula stoechas With Love

Appearance: Grows up to 50cm tall a dark pink flowered variety with long paler pink bracts; it flowers earlier than most other varieties in this species.

Culture: Tough drought-tolerant plant that requires good drainage and full sun.

Uses: Ornamental, tubs, edging, informal hedging.

Lavandula X Intermedia Cultivars (Lavandins)

Lavandula x ‘CHRISTIANA’

Lavandula Christiana

Lavandula Christiana

Some web sites list as a Lavindin. Chelsea Psychic Garden grow it under the name *Lavandula X Christiana.*

Appearance: Deeply divided silver grey aromatic leaves, velvety in appearance. 60 to 90cm tall, flowers narrow, long and on tall spikes, medium blue to violet blue.

Culture: Full sun or light shade, not as cold tolerant as some species. Drought tolerant.

Uses: Container plant, garden shrub, cut flowers, good for xeriscapes, attracts bees, butterflies and birds.

Lavandula x intermedia 'GROSSO'

Synonyms: L. 'Grosso', 'Dilly Dilly' (also used as a common name for this cultivar), 'Wilson's Giant'.

Lavandula x intermedia **Grosso**

Lavandula x intermedia Grosso

Lavandula x intermedia Grosso

Lavandula x intermedia Grosso

Appearance: Grows up to 75 cm tall; spherical habit with mid-green leaves, turning grey. Violet flowers with a sweet, very aromatic fragrance - high-yielding.

Culture: Full sun in well-drained soils; Drought-tolerant. Requires pruning to stay compact.

Uses: Hedging; ornamental plant. Lavender oil production and dried flower production.

Lavandula x intermedia 'EDELWEISS'

Lavandula x intermedia Edelweiss

Appearance: Grows up to 60 cm tall with grey-green leaves and white flowers.

Culture: Full sun; drought-tolerant well-drained soils.

Uses: Container plant; dried flower production.

Lavandula x intermedia 'GROS BLEU'

Lavandula x intermedia Gros Bleu

Appearance: A great French hybrid that grows up to 60-90 cm tall with grey-green leaves and purple/blue flowers.

Culture: Full sun to partial shade best in low fertility well-drained soils; drought tolerant.

Uses: Hedges, ornamental, specimen.

Lavandula x intermedia ‘HEAVENLY SCENT’

Lavandula x intermedia Heavenly Scent

Lavandula x intermedia Heavenly Scent

Appearance: Grows 45 to 50cm tall. The highly aromatic pale purple flowers appear from mid-summer onwards. Foliage is grey-green.

Culture: Very hardy to minus 15°C; plant in well-drained soil and a sunny position and prune immediately after flowering.

Uses: great as a garden specimen plant, in tubs or as an informal hedge

Lavandula x intermedia 'PROVENCE'

Lavandula x intermedia Provence

Appearance: One of the largest Lavandin varieties it grows from 60cm up to 1.5 m tall with grey-green leaves and purple flowers with a strong fragrance.

Culture: Full sun; drought-tolerant.

Uses: Perfumery, hedges, ornamental specimen.

Lavandula x intermedia 'SUSSEX'

Lavandula x intermedia Sussex

Appearance: Grows up to 1 m tall; spherical habit with mid-green leaves and violet flowers.

Culture: Full sun to partial shade; drought-tolerant.

Uses: Ornamental plant; fragrant plant; oil production.

Lavandula x intermedia 'WALBERTON'S SILVER EDGE' = 'WALVERA'

Lavandula x intermedia
Walberton's Silver Edge

Synonyms: 'Tim's Variegated'

Appearance: Bushy, erect habit. Variegated foliage i.e. silver grey/cream leaves. Violet flowers in summer and again in autumn.

Culture: Full sun to partial shade.

Uses: Hedging; ornamental plant; container plant.

CHAPTER 5 USING LAVENDER

Lavender is a very versatile herb with many uses, e.g. oil, fragrant crafts, culinary use, medicinal use and ornamental planting.

LAVENDER OIL

Lavender is commercially grown for oil production. Lavender oil is an essential oil, i.e. a volatile oil obtained from the parts of the plant which possesses the characteristic odour of the plant. The oil is used in perfumes, soaps, shampoos, face creams, deodorants, candles and disinfectants. Lavender oil is also used for medicinal purposes. Herbalists use it to treat wounds and skin conditions, such as acne. In aromatherapy, lavender oil is inhaled, e.g. to treat headaches and nervous disorders.

Lavender oil is superficial oil, i.e. secreted in glands on the surface of the plant. The glands are located on the surface of the flower calyx.

Lavender oil – quality and cost can be quite variable. Keep in mind, you generally get what you pay for.

