



HIGH COMMISSION FOR THE
DEVELOPMENT OF ARRIYADH



Manual of Arriyadh Plants



Landscape Plants for Arriyadh Region

A Reference Manual



HIGH COMMISSION FOR THE
DEVELOPMENT OF ARRIYADH

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HIGH COMMISSION FOR THE
DEVELOPMENT OF ARRIYADH

Projects & Planning Centre

P.O. Box 94501 Riyadh 11614
Saudi Arabia

Phone: 00966 11 4883331
Fax: 00966 11 4823331



Preface

An attractive urban landscape is a key feature of many modern cities. Plants and gardens enable many of the fundamental needs of life in cities to be met. Green planted areas provide environmental balance, improve micro-climatic conditions and reduce pollution. They enhance the aesthetic value of urban areas and create opportunities for social interaction between the city's residents.

Over the last three decades, the High Commission has focused on natural areas, landscaping and the expansion of parks and gardens. The areas of the Diplomatic Quarter, King Abdulaziz Historical Center, Wadi Hanifah, Thumamah Park and others highlight the importance given by the High Commission, to the concept of open green space being an integral component of comprehensive development projects.

This reference Manual, which focuses on plants most well adapted and suitable for the climate and urban environment of Arriyadh, has been published for the assistance of designers and landscape professionals, but also for citizens and all interested people to assist them in relation to their houses and private gardens.

In addition, the High Commission has conducted scientific research on the nature of native plants suited to natural areas and their cultivation. The results of ongoing research would be available to all as part of the High Commission's commitment to the publication and dissemination of scientific and practical knowledge for all interested people both in government or private agencies and the general public.

Turki Bin Abdullah Bin Abdulaziz
Chairman of the High Commission
for the Development of Arriyadh



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PART

1

Part 1: Introduction

Arriyadh Province is centrally located in the heart of the Kingdom. The area of the region is estimated to be 375,000 square kilometres and includes 47 cities and 1,383 residential communities that are located outside of the Arriyadh metropolitan area.

Arriyadh Province is characterised by the diversity of its environmental features. The most significant of these is the Najd plateau and in addition is Wadi Hanifah, Wadi Addwasir and the Tuwaiq Escarpment in the north. The region forms a relatively harmonious geographical formation comprising unique flora and fauna habitats.

The environmental system has been adversely affected over time by urban expansion and its related activities such as industry, mining, agriculture, grazing and forestry.

Within the Arriyadh Urban Limits area the vegetation takes a variety of forms including formal landscaped areas, gardens and green spaces. Beyond the Urban Limits natural vegetation is present in rangelands, green lands (Rawdha) and across the valleys and plains. Plant cover is found within both rural and agricultural areas.

Given the importance of vegetation as a critical environmental element necessary to sustain human life there is a strong recognition of the need to strengthen the efforts to restore vegetation and rehabilitate and reclaim degraded areas with plant cover.



It is therefore important to cultivate more trees, shrubs and plants in natural areas and to expand vegetation cover in urban areas having regard to the environmental constraints including water availability, soil composition and climatic influences.



Vegetation habitats

Vegetation habitats are divided into two groups:

First: Manmade environment including:

- » **Urban areas (cities and metropolitan areas):** These comprise the urban communities, which include towns and villages. They often include urban landscapes and surrounding farmlands.
- » **Agricultural areas:** These comprise the vast areas of agricultural lands which cover the southern, middle and northern parts of the region. They are considered an important part of the geo-environmental map.

Second: Natural environment comprising the original habitat for the indigenous plants in Arriyadh region including:

- » **Sand Dunes:** Bulk density of sand found in low-lying areas in the east and west of Arriyadh region where scattered local plants may be found.
- » **Sand Sheets:** Are sand covered plains spread widely across the Arriyadh region. They cover extensive areas often several square kilometres in unspoiled landscapes.
- » **Rocky Plains:** Most rocky plains are composed of solid rocks (Cretaceous limestone) where vegetation is generally sparse.
- » **Gravel Plains:** These comprise plains of gravel, which cover the western part of Arriyadh region. Savanna type plants are dispersed across these plains and associated small shrubs and ground covers may also be found.
- » **Rocks/ Rocky Outcrops/Mountains:** Rocks in Arriyadh region are categorised as resistant rocks such as Granite non-resistant/rocky outcrops. They are located in isolated parts of the region. Associated vegetation includes trees and shrubs, which are generally found in the lower areas and around water streams.

- » **Mud Plains:** These plains are typically located in low-lying areas comprising soft sand. Shrubs and perennial herbs and ground covers predominantly grow in these areas.
- » **Marshes:** These comprise desert areas with a characteristic flat crust as a result of the high intensity of salt in the soils. They do not naturally support vegetation because of these high saline levels. They can be utilised for cultivation of a limited variety of plants and weeds.
- » **Alluvial Fans (Alluvial Sediments):** These areas are comprised of alluvial sediments transported from the mountains, which are widespread in the western area of Arriyadh. A number of trees, shrubs and grazing herbs are found on the alluvial fans.



- » **Wadis:** these are the arid valleys, with mud plains generally located along their banks. The valleys contain significant vegetated areas, particularly trees and perennials. They also provide important habitats for several fauna species.
- » **Main Escarpment:** These are rugged cliffs, which are considered as important tourism areas because of their high scenic values. They are usually covered by a weather resistant limestone layer. Vegetation includes mainly shrubs and ground covers.

Plants and Climate:

Almighty Allah has provided for a large range of plant species that exist and have adapted to the relevant local environmental conditions. Among these are species suitable for the urban landscapes of the cities and towns within the Arriyadh region.

One of the most important considerations for the success of greening and afforestation works is the selection of the suitable plant species that can withstand the harsh environmental conditions of the Arriyadh region. The selection criteria for plant species needs to take account of the suitability of the local habitat including ground and climate conditions. Particularly important is the soil quality and the extent and availability of irrigation water.



This manual includes a list of the plants which are considered suitable for the conditions of Arriyadh region. It has been based on the results of landscape designs undertaken by agencies for some of Arriyadh's major urban development projects including:

» **Wadi Hanifah:** Wadi Hanifah runs from the north to the south of Arriyadh through the western part of the city. It has regular water flow throughout the year with larger flows during the seasonal rains. The Wadi plays the leading role in plant species biodiversity, containing many thousands of trees, shrubs and ground covers. In addition to the large agricultural areas, there are gardens and major parks which significantly affect the local climate in the Wadi and surrounding areas.

» **Diplomatic Quarter:** The Arriyadh Diplomatic Quarter was built to exploit the natural characteristics of the site represented by many small tributaries that flow into Wadi Hanifah. The Diplomatic Quarter comprises an estimated 25.7 hectares of landscaped parks and gardens, including sixteen public parks, which together amount to 30% of its total area. Of this, 24 hectares of parks are designated for public use. In the parks and gardens a variety of different trees, shrubs and ground covers have been cultivated. Native plants have been favoured as well as some additional plants imported from other similar suitable environments. Climatic and social influences, particularly privacy requirements have been an important consideration in designing the Diplomatic Quarter parks and gardens and also in the selection of plants, shrubs, trees and the irrigation systems.

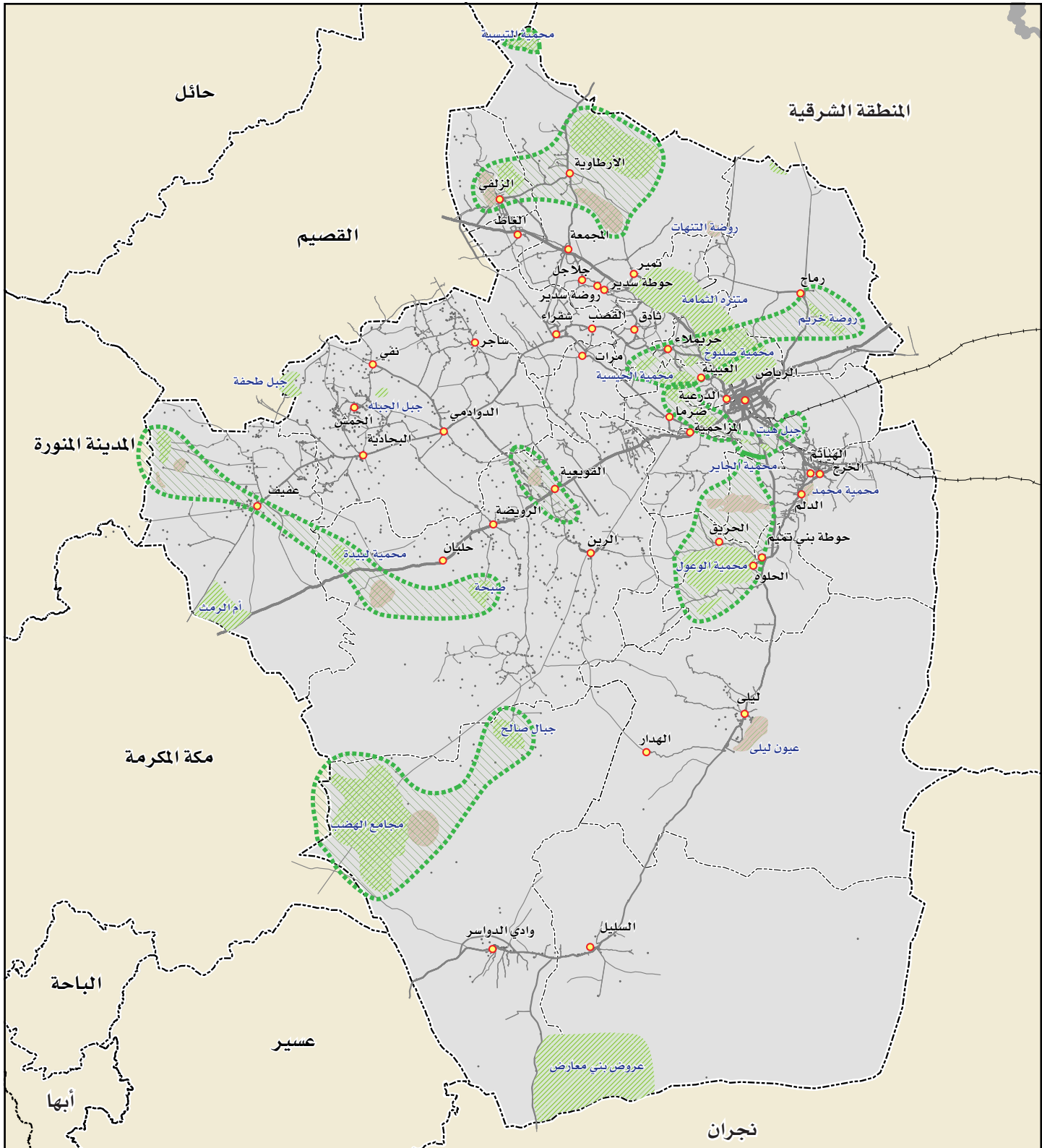
» **Public parks and Gardens:** Parks and Gardens are located across Arriyadh city such as Salam park, King Abdulaziz historical center parks, King Abdullah Park in Malaz, and Prince Salman Park in Banban. These parks and gardens provide ecosystems that establish optimal conditions for plant growth.