Chemistry of Lavender Oil

Lavender oil typically contains more than 100 components. It is mostly made up of an acetic ester called Linalyl acetate (approx. 40%) and a terpene alcohol, called Linalool (around 30%). Linalyl acetate has a fruity sweet aroma that contributes heavily to the unique scent and antimicrobial properties of lavender oil.

Lavender oil also includes lavandulol, 1,8-cineole, pinene, limonene, borneol, rosmarinic acid, tannins, camphor and other compounds.

Lavender oil from *Lavandula* species (e.g. *L. angustifolia*) with high linalyl acetate content and relatively low camphor content is commonly used to produce perfumes and cosmetic products.

Distillation

Distillation is used to separate the lavender oil from the plant material. There are two methods of distillation: water distillation and steam distillation.

Water distillation is an ancient method of distillation for herbaceous oils. It requires the plant material to be completely immersed in boiling water. This method is difficult to carry out efficiently and is therefore only used rarely nowadays.

Steam distillation is now the preferred method of distillation for herbaceous oils. The oil glands are ruptured upon contact with the steam, releasing patches of oil. The steam condenses on the plant surface, emitting its latent heat and thereby raising the temperature of successive layers. At the edges of the oil patches is an interface where oil and water come into contact. Once the condensing steam has raised the temperature to approximately 98°C, the additive properties of the water's and oil's vapour pressures cause the liquids to boil. Oil saturated vapour rises and can be led through a condenser where it is cooled until it condenses back into a liquid. The liquid flows into a separator. Because oil has a lower density than water, it floats on top of the water and can be skimmed off.

A traditional lavender distillery in the south of France.

Harvesting Lavender for Distillation

Lavender flowers with stems are harvested for oil distillation. Oil accumulation is highest when half of the flowers have withered, making this the optimal time to harvest. Harvesting should be carried out in the mid-morning of a dry and sunny day after dew has evaporated. Only undamaged material of good quality should be collected.

The key to producing high quality oil, that attracts a higher price, is just as much in the way it is distilled, as it is in the cultivar that is grown. For a consistent product to be produced, a producer needs to use the same still or type of still, to distil the same cultivar, harvested at the same stage of growth.

Tim Denney, from Bridstowe Lavender Estate, undertook significant research into Lavender oil production in the decades following WW2. He determined that the optimum time to distil oil was 18 minutes, and that long distillation periods could result IN undesirable chemical reactions in the product (e.g. Hydrolysis of Linalyl acetate into linalool). Poor design of distillation equipment can cause the distillation period to be extended (to as much as 2 hours); and that can result in decreased quality in the oil produced.

Quality Standards

The nature and quality of lavender oil can be extremely variable from farm to farm and region to region. Large scale lavender farms, usually producing over 500 kg of oil (or more) annually, are most likely going to be selling their produce internationally. When product

is sold internationally; the International standards association's standard for "Essential Oil Nomenclature" should be adhered to. Smaller scale production (sometimes referred to as "cottage production") that is only trading domestically, may not need to follow the same standards for labelling product.

Even domestic oils should not be misrepresented by labelling. Any responsible grower should indicate the species (or cultivar) which the oil is derived from, and the region in which it is grown.

Unless the chemistry of an oil is known and understood properly, it is best to only sell in child- proof containers, and label bottles with a warning against ingesting the oil.

Lavender as a cut flower

Lavender crafts

Dried lavender is used in fragrant crafts, such as potpourri, lavender bags, wreaths and flower arrangements. Flowers or spikes may also be included in candles and soaps. It is often used alone for fragrance, but can also be mixed with other herbs either as dried leaves and flowers or essential oils.

Other herbs that are often mixed with lavender include: rose petals or oil, carnation flowers, scented geranium lemon verbena and/or citrus peel or oil. Other herbs are also used at times, so don't be restricted by this list.

Sachets

Lavender sachets are used for adding perfume to cupboards and linen drawers. They may be manufactured in a variety of ways:

1. Lavender hearts

- Cut cotton fabric into heart shapes.
- Fill with dried lavender and stitch around the edge.
- Sow lace around edge of heart.

2. Lavender bags may be made in the shape of a circle or square.

- Gather together narrow ribbon and lace.
- Cut out desired cotton shapes, square or circular, under 10 cm.
- Sew around 3 edges, leaving one edge open to stuff filling into bag.

- Place dried lavender into bag.
- Sew up open edge and sew lace around perimeter of the bag.
- Decorate with ribbon.

A basket full of dried lavender heads – bused to fill sachets or in other crafts.

Lavender sachets

Pressed Flowers

Pressed lavender makes a delightful gift, mounted on a greeting card or framed on the wall.

You can either use a plant press, which is made from two wooden boards, clamped together with screws and tightened wing nuts, or several heavy books to flatten the specimen/s.