» **Reserves:** these are sites that provide some of the main natural habitats for indigenous plants within the city of Arriyadh that have been protected in a variety of different ways. Reserves are widely dispersed and include natural protected areas that are reserved by military authorities or reserved by private land owners.

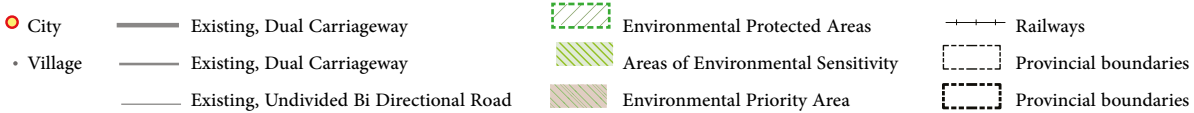
» **Open Space:** These are natural parks such as Thumama, Al Haysiya, Rawdat Khuraim, Alwasea and other related parks. They include areas in which various levels of vegetation management are practiced. Some are subject to full management and protection such as Thumama and some are partially managed such as Al Haysiya. These areas include basic natural habitats with the inclusion of some limited varieties of exotic species. These environments are protected in various ways against grazing, overuse and vehicle entry.

» **Private Farms:** Most of the private farms are located within Wadi Hanifah or other agricultural areas on the outskirts of the city. They are exposed to harsh or desert conditions. They play a minor role in providing plant species, but they are important for improving the visual and aesthetic environment, in addition to the positive effect they have on the local climate.





Environmental & Reserves Area in Arriyadh Region





Plant Characteristics:

Basic guidelines and information have been set out in this manual in order to clearly explain plant characteristics and the extent of their adaptation to local environmental conditions as follows:

- » **Frost Tolerant Plants:** Defined as « the ability to withstand frost in winter» where plants have been classified as follows:
 - Low ability of frost tolerance: 0° C - 2° C.
 - Medium ability of frost tolerance: -2° C - 5° C.
 - High ability of frost tolerance: less than -5° C.

- » **Drought and salinity:** Indicates the degree of plant resistance to the extent of extreme climatic conditions such as high temperatures in summer and the possibility of completely dry leaves. The degree of salinity tolerance refers to the plants tolerance to irrigation water characteristics.

Salinity is measured by parts per million of total dissolved solids (TDS) as follows:

- Low saline: less than 1000 ppm.
- Medium saline: less than 2000 ppm.
- High saline: less than 3000 ppm.
- Intense saline: more than 3000 ppm.

Native plants use:

Almighty God has granted the native plants the unique manner to adapt to the extreme climatic conditions of the region. Plants avoid heat during peak daily temperatures and leaves bloom when the temperatures are cool in the evenings. They also have functions related to the storage of water in their root systems to resist drought.

The use of drought tolerant species, especially native/indigenous plants is a more feasible and viable alternative to importing exotic species which can be very expensive in terms of both irrigation and maintenance.

Native/indigenous species not only adapt to the climate, but they are also resistant to diseases and pests and easier to maintain. They are considered a mirror of nature and increase the biodiversity of the Arriyadh region

In the region native seasonal plants appear after rainfall. This typically occurs in valleys or low-lying areas (Rawdha), where there are relatively good soil conditions and groundwater.

For the above reasons expanding the use of local species in gardening and landscaping in both the short and long terms has many advantages and is hence preferred

Planting native Species:

The natural beauty of the desert plants inspire the creation of quality gardens and landscapes using plants most suited to their local environment. This serves several important purposes including:

- Creating visually attractive landscapes.
- Reducing heat and glare and improving the micro climate
- Ease of maintenance and minimise the water consumption

Landscaping using native desert plants is a preferred process because the plants are best suited to the local soil conditions and availability of water. When planting native plants a natural layout and pattern is preferred. Intensive landscaping projects using exotic plants that require an abundance of irrigation and fertilisation should be avoided.

Native species look their best when planted with gravel mulch beneath them and with random rock placement. This should be carried out so the arrangement appears to be as natural as possible. Unusual shapes and colours should be avoided and the size of rocks should vary according to what occurs naturally in the local environment. Rows or distinctive patterns of rocks rarely look good, especially those placed in circles around tree trunks or distributed haphazardly.

Irrigation Efficiency:

Landscaping works in urban locations require considerable efforts in terms of the costs of water and maintenance.



Landscaping works should be sustainable and efficient, while water minimisation should be basic principle of design. The use of native plants in landscaping in the short and long term is essential, taking into account the diversity of the plants in the city and introducing plants with tolerance to the local environment. Use of exotic plants from other areas should only be considered for specific limited purposes.

The Use of the manual:

This manual is targeted for the use of urban and regional planners, garden designers, landscape designers and those who are seeking guidance on the selection of plant species for urban and regional development projects. The manual provides an overview about species suitable for farming in Arriyadh region.

In part three, planting phase is used to classify the plant, it may include:

- » **Annuals** : plants that perform their entire life cycle from seed to flower to seed within a single growing season. All roots, stems and leaves of the plant die annually.
- » **Biennials**: plants that require two years to complete their life cycle. First season growth results in a small rosette of leaves near the soil surface. During the second season's growth stem elongation, flowering and seed formation occur followed by the entire plant's death.
- » **Perennials** : Plants that persist for many growing seasons. Generally the top portion of the plant dies back each winter and regrows the following spring from the same root system. Many perennial plants do keep their leaves year round and offer attractive borders and groundcover.

Perennial Plant is categorized according to its growth nature and vegetative size and branching patterns, as follows:

- » **Tree**: trees with an elongated stem, or trunk, supporting branches and leaves in most species.
- » **Shrub**: woody perennial plants with multiple stems arising at or near the base.
- » **Sub-shrubs**: a short woody perennial plants which are shorter and smaller than shrubs.

The Book was divided into four parts as follows:

- » **Part One**: Introduction: this section explains the use of the manual, symbols, colours and any abbreviations used. It also discusses the important aspects of climate and salinity.
- » **Part Two**: Ground Covers - Terrestrial Plants From A to Z: this section includes photographs of more than 380 plant species. These plants have been selected for use in landscaping works and are set out in alphabetical order. Taxonomy information is also provided. The trees, shrubs and plants are described in detail, as well as a full description of their use and basic information about origin, nature and growth conditions.
- » **Part Three**: Quick Selection Lists: this section includes plant lists for use as an easy guide for designers and researchers seeking plant species for certain specific purposes. The section shows what, when and how to use plants including plants suited for the needs of designers, researchers and other users of this manual.
- » **Part Four**: Index: The index includes the plant lists with their scientific names in Latin and English ranked alphabetically with page numbers to facilitate the direct search by plant name.

» **Colour Coding:** Captions and abbreviations have been used where different colours have been used for each category and type of plant as follows:

Trees

Shrubs (Sub-shrubs)

Climbers

Herbaceous Plants (Annuals, Biennials, Perennials, Herbs, Grasses)

Palms, Cycads

Cacti, Succulents

Aquatic Plants

» **Photographs:** Four images have been selected for each plant. One large image reflects the complete plant and the remaining three images show leaf, flower and fruit details.





PART

2

Salt Wattle

This tall shrub or tree, recently introduced in ArArriyadh, is native to Australia, where it grows along watercourses or in swales and drainage lines in hilly country on heavy, sometimes saline, alkaline soils. Such topographical situations are similar to those of the shallow wadis and rowdahs of the Arriyadh region, where water collects after winter rains. In fact, the tree can withstand dry periods of up to nine months. *Acacia ampliceps* is a fast-growing but relatively short-lived species with a life span of usually not more than 50 years. It has a spreading habit with canopy stems branching from the ground. Sometimes, the plant is almost prostrate. Pendulous branchlets have thin, light-green, lanceolate phyllodes. The flowers are in white to cream, with globose heads. For a while, there was a confusion of this species with *A. salicina*. Highly tolerant to salinity, the tree is, however, frost-sensitive. The foliage can also be susceptible to insect attack. Propagation is by seed. Where coppicing is necessary as a maintenance measure, the tree responds well. For landscaping purposes, the tree's thick foliage makes it an ideal plant for screening, while the prostrate form makes for a good groundcover shrub. Unfortunately, it sends up many suckers, limiting its use near a lawn, for example. Regional studies have shown that *A. ampliceps* has great potential for use in the reclamation of sabkha areas, as a low windbreak, in dune rehabilitation and erosion control projects. It is also suitable as fodder in arid areas.



GENERAL

Origin	: sub-tropical
Vigour	: fairly fast growing
Humidity	: very arid, semi-arid
Propagation	: sowing and pricking out
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: high (3500 ppm)
Hardiness	: +3°C

SHAPE

Type	: tree, shrub
Height	: 9 m
Spread	: 10 m
Foliage	: evergreen

FLOWER

Colour	: white
Size	: 10 cm
Period	: February - December

FRUIT

Type of fruit	: pod
Fruit size	: 12 cm

Cuthbertson, Aôs Wattle, Silver Witchetty

GENERAL

Origin	: Mediterranean, sub-tropical
Humidity	: very arid, semi-arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: high (3500 ppm)
Hardiness	: -6°C

SHAPE

Type	: shrub, tree
Height	: 3 m-5 m
Spread	: 3 m-5 m
Foliage	: evergreen

FLOWER

Colour	: yellow
Size	: 3 cm
Period	: January - March

FRUIT

Type of fruit	: pod
Fruit size	: 14 cm

This bushy, often gnarled shrub or low tree has a twisted trunk with highly fissured bark, which flakes off in brittle pieces. The yellow flowers appear profusely after copious rainfall. Commonly known in its native Australia as Silver Witchetty, *A. cuthbertsonii* occurs sporadically throughout arid parts of the country, usually growing on the gravelly soil and rocky sands of hills or along creeks and drainage lines. It requires full sun and is very drought-tolerant. Such topographical situations are similar to those of the shallow wadis and rowdahs of the Arriyadh region, where water collects after winter rains. These properties have made the tree attractive for planting in the Arriyadh region and it was selected from several Australian species for trials at the Research and Agricultural experiments Station in Dirab, Arriyadh, where it has grown well in certain experimental studies. For landscaping purposes, the tree's dense foliage make it an ideal low shrub for accent and screening. The large seed pods are eaten when still green by aboriginal people, and the bark is used as an aid against toothache and for making bandages and sandals.



Selim Acacia, *as salam*

A common, large and spiny, desert shrub or small tree, on the Arabian Peninsula, *A. ehrenbergiana* is known in Arabic as *salam*, and grows in groups in depressions and wadis, where rainwater runoff and fine waterborne sediment collect. The tree usually has multiple branches from the ground, with a greenish-brown, peeling bark, similar to that of *Acacia seyal*, with which it can be confused. In comparison, the whitish thorns of *A. ehrenbergiana* are longer than the leaves. Flowers are borne in yellow heads; seed pods are long, up to 10 cm. The tree has many uses in the desert: it is browsed by camels, pollarded for stock, produces an edible gum, is used for firewood and fodder; fibre ropes are made from the bark, and a liquid medicine known as *Qataran* is extracted for use in treating animal and human skin parasites. The heavy fluid is also used to protect the trunks of fruit trees from insects and fungi. *A. ehrenbergiana* regrows well from cut stumps, and can be propagated by seed mixed with animal manure, which helps acacia seeds to germinate better. The tree is famously used in beekeeping, producing good-quality *salam* honey. The trees usually grow randomly about 5 metres apart. One of the most drought-tolerant of acacias, it can gradually be weaned off watering altogether, after initial irrigation during the first year after planting. High growth rates occur during a heavy rain season. Owing to its drought tolerance, the tree can be planted in extensive landscape schemes, where a natural desert setting is the objective.



GENERAL	
Origin	: sub-tropical, tropical
Vigour	: normal growth rate
Humidity	: extremely arid, very arid
Propagation	: sowing and pricking out
Maintenance	: low
CONDITIONS	
Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: moderate (2500 ppm)
Hardiness	: -6°C
SHAPE	
Type	: tree, shrub
Height	: 7 m
Spread	: 12 m
Foliage	: semi-evergreen
FLOWER	
Colour	: yellow
Size	: 1.5 cm
Period	: February - April
Smell	: pleasantly scented, flower
FRUIT	
Type of fruit	: pod
Fruit size	: 10 cm

Arad Acacia, *arad*

GENERAL

- Origin : sub-tropical, tropical
Humidity : very arid, semi-arid
Propagation : sowing and pricking out
Maintenance : low

CONDITIONS

- Urban climate : resistant
Dessication : resistant
Stagnant water : vulnerable
Irrigation : low
Salinity/ppm : high (3500 ppm)
Hardiness : -3°C

SHAPE

- Type : tree, shrub
Height : 2 m-12 m
Spread : 3 m-14 m
Foliage : semi-evergreen

FLOWER

- Colour : white
Size : 1.7 cm
Period : March - April

FRUIT

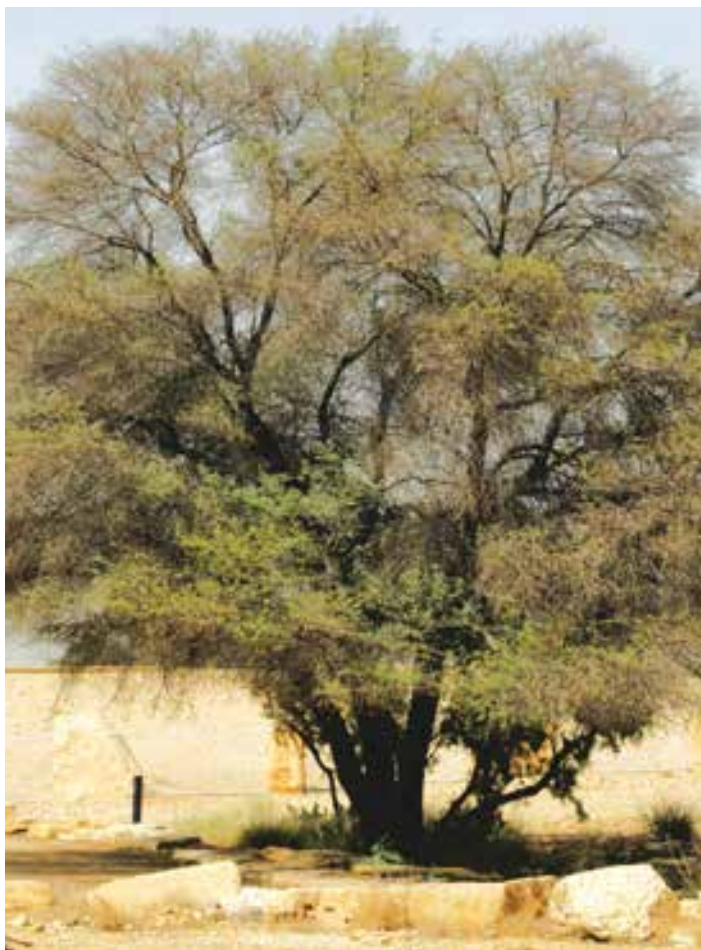
- Type of fruit : pod
Fruit size : 12 cm

A tree with a flat-topped or, when old, rounded crown and a pronounced trunk, *A. etbaica* grows naturally in the coastal foothills of western Saudi Arabia on limestone and granite rocky slopes, and in the sandy sediments of wadis. It is often predominant in the scrub vegetation of a semi-desert. It has brown, fissured bark, and bears white flowers on few-flowered heads; branches, leaves and seed pods are glabrous. The fruit is a purplish-red oblong pod, also shiny and straight. The tree has several subspecies in Africa which have thorns that are straight, hooked or a mixture of both. *A. etbaica* is a good source of firewood and timber. The bark has medicinal properties. As with other indigenous acacias, and owing to its high drought tolerance, the tree has a landscape value and can be planted in extensive landscape schemes, where a natural woodland setting is the objective.



Sweet Acacia, *anbar*, *futnah*

Many of the acacias have fragrant flowers, but the beautiful scent of the sweet acacia in the gardens of Arriyadh in spring is unforgettable. *A. farnesiana* (known in Arabic as *anbar* or *futnah*) is a vase-shaped, small, thorny tree, often with multiple trunks and a spreading rounded crown. Its lacy leaves are evergreen in mild winters, but semi-deciduous after frost. The intensely fragrant, yellow puffball flowers emerge over a long period to open in Arriyadh in the spring. Native to the countries surrounding the Caribbean, the tree's blossoming can, however, be spoiled by late hard frosts. It has landscape value as an accent tree, especially in small gardens or patios, but can also be planted as a roadside tree, along pedestrian paths or as a background screen. Unfortunately, it has become invasive in some countries. *A. farnesiana* is extensively cultivated in southern France. A perfume is distilled from the flowers. Amongst other uses, the world over, the tree's seed pods and bark are used for tanning and dyeing leather. Bark, leaves and roots are used for medicinal purposes. Sweet acacia honey is much prized. Gum exuding from the trunk can also be used like gum arabic. Trees are planted as fences and to check erosion. Its wood is hard and durable. Tolerant of most soils, it needs moisture to develop well during the summer and will respond well to deep watering. The tree is best propagated by scarifying ripe seeds and should be pruned regularly to maintain good shape and to remove any dead branches caused by cold winters.