When collecting the specimen, cut a sprig of the desired size, making sure there are no holes or blemishes in the leaves. It's best to choose as decorative a sprig as possible, with flowers and seeds if they're present on the bush. Only cut dry sprigs, as moist leaves and stems will probably become mildewed.

Place the specimen between two sheets of absorbent paper, laying it as flat as possible. Place the absorbent paper between several layers of newspaper, then put the specimen and newspapers inside the press or under the heavy books. The papers will need to be changed daily for the next 4-5 days, depending on how moist the specimen is. Continue to change the newspaper every few days until the specimen is completely dry and crisp. This may take several weeks.

The pressing can then be glued on cardboard or good quality art paper.

Harvesting and Drying Lavender

Lavender grown for drying should be harvested once the first two flowers on the spike have opened. If more flowers are open at harvest, the flowers will start falling apart after drying. It is important that the lavender is not wet

when harvesting, as this may lead to discolouration and the growth of mould. Therefore lavender should be harvested in the mid-morning of a dry and sunny day after dew has evaporated.

A purpose built lavender harvesting machine

It is important to dry lavender as soon as possible after harvesting to ensure the best quality. The leaves are usually removed first. Then the lavender is tied in bunches and hung upside down in a dark area with good air circulation and low humidity. The lavender is ready as soon as the stems break easily.

Harvested lavender, tied into bunches and hung in a place with warmth, low humidity and good ventilation: to dry.

Culinary use

Dried or fresh lavender flowers can be using in cooking and baking, e.g. to flavour ice cream, biscuits and cakes. Only a few lavenders are suitable for culinary use, e.g. *L. angustifolia* 'Munstead'.

Lavender often contains levels of camphor, which is toxic to humans. Those with higher levels of camphor are less pleasant to smell or taste; and more likely to cause a toxic reaction. Any oils containing over 11% camphor are quite toxic and are probably best avoided altogether.

Confectionary

Toffees, coconut ice and other home-made confections can be flavoured by placing a layer of chopped herbs on the bottom of the container into which the candy mixture is poured. Lavender can also be used to flavour drinks (e.g. lemonade, cordial, liqueurs), ice cream, gelati, chocolate mousse and a wide range of other desserts. Use pure lavender oil conservatively and avoid anything with discernible camphor levels. Excessive use of even high quality lavender oil can be overpowering.

Lavender Lemonade

Fresh or dried lavender flowers can be used in the following recipe to make lavender lemonade:

- 1 cup sugar
- ¼ cup fresh or 1 tablespoon dried lavender flowers.
- 1 cup freshly squeezed lemon juice.

1. Place sugar in a medium sized pan and add 2 ½ cups of water. Bring to the boil and stir to dissolve the sugar.
2. Add the lavender flowers, remove from the heat and let stand for at least 20 minutes.
3. Strain and discard the lavender flowers. Pour the infusion into a jug. Add the lemon juice and an additional 2 ½ cups of water. Stir well.

Makes 6 cups.

Lavender Ice Cream

The following recipe uses fresh lavender flowers to make lavender ice cream, however dried lavender flowers can also be used:

- 1 ½ teaspoon fresh lavender flowers
- 1 cup sugar
- 1 cup milk
- 8 egg yolks (at room temperature)
- 1 cup crème fraîche

1. Place the sugar and lavender in a food processor and process until the lavender is powdered.
2. Combine the lavender sugar with milk in a large mixing bowl until the sugar dissolves.
3. In another bowl, combine the egg yolks and crème fraîche and mix well.
4. Add the lavender sugar-milk mixture to the egg-crème fraîche mixture and mix well.
5. Pour the mixture into the container of an ice cream or sorbet machine and freeze according to the manufacturer's instructions.

Lavender Cream

In the following recipe lavender flowers are cooked in a custard cream. Serve topped with berries.

- ½ cup whipping cream
- ½ cup milk

- 2 tablespoons honey (e.g. wildflower or lavender honey)
- 3 tablespoons sugar
- Pinch of salt
- 5 lavender sprigs
- 2 egg yolks
- ½ cup stiffly whipped whipping cream

1. Place a bowl on top of a pan with very hot water, to create a double boiler. Combine the cream, milk, honey, sugar, salt and lavender in the bowl. Cook over the hot water for 10 minutes, stirring occasionally.
2. Whisk the egg yolks in another bowl. Pour approximately ½ cup of the lavender cream mixture over the egg yolks and mix well.
3. Pour the yolk and cream mixture into the double boiler and mix well. Cook for 10 minutes, stirring continuously, until the mixture thickens.
4. Remove from the heat. Strain the lavender cream and discard the lavender.
5. Cool the lavender cream to room temperature, then chill.
6. Take the lavender cream out of the refrigerator 15 minutes before serving. Fold the stiffly whipped cream into the lavender cream. Serve immediately.