GENERAL

Origin	: sub-tropical, tropical
Vigour	: fairly fast growing
Humidity	: very arid, semi-arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: very high (9000 ppm)
Hardiness	: -6°C

SHAPE

Type	: tree
Height	: 4 m-6 m
Spread	: 6 m-8 m
Foliage	: semi-evergreen, evergreen

FLOWER

Colour	: light yellow
Size	: 1 cm
Period	: March - May
Smell	: pleasantly scented, flower, sweet

FRUIT

Type of fruit	: pod
Fruit size	: 4 cm - 10 cm

Grey-haired Acacia, *sant al waraqi*

GENERAL

Origin	: sub-tropical, tropical
Humidity	: extremely arid, very arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: high (3500 ppm)
Hardiness	: -9°C

SHAPE

Type	: tree
Height	: 8 m-10 m
Spread	: 8 m-10 m
Foliage	: deciduous

FLOWER

Colour	: white, pale yellow
Period	: February - October
Smell	: sweet, scented, flower

FRUIT

Type of fruit	: pod
Fruit size	: 15 cm

A. gerrardii is a variable species. The variety *iraquensis* (*sant al waraqi*) has a rough, spiny trunk and finely fissured, dark-coloured bark, which does not peel off in strips like that of the whitish bark of *A. gerrardii* var. *najdensis*, (*sant al najdi*). The seeds of *iraquensis* are held in sickle-shaped, flat pods which are beige-coloured, long and straight, and covered by fine, grey hairs. Those of *najdensis* are strongly curled, almost circular pods, and a much darker brown. *A. gerrardii* has a distribution in the northern part of the Arriyadh region and Saudi Arabia and is usually found in depressions and watercourses. A small tree with ascending branches and a flattened crown. It has a long, straight and single stem with a reddish bark. Young, strong branches are densely covered with grey velvety hairs. Numerous thorns are arranged in pairs and white in colour, while mature trunks are almost thorn-free. Singular, round, creamy-white, sweet-scented flowers appear from October to February. During a very cold winter, the tree is deciduous. Propagated by seed, *A. gerrardii* is fast-growing, hardy to about -10 °C, and drought-resistant. It will become a spreading shade tree, when watered frequently. Its winter flowers make the tree an attractive species for arid landscape design in both intensive and extensive landscape situations. It is suitable for most gardens with a native look, and valuable for revegetation schemes, and roadside planting. Little maintenance is required once trained well into a straight leader.



Willow-leaf Wattle

This is a beautiful, slightly weeping, tall shrub, widespread in its native Australia. Its habitat there is amongst tall trees, growing in gravelly soils, sand and clay on gentle slopes and wasteland or in undisturbed natural vegetation. It has high potential for planting in Arriyadh. The shrub has an angular, branching structure with drooping tips bearing narrow, willow-like soft phyllodes or leaves, distinguished by their silvery blue-green colour. Stems and leaves are reddish-pink when young. Profuse, pale yellow sprays of fragrant flowers emerge from October onwards until early spring, from conspicuous red bracts. It is a very adaptable shrub, tolerating most soils and lime. It is also very tolerant of extended dry periods, moderate frosts up to -10°C , and also saline soils. *A. iteaphylla* grows in full sun, even tolerating partial shade, and needs a well-drained position. No irrigation is required once established, but watering is necessary over long dry periods. The shrubs attract birds and are aromatic. Propagation is by scarifying the seed or boiling it in water. Plants flower well after two years. Low maintenance is required, branches do not resprout after pruning. An annual application of a slow-release fertiliser improves growth. *A. iteaphylla* has a high landscape value. It makes a good screen or low windbreak, and can be planted as an ornamental feature or an interesting hedge. A prostrate form can be used as a mounding ground cover. In the garden, *A. iteaphylla* is an acacia which provides colour during the winter.



GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fast growing
Humidity	: very arid, semi-arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: high (3500 ppm)
Hardiness	: -9°C

SHAPE

Type	: shrub
Height	: 3 m-4 m
Spread	: 4 m-5 m
Foliage	: evergreen

FLOWER

Colour	: pale yellow
Period	: March - December
Smell	: pleasantly scented

FRUIT

Type of fruit	: pod
Fruit size	: 13 cm

Sweet Thorn

GENERAL

Origin	: sub-tropical, tropical
Vigour	: fast growing
Humidity	: very arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: moderate (2000 ppm)
Hardiness	: 0°C

SHAPE

Type	: tree, shrub
Height	: 4 m-15 m
Spread	: 6 m-15 m
Foliage	: semi-evergreen

FLOWER

Colour	: bright yellow
Size	: 1 cm - 2 cm
Period	: April - May
Smell	: pleasantly scented, flower

FRUIT

Type of fruit	: pod
Fruit size	: 4 cm - 10 cm

Endemic to southern Africa, *A. karroo* has been selected from the exotic acacias as having potential for planting in Arriyadh. Typically a shrub, it will grow into a medium-sized tree under good conditions and grows rapidly with regular water. Variable in shape and size, it has a rounded crown, branching from the lower part of the trunk. The bark has deep fissures and is red on young branches. Fragrant, yellow flowers, opening in clustered heads in late spring. Narrow seed pods are flat, straight or curved. *A. karroo* is a pioneer tree with an ability to fix nitrogen, but it is relatively short-lived (up to 40 years). The tree is deciduous in cold areas and prone to frost damage. It has a long taproot, but its roots are invasive; planting near paving/foundations should be avoided. Propagation is by seed soaked in hot water and left overnight; young trees are best fertilised with compost and bonemeal. *A. karroo* grows in most free-draining soil types, in full sun or partial shade. Drought-tolerant, the root zone should be deep-watered every one to two months during the summer. A beautiful patio-sized tree for the garden, its bright yellow flowers against dark green foliage and reddish-brown bark are highly attractive. Useful for erosion control, as a windbreak, thorny informal hedge, or barrier. Maintenance includes careful training of the leader, gradual removal of side branches until all are above head height, so that the long thorns are no problem, and also spring pruning of dead wood. The tree is prone to attack by mealybugs.



Umbrella Wattle, *Sandhill Wattle*

Endemic to Australia, *A. ligulata* is one of the most widely distributed plants in the country, occurring usually on red sand dunes. It is a dense, dome-shaped, and spreading shrub from 1 to 5 metres in height. The common name, Umbrella Wattle, arises from the fact that the lower 45 cm of the trunk is defoliated by herbivores. Its many fine, light-brown branchlets are often scurfy and distinctly yellow-ribbed. The narrow leaves vary in size from 4 to 10 cm; flowers are golden-yellow in colour, held in spherical clusters appearing mainly in spring. Long fruit pods are brown, often with a lighter stripe. *A. ligulata* can be confused with *A. salicina*, because it is closely related to *A. bivenosa*, and the latter two seem to have hybridised. Leaves and branches are used medicinally by Australian aborigines; the seeds and gum also as a food source. Readily germinates in disturbed soils. A hardy, frost-tolerant shrub, it will develop into a small tree with pruning. Tolerant of extended dry periods up to 8 months. Propagated by seed, *A. ligulata* is a fast-growing perennial on well-drained, alkaline and light to heavy soils. *A. ligulata* has been selected from the exotic acacias as having potential for planting in Arriyadh and is highly suitable for extensive landscape design. It is useful for soil erosion control, sand stabilisation, low windbreaks and is good as a fast-growing screen. Few maintenance requirements, but, owing to its rapid regeneration, the shrub may become invasive under favourable conditions.



GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Humidity	: extremely arid, very arid, semi-arid
Propagation	: sowing and pricking out, cuttings
Maintenance	: low

CONDITIONS

Urban climate	: vulnerable
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: high (3500 ppm)
Hardiness	: -9°C

SHAPE

Type	: shrub, tree
Height	: 1 m-5 m
Spread	: 2 m-7 m
Foliage	: evergreen

FLOWER

Colour	: deep yellow
Period	: February - April

FRUIT

Type of fruit	: pod
Fruit size	: 9 cm

Arabian Acacia, Babul, Gum Arabic Tree, garad, sant al arabi

GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Vigour	: normal growth rate
Humidity	: extremely arid, very arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low, none
Salinity/ppm	: very high (8000 ppm)
Hardiness	: 0°C

SHAPE

Type	: tree
Height	: 6 m-9 m
Spread	: 7 m-9 m
Foliage	: evergreen

FLOWER

Colour	: yellow
Size	: 1 cm - 2 cm
Period	: January - March
Smell	: scented, flower

FRUIT

Type of fruit	: pod
Fruit size	: 8 cm

Usually referred to by its synonym, *Acacia arabica* or *sant al arabi*, owing to its occurrence on the Arabian Peninsula. *A. nilotica* var. *tomentosa* occurs in Saudi Arabia in wadi habitats and rowdahs on sandy and alluvial soils. Single-stemmed, this medium-sized tree with its flattened or rounded crown is easily identified by the long, flat, straight, velvety-grey fruits with up to 12 constricted round seeds, which hang like peas in a pod. Young branchlets are densely white-tomentose. The tree typically has a black bark with cracks exposing a red inner layer, which exudes a sticky, reddish resin, well known as gum arabic. The long spines in pairs are sharp, while the leaves are only quite small: fragrant, fluffy yellow flowers appear during winter until spring. Very drought- and salt-tolerant, *A. nilotica* is unfortunately susceptible to freezing temperatures. All parts of the tree have medicinal properties; its twigs are valued as chewsticks. Tender pods and shoots are used as forage for camels, sheep and goats. Propagated by seed, which may require scarification, direct seeding is common practice in afforestation schemes. It grows rapidly in full sun, in dry, well-drained sandy or silty soils. After establishment, irrigation can be reduced, whereby occasional deep watering will stimulate growth and deep roots. Planted as a specimen tree or in groups in a desert or extensive landscape situation, the tree, with sufficient space, makes a beautiful silhouette. Unless frequently pruned to preserve its shape, the tree becomes leggy.