Serves 8.

Lavender Marmalade

Dried lavender flowers can be used in marmalade, as in the following recipe:

- 7 Seville oranges
- 1 lemon
- 9 cups sugar
- 2 tablespoons dried lavender flowers

1. Cut the lemon and oranges into quarters, remove and reserve the seeds. Thinly slice the oranges and the lemon and place into a large pot. Pour 12 cups of water over the sliced fruit and let it soften overnight.
2. Place the seeds in a cup and add water to only just cover the seeds. Let the seeds soak overnight to form a pectin gel.
3. The next day, sieve the gel from the soaking seeds and add to the lemon and oranges. Bring to the boil, then lower the temperature and simmer strongly for one hour.
4. Add sugar and lavender flowers. Cook at a rapid boil for 30 minutes, occasionally stirring.
5. Lower to a gentle boil and continue cooking for up to 30 minutes.
6. Meanwhile sterilise marmalade jars in an oven at 95°C for 20 minutes. Sterilise lids in boiling water.

7. Check the consistency of the marmalade by placing half a teaspoon of marmalade on a cold saucer. The marmalade should thicken and crinkle when tipped.

8. Remove the marmalade from the heat, let it stand for 5 minutes and pour into the hot jars. Screw on the lids.

Makes 12 jars (250ml each).

Biscuits and Breads

Standard biscuit recipes can have interest added to them by the addition of herbs. It is important to use lavender that is free of camphor and in a quantity that is subtle and not overpowering.

Lavender cookies can be made using the following recipe:

- 1 cup butter (at room temperature)
- 1 cup brown sugar
- 2 tablespoons dried lavender flowers
- 3 tablespoons orange juice
- Zest of one orange
- 2 eggs
- 1 teaspoon almond extract
- 3 teaspoons baking powder
- 3 cups flour

1. Beat the butter, sugar and lavender in a large bowl until the mixture becomes fluffy.

2. Add the eggs and beat until smooth.

3. Add the lemon juice, almond extract and lemon zest. Mix until the dough is soft and slightly sticky.

4. Form the dough into two logs and roll in wax paper. Chill for 20 minutes.

5. Slice the logs into rounds.

6. Bake for 12-15 minutes in a preheated oven at 175°C.

Makes 24 cookies.

Medicinal uses

Lavender has long been used in herbal medicine, aromatherapy and massage.

Lavender oils are one of the most common herbal oils used in massage; often added to non or low aromatic oils for use in massage. Lavender is also generally considered relatively safe; with a far lower likelihood of people having an allergic reaction to this type of oil. Highly sensitive people can often be sensitive to many other types of herbal oils.

Traditional herbalism while still widely practiced in some parts of the world, is not always supported by the same level of scientific testing that many modern medicines are. Nevertheless, the use of lavender by herbalism is still extensive; as a treatment for digestive issues, an antiseptic, an appetite stimulant, an inducer of perspiration and a decongestant (when scent is breathed in).

The way in which lavender is used for medicinal purposes, should be

prescribed by a knowledgeable practitioner, particularly if it is to be used for an extended period or ingested in any way whatsoever.

Lavender heat packs made with a mix of lavender flowers and wheat seed. Place in a microwave oven for a short period, with a mug of water. Don't overheat. The water helps prevent the seed heads deteriorating.

COSMETICS

Lavender is used in cosmetics due to its fragrance and its soothing, anti-septic and anti-inflammatory properties.

Lavender Body Lotion

The following recipe is for a moisturising, soothing body lotion:

- 1/2 cup jojoba oil
- 1/2 cup kukui oil
- 1-2 teaspoons of borage oil
- 1-2 teaspoons Vitamin E oil
- 10-15 drops of lavender essential oil
- 1/4 cup vegetable glycerine

Combine all ingredients in a bottle (preferably a bottle with a squeeze or pump-style top). Shake well.

Lavender Lotion Bar

The following recipe makes 4-5 bars:

- 120g of raw coconut oil, raw shea butter, raw cocoa butter (choose just one or a combination)
- 120ml of sweet almond oil
- 140g beeswax
- 3 tsp of lavender essential oil
- 1-2 Vitamin E capsules

1. Melt the beeswax with the coconut oil, shea butter and cocoa butter on the stove over medium-low heat (or in the microwave). Melt the mixture slowly, without letting it boil. Stir until the mixture is completely liquid, then remove from the heat.

2. Add the sweet almond oil and mix well. Allow the mixture to cool for 5 minutes, then add the contents of the vitamin E capsule and the lavender oil. Mix well.

3. Pour the mixture into moulds (e.g. cupcake moulds or soap moulds) and allow it set for at least an hour. The bars can then be pressed out of the moulds.

Tie a bunch of freshly picked lavender, with a lavender ribbon and leave on a table or bench.

Cleaning

Lavender oil is used for cleaning purposes due to its fragrance and antiseptic properties. It can be added to homemade cleaning products.

Cleaning Fluid

This recipe makes approximately 240ml. The cleaning fluid can be used in a sprayer/atomiser as a cleaning spray in the kitchen and bathroom. To fill your spray bottle, multiply the ingredient amounts as required. In this recipe the ratio of vinegar to water is 1:1. The ratio can be changed to 2:1 (i.e. 2/3 cup vinegar and 1/3 cup water) to increase the fluid's cleaning power if necessary, e.g. for the removal excessive mould.

- 1/2 cup white vinegar
- 1/2 cup water
- 12-24 drops of lavender essential oil

Pour the vinegar and water into a spray bottle. Add the lavender oil and shake the bottle well.

Multi-Purpose Cleaner

Use a 500ml bottle for the following recipe:

- 2 tablespoons white vinegar
- 1 teaspoon borax
- Distilled or purified water
- 1/4 cup liquid castile soap
- 10 drops lavender essential oil
- 1 teaspoon lemon juice

1. Mix the vinegar and borax in the bottle. Fill the bottle to 3/4 with hot water. Shake the bottle to dissolve the borax.

2. Add the soap, essential oil and lemon juice. Shake the bottle well.

Landscaping with lavender

Lavender can also be used in many different ways in the garden. A specialist garden featuring lavender, alone or in conjunction with only one or two other types of plants is something special, and potentially a stunning feature.

Lavender may be grown as a specimen plant, hedge plant or en-masse. Lavenders with different coloured flowers can be mixed for contrast, e.g. dark-flowered lavenders can be planted alongside white, pink or yellow flowered lavenders. Grey- or silver-leaved lavenders may be grown for effect, e.g. *L*. x *intermedia* 'Grey Hedges'. Lavenders may also be colour-coordinated with other plants in the garden.

Lavender does not have to be segregated though from the rest of your plants. It can grow in containers or garden beds throughout the rest of the garden. If you plan to intersperse herbs throughout the garden, choose what plants you mix it with carefully to avoid plants that require very different conditions or are invasive, which might "take over'. Herbs such as lemon balm, evening primrose and fennel are notorious for dropping seed and coming up everywhere you don't want them. Creeping and suckering herbs such as mint, sorrel and violet will spread further and further if not kept in check.

Landscaping with Lavender at the Enchanted Garden, on the Mornington Peninsula, Victoria, Australia.

These sorts should ideally be grown in some sort of container to stop them spreading. A large range of other herbs are non-invasive, like good drainage and fit in well with lavender and many other common garden shrubs. You will have few problems integrating lavender, southernwood, wormwood, thyme, lemon verbena, rose and rosemary.

Note the contrast in foliage colour and texture between the lavender and daisies; while the flower colours of both are similar – the contrast creates interest while the similarity make them complementary plant choices.

Hedging

Most lavenders are suitable for hedging, especially lavenders from the Sections *Lavandula* and *Stoechas*. Higher hedges can be grown using lavandins, e.g. *L*. x *intermedia* 'Grey Hedges'. Spacing between plants can be calculated by halving the width of the mature plant. Pruning is required to prevent 'leggy' growth of plants and should be carried out twice a year.

Stilt Hedge

Here the stem of each hedge plant is pruned bare (like a standard rose) up to a certain height, then a solid hedge of vegetation is trained on top. The finished result is a hedge which appears to be sitting up in the air on top of evenly spaced posts.

Hedge embellishments: Here topiary is developed on top of the hedge.

Simple embellishments might be raised, rounded sections on top of the hedge (e.g. balls or domes) at evenly spaced intervals. More complex embellishments can be created in shapes such as animals or anything you desire.

Lavender and roses; often planted together; like similar conditions and do very well together.

Imagine this area without the lavender. That's how you can often really see the value of planting Lavender in a landscape.

Topiary

Topiary involves pruning plants into shapes such as balls, pillars, pyramids, arches or even the shape of an animal or building.

There are two different ways to create topiary:

1. Make a framework out of metal or wire and grow the plant over the frame, pruning it to keep to the shape of the frame. You can create simple wire frames by bending thick wire yourself with the aid of pliers. To get circular shapes, bend wire around a large tub or barrel. One of the simplest forms is a wire circle on top of a straight pole. Use a wooden stake for the pole and tie the wire circle to the top. More complex shapes such as animals can be bought pre made from some of the "boutique style" garden shops in larger cities.