Golden Acacia, *Golden Wattle*

An erect or spreading, medium-sized shrub or small tree, usually multi-stemmed from or near ground level, this Australian native acacia is also the country's floral emblem. This is a very showy wattle and has been chosen as suitable for conditions in the Arriyadh region. It has a smooth or finely fissured, dark brown to greyish bark with angled branchlets and bright-green, sickle-shaped phyllodes. Large, sweetly-scented, golden ball-shaped flowers occur in spring in very dense clusters, providing a vivid contrast to the foliage. Seed pods are straight or curved. Usually growing in the understorey of dry woodland and heath, on sandy and stony soil in open scrub formations, *A. pycnantha* is tolerant of slightly to moderately saline soil and is also moderately frost-tolerant. It is fast-growing, but tends to be short-lived in cultivation: plants require a well-drained, sunny position with ample watering. The shallow and spreading roots are nitrogen-fixing. Propagation is from scarified seed, pre-soaked in hot water to soften the hard coating. Widely planted as an ornamental, on account of its profusion of flowers, it is a popular garden or feature plant that attracts wildlife. In Australia, trees regenerate freely after fires, which, although killing the plants, help the germination of seed stored in the soil, if rain occurs soon after. Such regeneration may produce dense thickets. Few maintenance measures are necessary *A. pycnantha* is best pruned to allow multi-stems to develop, since otherwise it may become lanky.



GENERAL

Origin	: sub-tropical, tropical
Vigour	: fairly fast growing
Humidity	: very arid, semi-arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: moderate (1500 ppm)
Hardiness	: -9°C

SHAPE

Type	: tree, shrub
Height	: 6 m-10 m
Spread	: 6 m-8 m
Foliage	: evergreen

FLOWER

Colour	: bright yellow
Period	: March - April
Smell	: scented, flower

FRUIT

Type of fruit	: pod
Fruit size	: 13 cm

Australian Willow, *Willow Acacia*

GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fairly fast growing
Humidity	: very arid, semi-arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: resistant
Irrigation	: low
Salinity/ppm	: very high (9000 ppm)
Hardiness	: -3°C

SHAPE

Type	: tree
Height	: 10 m-12 m
Spread	: 4 m-6 m
Foliage	: evergreen

FLOWER

Colour	: pale yellow
Size	: 1 cm - 2 cm
Period	: February - December
Smell	: scented, moderate, flower

FRUIT

Type of fruit	: pod
Fruit size	: 12 cm

This native Australian acacia is a relatively tall tree with a weeping habit and graceful canopy of pendulous branches with long, thin and dark-green leaves. Occurring naturally in thickets and open areas, often along watercourses and floodplains, it develops into an upright, dense specimen with a clear trunk. Until now, this tree has rarely been seen in the Arriyadh region, but has the potential for more use. Blooming intermittently throughout the year, usually during the winter, the faintly fragrant, creamy-white flowers appear in pairs or clusters, followed by narrow seed. *A. salicina* is a vigorous, moderate to long-lived, nitrogen-fixing tree, adapted to clayey, alkaline soils, and tolerating poor drainage and seasonal waterlogging. It is moderate to highly salt-tolerant and hardy, but to severe frosts. Thriving in full sun, the tree is drought-tolerant, but the provision of deep water in the summer will encourage a deeper root system and good wind resistance. Propagation is by scarifying seed or boiling the seed in water. The flowers' pollen has value in apiculture. Recommended for its foliage, *A. salicina* is an attractive tree for gardens or patios and as a street tree and in parks. It has potential for erosion control, although there is a tendency to sucker: this and the potential for its seeds to be dispersed by birds suggest that it could become invasive. Prune periodically to thin the canopy, to reveal the weeping character and to offer less wind resistance. The foliage is susceptible to insects and leaf diseases.



Goldwreath Acacia, *Blue-leafed Wattle*

Often referred to as *Acacia cyanophylla*, its synonym, and commonly known by various names including Golden Wattle and Blue-Leafed Wattle, this tree is native to Australia. It may have been introduced into Saudi Arabia as recently as the nineteen-sixties for use in wind breaks and sand dune stabilization and was known first as *cyanophylla*, which describes its blue-green leaves. Very vigorous when young, it also has the ability to fix nitrogen with its roots. In some countries, however, it has become very invasive owing to the fact that its large quantities of seeds germinate easily, and that it regenerates after cutting. *A. saligna* grows rapidly into a small, leafy, evergreen tree with a rounded shape. It can be a multi-trunked specimen or have a single, short trunk. Its graceful, arching branches and attractive, long leaves or phyllodes give it a weeping habit. Large, bright-yellow, spherical flower heads appear in early spring and late winter, decorating the branch tips. Its seeds are stored in the nests of ants. After the ants have eaten the seed stalks, the seeds germinate. Moderately frost-tolerant and accepting most soils, it is a versatile tree that can be used as an eye-catcher in a garden, for screening, dust and wind control or planting in wide road medians. Apart from occasional pruning and good staking, it is easily maintained, although heavy root suckering can be a problem and saplings must be removed at an early stage. It can be used as a reserve of high-quality forage for use during drought, or as a mulch.



GENERAL

Origin	: sub-tropical, tropical
Vigour	: fairly fast growing
Humidity	: extremely arid, very arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: moderate (2500 ppm)
Hardiness	: -3°C

SHAPE

Type	: tree
Height	: 5 m-6 m
Spread	: 4 m-6 m
Foliage	: evergreen

FLOWER

Colour	: bright yellow
Size	: 1 cm
Period	: February - April
Smell	: scented, pleasantly vscented, flower

FRUIT

Type of fruit	: pod
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Shittim Wood, *saffar ahmer*, *shittah tree*

GENERAL

- Origin : sub-tropical, tropical
- Humidity : extremely arid, very arid
- Propagation : sowing and pricking out, cuttings, direct sowing
- Maintenance : low

CONDITIONS

- Urban climate : vulnerable
- Dessication : resistant
- Stagnant water : resistant
- Irrigation : low
- Salinity/ppm : moderate (1800 ppm)
- Hardiness : -3°C

SHAPE

- Type : tree
- Height : 12 m
- Spread : 12 m
- Foliage : semi-evergreen

FLOWER

- Colour : yellow
- Size : 1.3 cm
- Period : March - May
- Smell : scented, pleasantly scented, sweet

FRUIT

- Type of fruit : pod
- Fruit size : 15 cm

A gregarious, common savannah tree, *A. seyal* grows from west to east Africa through the Arabian Peninsula: there are several botanical varieties. Its Arabic names include saffar ahmer; it is also known as the shittah tree. A small tree, thorny and flat-topped, it is distinguished by its smooth trunk and branches, covered in a mealy, rust-red powder, which when rubbed off reveals a bright-green bark beneath. Sparsely branched, the sweetly-scented yellow flowers appear in the spring before the feathery leaves, which have two straight, light-grey thorns at their base. Seed pods are long and narrow. Trees can remain leafless for several months, depending on the occurrence of rain. It grows on deep, heavy and poor soils with a high pH (6–8), and tolerates salts and periodic flooding, hence the potential for planting in rowdah situations in the Arriyadh region. It can be a frost-sensitive species. *A. seyal* is an important source of gum arabic, and of early dry-season fodder. Propagated by scarified seed, large cuttings may strike root readily. Stands of var. *seyal* can be established by direct sowing of pretreated seeds. Over 40 species of insects are associated with the tree: beetles may damage seeds or attack the wood. *A. seyal* is suitable for planting as a shade or shelter tree in stands or as a barrier or thorny hedge. With low maintenance requirements, the tree can be cut down to the ground and a new canopy develops, although mature trees do not recover well. Pruning of small branches necessary to keep shape.



Twisted Acacia, *samur*

A flat-topped tree, *A. tortilis* is ubiquitous in arid regions of Africa and widespread in Saudi Arabia, where it is known as *samur*. It tolerates the severe desert environment, as well as being hardy to frost, although it is vulnerable until established. With multiple spreading trunks and the typical silhouette of an inverted triangle; *A. tortilis* ssp. *raddiana* occurs in northern Africa extending through Egypt to Saudi Arabia. Its crown is often irregularly rounded, and young branchlets, leaves and pods are glabrous. It grows in wadis and sandy plains, usually in water catchment areas. With small, highly aromatic, creamy-white flowers in tight clusters appearing from spring to summer, the tree has characteristic, spirally twisted seed pods rolled up into a tight coil. Evergreen with small feathery leaves, which line the thorny twigs, it has a moderate growth rate and prefers sandy soils while accepting most others. It has a very deep taproot. *A. tortilis* is a key species in greening deserts in the Middle East, being important for people and domesticated animals; it also improves soil fertility. Propagation is by fresh, scarified, or boiled seed. It has landscape value as a hedge or windbreak and in afforestation, but is unsuitable for planting near to pedestrians because of its shape and thorns. Irrigation is necessary until well established, but deep watering during the summer will enhance growth. Low maintenance only, except for pruning to improve appearance; can be trained as a standard single leader tree.