2. Train a plant from an early stage by pruning (and staking if support is needed). Generally the more woody herbs are preferred for this method of training, mainly because they don't have the support of a frame, and need strong enough stems to hold their shape (though staking is often used for support)

Spiral Garden

After cultivating the soil, mark a spiral shape on the ground with lime. Keep a gap of around 1.5 m between the lines. Plant lavender plants along the line to create a spiral shaped "hedge" or row. If you make the gap even wider, other plants (e.g. herbs or roses) may be planted along the spaces between with the spiral separating them from each other.

Maze

A maze doesn't have to be large (though it can be). The hedge doesn't need to be tall (e.g. even one 0.3 1m can still be interesting). Try designing a small maze using one or more different herbs as low hedges. Lavender can be used quite effectively for a maze, and it has the added effect of a great scent as you walk through it.

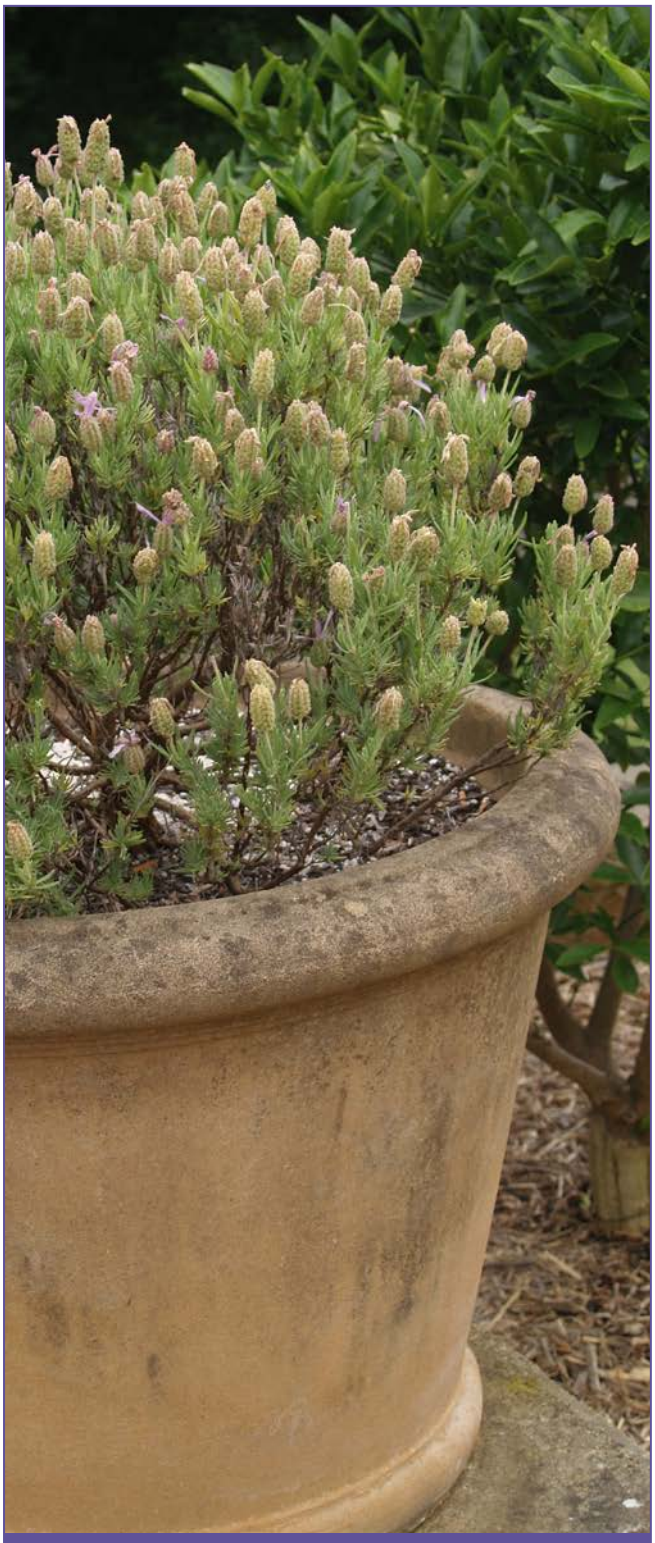
Raised beds

Build a rock or sleeper wall around a garden bed and fill the centre with soil. Even if it's only 10cm above the normal soil level, this will improve drainage enough to make a big difference to lavender, particularly in areas prone to heavy rainfall.

Lavender grown in a raised garden bed, provides for drainage, keeps traffic off the garden and contrasted against the white walls makes for a very attractive picture.

Potted Lavender

Lavender pots need good drainage. Smaller pots may be brought inside periodically. Large tubs may be moved about the garden with a hand trolley.



Large concrete tub allows a lavender to grow to full size.

People who move house a lot, or who live in villa units or flats with limited space will find a container garden may be more convenient. Use different sized containers, keeping taller pots and larger herbs to the back. Be careful that your pots don't dry out though. Many herbs need constantly moist soil, and both heat and wind can be a real problem. A drip irrigation system is one solution. Another is to use larger containers, which are less likely to dry out. A third method is to stand the pots on carpet underfelt, and keep that wet (Water will soak up into the pot from this if the soil becomes too dry).

Lavender together with other herbs in pots makes an attractive, useful and portable garden display.

Baskets

Hanging baskets dry out easily. Lavender can cope fairly well with that situation; but some types of lavender can be too tall growing to look good in a basket. If you are growing lavender in a basket; use a big basket; a lower growing variety of lavender, and prune a couple of times a year to keep it looking good; as well as promoting flowering.

Tyre Garden

Lay disused car tyres on the ground and fill them and the gaps between them with soil or potting compost. Plant a different lavender plant in each tyre. The rubber walls between each herb will help prevent competition between stronger and weaker growers. The tyres also provide improved drainage, and the tyre rubber makes a nice soft, safe material that minimises the risk of children hurting themselves or of machines being damaged, as can often happen with other “harder” garden materials such as stone and sleepers.

Pelargoniums are another plant that likes similar conditions to, and goes well planted with lavender.

Features and Focal Points

The eye is always drawn to something different. Try putting something in the centre or at the end of a garden as a feature. A statue, urn, sundial, fountain, seat, gazebo or even a different coloured tree or large shrub can be used. Lavender is a great plant to use when creating a focal point like this.

Use lavender hedges either side of your line of view, to bring the eye to a statue or other feature.

Consider the lines along which the feature will be viewed: If a feature is at the end of a long path, keep the view clear (don’t plant overhanging trees or shrubs); but plant lavender around the base of a feature to tie it to the ground.

Lavender used as a border on this lawn, draws the ye to the statue at the end.

Perhaps install a garden arch, build a garden wall, or plant a lavender hedge so as to frame the feature (i.e. The feature can be seen through the opening, but its surroundings are blocked so they don't detract from the feature).

Often keeping it simple can make a landscape look better. A carpet of lavender looks and smells great, but does not distract the eye from wanting to see through and beyond the wall.

CHAPTER 6 LAVENDER BUSINESS OPPORTUNITIES

Lavender is one of the most important herbs cultivated around the world. Demand for high quality lavender oil is always strong; and the most pure oils can often sell at per kg prices comparable with, or higher than the price of gold.

Choosing the right varieties of lavender to grow, is critical to the success of any lavender business. It all depends where you are and what you are growing them for

The best oils are used in some of the most expensive perfumes and this "top end" business provides excellent opportunities for lavender farmers who can perfect their farming. Perfecting your skills at this level is easier said than done though; and will take years of hard work combined with appropriate investment capital and exceptional scientific knowledge combine with a sharp business sense.

Most people who work with lavender however will work at a level below this top end. The lavender industry is diverse, and large. Some work in

businesses that focus only, or mostly, on lavender products. Others produce or market lavender products, alongside other types of products (e.g. a candle shop that sells lavender candles along with other types of candles, or a herb nursery that supplies lavender plants along with other types of herb plants).

Dried lavender for sale in an English market

These days most lavender farms have 'value added' to their core business i.e. turning the lavender into products. Many operators suggest that the return from flowers for the cut or dried flower trade or oil is about 1/10th of the amount that they get from value adding. So the real money is in the products and not the cut flowers (unless you are a very big operator such as Bridstowe in Tasmania for example.

Downderry Nursery in the UK holds the national plant collection of lavender. Their display at a garden show in London drew interest from Sophie Countess of Wessex.

Value adding can also mean exploiting tourism, and the aim then is to turn a day out at a lavender farm into an experience for the entire family. Some lavender farms have extensive (and beautiful) display gardens open to the public, along with a shop to sell their lavender products. Some also have a café for a fast snack, or a small restaurant that offers gourmet lunches. Some have outdoor facilities for picnics in the gardens. Others have function rooms or hire out their gardens for weddings or other special events. Although costly to set up in the first instance, some lavender farmers have seen that diversity is the key to their existence.

A good place to dry lavender or other herbs, is under a roof of an open sided building. A breeze, direct sun and protection from the rain is ideal.

Many lavender farm operators also work closely now with the tourism industry – bus loads of tourists visit on a weekly basis in the growing season.

The opportunities are diverse and many lavender farm operators have seen the changing trends i.e. what people expect when they visit tourist attractions, and have used that knowledge to extend the scope of their businesses. Tourism is said to provide half of many lavender growers' yearly income.