GENERAL

Origin	: tropical
Vigour	: fairly fast growing
Humidity	: extremely arid, very arid, semi-arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: moderate (2000 ppm)
Hardiness	: -6°C

SHAPE

Type	: tree
Height	: 12 m
Spread	: 14 m
Foliage	: evergreen

FLOWER

Colour	: white
Period	: March - July

FRUIT

Type of fruit	: pod
Fruit size	: 15 cm

Umbrella Thorn, *samur*

GENERAL

Origin	: tropical
Vigour	: fairly fast growing
Humidity	: extremely arid, very arid, semi-arid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: moderate (2000 ppm)
Hardiness	: -9°C

SHAPE

Type	: tree
Height	: 12 m
Spread	: 16 m
Foliage	: evergreen

FLOWER

Colour	: white
Period	: March - July
Smell	: scented

FRUIT

Type of fruit	: pod
Fruit size	: 15 cm

Acacia tortilis ssp. *spirocarpa* is one of four geographically demarcated subspecies of *A. tortilis*, which is ubiquitous in arid regions of Africa and widespread in Saudi Arabia, where it is known as *samur*. The ssp. *spirocarpa* is restricted to eastern Africa, with scattered occurrences on sand dunes and rocky hillsides, on deep alluvial calcareous soils, often indicating a higher water table or drainage lines. It can also occur on lateritic gravels and saline soils, and will colonise disturbed sites. This species dominates some savannah communities and provides an important source of forage. A tall, flat-topped tree, under optimal conditions, it tolerates the severe desert environment – in Africa, its range often extends into the Sahara desert – although vulnerable until established, it is hardy to frost. With multiple spreading trunks and the typical silhouette of an inverted triangle, *A. tortilis* ssp. *spirocarpa* is easily recognised by its flattened, spreading crown and hairy branchlets and pods. Young branchlets and leaves are densely pubescent. It also has spirally twisted pods, long straight stipular spines and whitish fragrant flowers. Propagation is the same as *A. tortilis* ssp. *raddiana*. It is also planted as a hedge and used for sand dune stabilisation and shelterbelts. Irrigation is necessary until well-established, but deep watering during the summer will enhance growth. Low maintenance only, except for pruning to improve appearance, it can be trained as a standard single leader tree.



Prickly Wattle, *Bramble Wattle*

A. victoriae is a widespread native acacia of Western Australia, commonly found on sedimental deposits such as floodplains, along watercourses or alluvial flats, but also on rocky hillsides and ridges. It is a nitrogen-fixing shrub or small tree with multi-stems from or near ground level, favouring soils that are well drained and often alkaline, including clayey alluvials and saline loams: it is moderately salt-tolerant. As such, it has potential for more widescale use in the Arriyadh region. Foliage consists of dull blue-green phyllodes which are slightly curved and have a waxy appearance. The strongly scented, cream-coloured puffball flowers occur profusely during early spring. Mature, papery pods remain prominent on the tree until early summer. Frost tolerant to -5°C and sensitive to waterlogged soils, *A. victoriae* is known to be moderately tolerant of protracted droughts, although killed when drought is severe, unless deep watering is carried out. Its root system is moderate to deep. The tree is short-lived, less than 15 years, while the growth rate is moderate to slow. Propagation is by scarified or boiled seed. This acacia is an elegant garden or screening plant and makes an excellent windbreak. Sometimes forming thickets, it is also used to prevent erosion and remediate mine sites. The tree forms root suckers. There is a high potential for the tree to become weedy or invasive. With a low maintenance requirement, it will withstand clipping well. When blooming and seeding, this tree needs supplemental irrigation.



GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: resistant
Irrigation	: low
Salinity/ppm	: moderate (3000 ppm)
Hardiness	: -6°C

SHAPE

Type	: shrub, tree
Height	: 2 m-9 m
Spread	: 3 m-7 m
Foliage	: evergreen

FLOWER

Colour	: pale yellow
Size	: 0.7 cm
Period	: March - June
Smell	: pleasantly scented, flower

FRUIT

Type of fruit	: pod
Fruit size	: 8 cm

Chenille Plant

GENERAL

Origin	: sub-tropical, tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: +3°C

SHAPE

Type	: shrub
Height	: 2 m-3 m
Spread	: 2 m-3 m
Foliage	: evergreen

FLOWER

Colour	: bright red
Size	: 30 cm - 50 cm
Period	: May - August

FRUIT

Type of fruit	: capsule
Fruit size	: 0.1 cm

The Chenille Plant is an attractive shrub, some 3 metres high, that originates from southeast Asia. A lush impact may be achieved by dark-green leaves of about 15 cm in length. They contrast well with the bright red, furry catkins. The latter may become up to 50 cm long, and account for common names such as Fox Tail or Red Hot Cat's Tail. Scattered blooming all year round makes the female Chenille Plant highly desirable for use in planting. It flowers most heavily in early summer. Propagation by seeds and cuttings is easily possible; note that the more attractive flowers are borne on female plants. It sometimes naturalises in favourable conditions but does not become a nuisance in Arriyadh, owing to a lack of water beyond irrigated areas. It can be used as an accent plant or flowering hedge. Severe pruning results in lush, rejuvenated growth and is an appropriate method to keep a neat habit. Its size can also be controlled by pinching the tips and pruning without damaging the leaves. It tolerates heavy and alkaline soil, but needs frequent watering if exposed to full sun. Partial sun and even some shade suit it better. Wind and low humidity may provoke dried leaf margins; these should be avoided by choosing the right planting location carefully. It is vulnerable to industrial fumes and urban microclimates. The Chenille Plant is rarely affected by pests. If grown indoors, it may occasionally be infested by scales. It should be considered that the plant is poisonous if eaten by animals.



Copper Leaf

On suitable sites, these shrubs create dense mounds of showy leaves while the flowers are insignificant. Copper Leafs grow fairly fast to about 2.5 metres in height. The plant originates in the islands of the southern Pacific, where it withstands a considerable amount of salinity and still makes a lush tropical feature. High levels of humus and nitrogen are as important, as is frequent irrigation without waterlogging. However, fertilisation should not be applied until the roots have been established. Wind exposure and low humidity may result in burnt margins on the plant's main asset – its gorgeous coloured foliage. Hues in bronze, purple and red make these shrubs an eye-catcher. Hardwood cuttings are the most common method for propagating the numerous cultivars. In spring, they root easily in mixtures of peat and perlite under some shelter to retain humidity. Varieties differ in the colour and shape of their foliage. To achieve a bushy shape, the tips of young plants should be pinched occasionally. In winter, they do well with less water. A range from full sun to partial shade is tolerated, but a lack of light makes the foliage colours fade. They grow fast enough to sometimes act as annuals in colder climates. As indoor plants, Copper Leafs develop better in soil-less potting mix that retains humidity yet drains well, and daily misting should compensate the lack of high rainfall, as in their homelands. Grown indoors, they are also susceptible to aphids, spider mites and scale insects.



GENERAL

Origin	: sub-tropical, tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1500 ppm)
Hardiness	: +3°C

SHAPE

Type	: shrub
Height	: 2 m-3 m
Spread	: 2 m-3 m
Foliage	: evergreen

FLOWER

Colour	: pale pink
Size	: 10 cm - 20 cm
Period	: May - August

FRUIT

Type of fruit	: capsule
Fruit size	: 0.5 cm

Desert Rose, *adanah*, *seyfid*

GENERAL

- Origin : sub-tropical, tropical
- Humidity : very arid, semi-arid
- Propagation : sowing and pricking out, grafting
- Maintenance : moderate

CONDITIONS

- Urban climate : vulnerable
- Dessication : resistant
- Stagnant water : vulnerable
- Irrigation : low
- Salinity/ppm : moderate (2000 ppm)
- Hardiness : 0°C

SHAPE

- Type : shrub
- Height : 1 m-6 m
- Spread : 1 m-2 m
- Foliage : semi-evergreen

FLOWER

- Colour : deep pink, secondary: deep white
- Size : 5 cm
- Period : April - July

FRUIT

- Type of fruit : capsule
- Fruit size : 20 cm
- Toxicity : highly poisonous

Desert Roses, or adanah in Arabic, are succulent shrubs with irregular shapes, native to northeastern Africa and Arabia. Their fleshy trunks may be buried half or entirely in the soil. They grow slowly to several metres in height with large caudexes. Twisted branches are sparsely covered with obovate, shiny leaves that are up to 8 cm long. They are semi-evergreen and retained in warm conditions. In Arriyadh, they usually undergo dormancy and drop their leaves in winter. Irrigation should be reduced at this time. Most showy are the stellate flowers in shades of pink and magenta with white throats and a diameter of 5 to 7 cm. They appear in dense clusters in spring until temperature exceeds 40°C. Desert Roses do excellently as indoor or container plants when they receive enough sun and not too much watering. Cuttings root easily, but do not develop the typical fat, bottle-like trunks. Young plants already produce flowers after one year. In rock gardens, Adenium takes full sun and thrives on heat. Pruning usually does not improve the plant's appearance. If cuts are necessary, they should be done only during the dormancy in winter when the flow of sap is low. The sap is poisonous and is sometimes used on arrows for hunting big game. Decoctions are medically used to treat eczemas and infected wounds. Cultivars also show flowers in deep-red or white. Adenium obesum is the most attractive of twelve species; some are considered subspecies.