Types of Lavender Products

Lavender products for sale at a shop in Germany

- Plants – propagation nurseries sell rooted cuttings, plants for large scale lavender plantations, potted plants (various sized pots), trained plants (e.g. topiary standard).
- Cut flowers - dried or fresh.
- Oils – retail, wholesale; supplied to factories, crafts industries, aromatherapy, etc.
- Pharmaceuticals/ Health Industries – Massage oils, aromatherapy, components in liniment, etc.
- Cleaning - washing powders and liquids, spray on cleaners.
- Perfumery - perfumes, deodorants, air fresheners.
- Pest control – garden, veterinary, human.
- Culinary - alcoholic liqueurs, non-alcoholic drinks, baked goods.
- Crafts - scented sachets, potpourri.

Lavender products on sale at an Australian farmers market.

A lavender garden can be a draw card for tourists and gardeners alike; and when attached to tea rooms, a craft shop, and/or a plant nursery, these combined components can create a viable business that may attract people from wide and far.

Lavender flower heads are a marketable product, if clean and fresh.

APPENDIX

Distance learning and online courses

The authors of this book have developed a large variety of distance learning courses, online, on CD or by correspondence, which are available through various colleges that are part of the ACS Global Partners Network.

There are over 600 different courses offered by ACS Affiliates, through colleges across seven different countries. Short courses are generally 100 hours in duration. A range of qualifications such as certificates and diplomas are also available.

These courses cover a wide range of disciplines, including Business, Management, Marketing, I.T., Biological Sciences, Health, Fitness, Nutrition, Psychology, Counseling, Writing, Photography, Hospitality, Tourism, Education, Construction, Horticulture, Agriculture, Environmental Management and more. See **www.acs.edu.au/about-us/affiliates.aspx**

Courses that may particularly helpful to readers of this book include:

- Growing Lavender
- Herb Culture
- Scented Plants
- Aromatherapy
- Crop Production
- Nursery Management
- Starting a Small Business
- Certificates and Diplomas in Horticulture

E Books by John Mason and ACS Staff include:

Starting a Business
Project Management
Business Operations
Psychology Dictionary
Counselling Handbook
How Children Think
Farm Management 2nd edition
Profitable Farming 2nd edition
Working in Horticulture
Commercial Hydroponics 3rd edition
Trees and Shrubs for Warm Places
Organic Gardening
Climbing Plants
Growing Conifers 2nd edition
Roses
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Trees and Shrubs
What to Plant Where
Fruit, Vegetables and Herbs
Growing Tropical Plants 2nd edition
The Environment of Play 2nd edition
Garden Design Part I
Garden Design Part II
Tropical Landscaping
Starting a Garden or Landscape Business 2nd edition
Starting a Nursery or Herb Farm 2nd edition
Aerobic Fitness 2nd edition
Aquafitness 2nd edition
Nutritional Therapy
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Printed books by John Mason

John Mason has been writing books since the 1970's and has over 40 titles published, some as printed books, others as ebooks. Some (print) titles are out of print, and now only available as second hand books or e books. If you have difficulty finding any of Mr Mason's titles, you can enquire by email to **admin@acs.edu.au**

Print Books by John Mason include:

Fun and Fitness Trails, Victorian Dept. of Sport and Recreation, 1978
Starting a Nursery or Herb Farm, Night Owl, 1983 (revised 1994)
The Environment of Play, Leisure Press, New York, 1982
Herb Review, self published, 1987
Landscaping with Herbs, self published, 1988
The Native Plant Expert, self published, 1989
Let's Grow Gardens, self published, 1990
Growing Ferns, Kangaroo Press, 1990
Commercial Hydroponics, Kangaroo Press, 1990, 2007
Growing Vegetables, Kangaroo Press, 1991
Growing Herbs, Kangaroo Press, 1993
Nursery Management, Kangaroo Press, April 1994
Tropical Gardening, Bay Books, October 1994
Yates Guide to Pests & Diseases, Angus & Robertson, February 1995
Growing Pelargoniums & Geraniums Hyland House 1996
Farm Management Kangaroo Press 1996
Growing Australian Natives Kangaroo Press 1997
Starting a Nursery or Herb Farm (Revised ed) Kangaroo Press 1997
Sustainable Farming Simon & Schuster (Kangaroo Press) Spring 1997
Growing Tropical Plants Simon & Schuster (Kangaroo Press) 1997
Starting a Landscape or Garden Business Kangaroo Press 1998
Aqua Fitness Kangaroo Press 1999
Growing Conifers Kangaroo Press 1999
Profitable Farming Kangaroo Press 1999
A Beginners Guide to Orchids Hyland House
Aerobic Fitness Kangaroo Press
Trees & Shrubs for Small Places Kangaroo/Simon & Schuster 2000
Propagating from Cuttings Kangaroo/Simon & Schuster 2002
Growing and Using Vegetables and Herbs Kangaroo/Simon & Schuster 2007

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