Century Plant

Known as the Century Plant, this is the most popular of agave species, which are native to the southwestern United States, Mexico and northern South America. It forms freely suckering rosettes of about 25 bluish-green, fleshy leaves up to 1.2 metres long and 20 cm wide. The lanceolate leaves have strong, hooked, dark spines on their edges and sharp tips, which may injure unwary passers-by. A position at a distance from foot-trafficked areas is essential. It is best suited to a rock garden, where it tolerates poor and saline soils, drought and heat. When grown in a pot, *A. americana* requires good drainage. The tall bloom stalks with flowers reach a total height of 6 metres, or sometimes even 13 metres. It does not take a century for the plant to grow, flower and die, but it is an astonishing event anyway. The stalks, which resemble asparagus, may grow up to 30 cm a day and then branch into cushions of yellowish flowers. Bulbils or baby plants, produced on the flower's stalk, can be used for propagation, as can offsets and seeds. At this stage, extra watering is beneficial. The flower stalk can be roasted and eaten. *A. americana* usually flowers when ten or more years old, after which the plant dies: the dramatic dry bloom stalk is sometimes left as an attraction. Agaves are very easy to grow in Arriyadh; they have bold, sculptural forms, and are a strong accent in parks and gardens. They require only low maintenance such as tidying up dead leaves or pruning unwanted offsets. They are sometimes attacked by the agave weevil.



GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fairly fast growing
Humidity	: very arid, semi-arid
Propagation	: direct sowing, division
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (2000 ppm)
Hardiness	: -6°C

SHAPE

Type	: cacti, succulents
Height	: 0.8 m-2 m
Spread	: 1.5 m-3 m
Foliage	: evergreen

FLOWER

Colour	: light green, secondary: light yellow
Size	: 300 cm - 900 cm
Period	: June - September
Smell	: scented, moderate, flower

FRUIT

Type of fruit	: capsule
Fruit size	: 4 cm - 5 cm

Variegated Caribbean Agave

GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Humidity	: very arid, semi-arid
Propagation	: direct sowing, division
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (2000 ppm)
Hardiness	: 0°C

SHAPE

Type	: cacti, succulents
Height	: 0.9 m
Spread	: 1.6 m
Foliage	: evergreen

FLOWER

Colour	: yellow
Size	: 5 cm
Period	: March - May

FRUIT

Type of fruit	: capsule
Fruit size	: 7 cm

This Agave is the right choice for locations that are limited in size. It is easier to manage than its larger relatives. The stiff, lanceolate foliage is armed with terminal spines and features cream-coloured edges with small serrations. Leaves grow to some 50 cm length and about 10 cm width. Like other species, the Variegated Caribbean Agave may take many years to flower. This event only occurs once, and the rosette dies back entirely when a flower stalk of some 2.5 metres shoots up. Single flowers are borne in greenish-yellow and are 5 cm in length. Seedlings usually do not show any variegation, so that plants are generally propagated by suckers that are grown in abundance. This agave grows in full sun and, it is drought-resistant. It does best in well-drained soil with occasional watering, and other soils should be allowed to dry between water applications but before the plants start to wilt. It is well suited to containers and lasts for years in rootbound conditions. On the other hand, plants are vulnerable to stagnant water, especially when associated with low temperatures. Hard frost is not tolerated and immediately results in wilted leaves that do not recover. Plants are rarely infested by diseases or pests, but in adverse conditions they may be afflicted by scale. Variegated Caribbean Agaves look highly impressive in pots or containers and make valuable accent plants in smaller rock gardens or in any situation where greening must tolerate some neglect. Attractive specimens may be seen in the Diplomatic Quarter.



Dragon-Tree Agave, *Fox Tail Agave*

For those who like the appearance of agaves but fear the sharp spines, this species is the best choice. Its pale-green foliage is leathery and soft with no serrations along the margins and a soft tip. Playing children will not be injured by this species, but, on the other hand, this slow-growing plant takes a long time to recover from damage to its foliage. Dragon-Tree Agaves also differ from the other roughly 300 species by their short trunk up to 1.5 metres in height and the offsets at its base. A rosette consists of about 15 leaves that die when the plant begins to flower, although other heads on the multi-stemmed clumps usually maintain the life of the clump. Bloom stalks may reach a height of about 2.5 metres and are densely covered with many flowers and bulbils. The stalk resembles a swan's neck. Like all Agaves, it tolerates heat, full sun and arid conditions, but does better with occasional watering, especially during its spectacular flowering period. It is, however, very susceptible to frost: it will survive, but recovers only slowly. *A. attenuata* is, nevertheless, a very attractive and successful agave in Arriyadh, because of its tropical appearance and soft green clumps of rosettes. Planting agaves in bellied pots with narrow rims should be avoided, since it is impossible to remove the plant without killing it or destroying the pot in the process.



GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fairly fast growing
Humidity	: very arid, semi-arid, semi-humid
Propagation	: direct sowing, division
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (1000 ppm)
Hardiness	: 0°C

SHAPE

Type	: cacti, succulents
Height	: 1.2 m-1.8 m
Spread	: 1 m-1.5 m
Foliage	: evergreen

FLOWER

Colour	: light green, secondary: light yellow
Size	: 350 cm
Period	: January - April

FRUIT

Type of fruit	: capsule
Fruit size	: 4 cm

Smooth-Edged Agave

GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fairly fast growing
Humidity	: very arid, semi-arid
Propagation	: direct sowing, division
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: moderate (2000 ppm)
Hardiness	: -3°C

SHAPE

Type	: cacti, succulents
Height	: 1.2 m-1.8 m
Spread	: 2 m-3.5 m
Foliage	: evergreen

FLOWER

Colour	: light green, secondary: light yellow
Size	: 500 cm
Period	: June - September
Smell	: scented, moderate, flower

FRUIT

Type of fruit	: capsule
Fruit size	: 4 cm - 5 cm

In its shape, this Agave resembles *A. americana*, although the leaf edges do not have sharp spines and the narrower foliage is not bent downwards. However, the tip is just as dangerous to anyone nearby. The Agave does grow faster and develops a short, thick trunk. Flowers are creamy-white. The genus' name derives from the Greek agavos, which means 'admirable'. Easily grown in all arid regions, and as with many other desert plants, Agaves do not like fertilisers and prefer soils with low organic content. Waterlogging in pots or rock may kill Agaves. Healthy specimens are usually pest-free, but mealybugs or scale can easily be washed off the huge leaves. The flowering stem is stunning, but results in a dead foliage clump that needs to be disposed of carefully. However, offshoots make new plants easily. Plants do not flower before the age of 10, but may take up to 30 years before doing so and then dying. This species produces tough fibres that are used for matting, twine, sandals or brushes. Sisal for rope is probably the best known product. Additionally, Native Americans made medical use of Agaves. Other Agave species suitable for planting in Arriyadh, or occasionally seen there, are *Agave colorata*, *Agave palmeri*, *Agave parryi* and *Agave weberii*.



Woman's Tongue, *labakh*, *daqn al basha*

When in good leaf, this is one of Arriyadh's most reliable and attractive trees. Its compact growth and wide-spreading crown make it an ideal shade tree. It has bright, green foliage with large leaves that close up at night. From spring to autumn, the clusters of delicate, powder-puff flowers are very fragrant, particularly in the evening, deepening in colour with age. Often still on the tree during flowering and in winter, the flat pods, containing dark, round seeds, are prominent, and remain on the tree when the leaves have dropped, rattling in the wind. Their chattering noise has earned the tree the English common name of 'Woman's Tongue'. Unfortunately, owing to shedding of leaves during the hot summer months, the tree can take on a rather desiccated appearance, although this will be improved with regular irrigation. The root system is wide, but shallow. Fertilisation will maintain the lush green foliage and flowering, adding an accent to an arid landscape. *A. lebeck* (known in Arabic as *Labakh*) is often planted in agricultural areas for shade, fodder and fuel wood, and produces dark-brown timber. It is an excellent tree for large gardens, parks and urban open spaces, and especially for roadside planting. Selective pruning of no more than 20% of foliage during the dormant season is necessary during the initial years to retain its shape and maintain a balanced branch framework. Plant during the winter: large specimens, especially those bare-rooted, may be slow to get started.



GENERAL	
Origin	: sub-tropical, tropical
Vigour	: fast growing
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out
Maintenance	: moderate
CONDITIONS	
Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: very high (6000 ppm)
Hardiness	: -3°C
SHAPE	
Type	: tree
Height	: 12 m-25 m
Spread	: 12 m-18 m
Foliage	: deciduous
FLOWER	
Colour	: stamens: pale yellow
Size	: 2 cm
Period	: May - September
Smell	: scented, strong, gives freely of its scent, flower
FRUIT	
Type of fruit	: pod
Fruit size	: 20 cm - 30 cm
Toxicity	: inedible

Hollyhock

GENERAL

Origin	: temperate, sub-Mediterranean, Mediterranean
Vigour	: fast growing
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out, division
Maintenance	: high

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1200 ppm)
Hardiness	: -15°C

SHAPE

Type	: biennial, perennial
Height	: 0.8 m-2.2 m
Spread	: 0.6 m-1.2 m
Foliage	: deciduous

FLOWER

Colour	: pink, white, violet
Size	: 6 cm - 10 cm
Period	: June - December

FRUIT

Type of fruit	: schizocarp
Fruit size	: 0.7 cm

The Hollyhock is a biennial or perennial plant originating in China and southwest Asia. It is a good structure plant for a sheltered garden border in Arriyadh, where it will grow best during the cooler time of the year to a height of over 2 metres. *A. rosea* has an upright, candelabrum form: its hibiscus-like flowers usually appear on long spikes in midsummer, but its best showing in Arriyadh is during the winter, when it provides seasonal colour. There is a wide range of flower colours from light yellow, pink and red to nearly black. The leaves are almost circular and large, the size of a hand. The fruit contains many seeds. The root system is shallow, up to 40 cm deep, and roots are fine and fleshy. The plant prefers a well-drained soil with ample irrigation and likes full sun and regular fertilisation; otherwise, the leaves can be affected by rust. Seed propagation requires warm, dark and humid conditions. Flowers, seeds and roots can be used medicinally. A tea extracted from the flowers helps with coughs and inflammation of the throat: a tea from the roots is used for digestive problems. Hollyhock can be used as impressive accent plants in naturally designed planting schemes. If the flowers and fruits are allowed to remain on the plant until they are ripe, *A. rosea* seeds itself very easily, creating interesting and unexpected garden compositions. The plant should be pruned back to 15 cm above the ground in spring.



Golden Trumpet Vine

The Golden Trumpet Vine is a highly ornamental twining climber, native to northern Brazil. It may also be trained as a free-standing shrub and looks spectacular cascading over a retaining wall. Showy, yellow flowers measure up to 12 cm across. They spread fragrance and appear in abundance if the right growing conditions are met. They are borne in long racemes during warm months and are followed by prickly capsules which release winged seeds. Full sunshine and good drainage are essential. If stagnant water is prevented, the plant also does well in containers. It grows vigorously in moist soil with a high percentage of humus but low salt contents. Cold periods are tolerated, but frost damages the evergreen foliage instantly. It is low in maintenance and easy to lead along a trellis, a fence or into a tree. It needs to be tied, since it does not grow tendrils. Pinching keeps the plant in a neat shape, but may also result in loss of flower buds. Like many other members of the Oleander family, Apocynaceae, this plant contains poisonous milky sap. Allamandin is an iridoid lactone that may cause vomiting or diarrhoea. In Suriname it is medically used. As its species' name indicates, it is a powerful cathartic. Propagation is possible via seeds or cuttings. Normally, there are no pests to be seen on well-nourished plants.



GENERAL

Origin	: tropical
Vigour	: fairly fast growing
Humidity	: semi-humid, very humid, extremely humid
Propagation	: cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (1000 ppm)
Hardiness	: 0°C

SHAPE

Type	: climbers
Height	: 3 m-8 m
Spread	: 6 m-10 m
Foliage	: evergreen

FLOWER

Colour	: bright yellow
Size	: 5 cm - 12 cm
Period	: April - November
Smell	: scented, strong, flower

FRUIT

Type of fruit	: capsule
Fruit size	: 1 cm
Toxicity	: poisonous

Elephant's Ear

GENERAL

Origin	: sub-tropical, tropical
Vigour	: fairly fast growing
Humidity	: very humid, extremely humid
Propagation	: division, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: low (1000 ppm)
Hardiness	: +6°C

SHAPE

Type	: perennial
Height	: 3 m-4.5 m
Spread	: 2 m-4 m
Foliage	: evergreen

FLOWER

Colour	: pale yellow
Size	: 23 cm
Period	: January - May

FRUIT

Type of fruit	: berry
Fruit size	: 1 cm
Toxicity	: edible when processed

This bold, evergreen perennial is native to the rainforests of southeast Asia and northeast Australia. Accordingly, it demands high moisture and good humus. It will survive in protected, shaded gardens in Arriyadh, where air humidity is relatively high. The soil should not be alkaline and salt tolerance is low. It grows to more than 4 metres in height and almost as wide. Alocasia will take shade beneath mature trees or in a courtyard. It copes with wet soil, but it is vulnerable to stagnant water and needs to be protected from the wind, which may twist its huge leaves. They easily reach 1.5 to 2 metres in length on a stalk of 1 metre, and make this plant deserve its name Elephant's Ear. A variegated cultivar is sometimes available, but is highly susceptible to intensive sunlight and smaller in size. Its leaves are mottled with cream and white. Pale yellow flowers appear on mature plants, spreading a sweet scent and develop into red berries of about 1 cm in diameter. Its seed may be used to propagate, along with dividing the rhizomes and stem cuttings in spring. It also does well in containers and thrives in swamps. Frost kills the leaves, but plants recover from the rootstock. They cease growth beneath 10°C. If its requirements are met, a huge specimen makes a tropical feature of up to 4 metres height. All parts are poisonous if untreated. The sap of cut stems and rhizomes may cause skin irritation, but may be used as an antidote to treat skin that has been irritated by nettle or sugar cane.



Giant Aloe, *Candelabra Aloe*, *Tree Aloe*, *sabbar alo*

Tubular scarlet flowers make this Giant Aloe, *sabbar alo* in Arabic, a striking eye-catcher in early spring. Inflorescences sprout straight up from the centre and top the plant. It eventually develops a tree-like appearance in time. Native to South Africa, it thrives well in heat and reaches 2 metres in height with an additional 60 cm in flower. Very occasionally, it may grow into a 4-metre-high tree when mature. Aloes are very tolerant of soil pH, tolerating alkalinity, but they require good drainage, often growing on rocky slopes in the wild. Too much water damages the root system. Giant Aloes will tolerate full sun, but may develop brown leaf tips if sun exposure goes hand in hand with prolonged drought. Dead leaves are retained for many years, unless removed by the gardener. Dead floral stems should also be cut off, to achieve a neat appearance. Although they survive with little water, the foliage may become dull green in extreme drought. They soon recover from discolouration when watered. Frost immediately causes damage, beginning with flabby leaf tips up to total loss in just one night. Its pointed, light-green leaves are succulent and spines are aligned along the margins. This armour should be reason enough not to place it next to pedestrian areas. Giant Aloes make accent plants in rock gardens and are easy to combine with other succulents. Being used to little amounts of soil, they make very good container plants. They are usually reproduced by offsets or seeds.



GENERAL	
Origin	: Mediterranean, sub-tropical
Vigour	: slow-growing
Humidity	: very arid, semi-arid
Propagation	: sowing and pricking out, cuttings, division
Maintenance	: low
CONDITIONS	
Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: high (5000 ppm)
Hardiness	: -3°C
SHAPE	
Type	: cacti, succulents
Height	: 1 m-3 m
Spread	: 1.5 m-4 m
Foliage	: evergreen
FLOWER	
Colour	: red, dark orange
Size	: 60 cm - 80 cm
Period	: April - May
FRUIT	
Type of fruit	: capsule
Fruit size	: 0.8 cm

Medicinal Aloe, *True Aloe*, *sabbar saqal*

GENERAL

- Origin : Mediterranean, sub-tropical
- Vigour : slow-growing
- Humidity : very arid, semi-arid
- Propagation : sowing and pricking out, cuttings, division
- Maintenance : low

CONDITIONS

- Urban climate : resistant
- Dessication : resistant
- Stagnant water : vulnerable
- Irrigation : low
- Salinity/ppm : high (5000 ppm)
- Hardiness : +3°C

SHAPE

- Type : cacti, succulents
- Height : 0.6 m-0.9 m
- Spread : 0.8 m-1.4 m
- Foliage : evergreen

FLOWER

- Colour : yellow, orange
- Size : 70 cm - 90 cm
- Period : March - May

FRUIT

- Type of fruit : capsule
- Fruit size : 3 cm

Since ancient times, the medicinal Aloe has been planted for its numerous healing qualities. Its exact origin is said to be northern Africa. It is often found on farms and in gardens in the Arriyadh area. Compounds of medicinal Aloe ease the healing of wounds. Upright, succulent leaves form dense rosettes of a bluish-green hue. To cope with drought, they even turn dull red. The small serrations along the margins do not present a hazard. Leaves form basal rosettes of about 60 cm height. In spring, yellow flowers grow like torches increasing the plant's height to some 90 cm. These are followed by capsules later on. Pollination is performed by bees and birds; self-pollination is not possible. Heat and sun are no problem, and clumps become wider, even if neglected. For a handsome appearance, they should be groomed occasionally by removing dead leaves and floral stalks. The Aloe can easily be grown in well-drained containers. Potting soil should consist mainly of coarse sand, alkaline garden soil and some humus. Fertilisation is best provided by slow-releasing granules that are added to the soil in early spring and again in summer. Dividing Aloe clumps brings many offsets – the easy and quick way to achieve new plants. Seeds germinate easily too, but obviously take more time to show results. The seeds are ripe when the capsule is dry. It splits open to release winged seeds that are dispersed by wind. Seedlings demand good ventilation and are quickly killed by overwatering. Pests are rare, but scale or mealybugs sometimes infest it.



Parrot Leaf

Native to Central and South America, this is a very low, fast-growing and easy-to-grow tropical groundcover plant for certain situations in the Arriyadh region. In a garden setting with ample irrigation, the plant adds a spot of striking colour, especially if the red-leaved varieties are chosen. This is a compact, herbaceous perennial, planted for its crisped and corrugated leaves which, according to variety, may be a stunning green or red in colour. The small, pale flowers are quite insignificant, although they are in bloom all year. Relatively frost-tolerant, it is propagated from cuttings, 2 to 5 cm in length. These root quickly and are best planted in organically rich, consistently moist, but not too wet, well-drained soils in full sun, or in partial shade. Alternatively, seed can be sown as soon as ripe. As a perennial, the plants can also be divided in spring. Maintenance includes pinching stems or moderate shearing to keep the plants compact and bushy. *A. ficoidea* is susceptible to nematodes and mealybugs, and often becomes very patchy; spider mites should be hosed off with water and fusarium wilt is combated by reducing water and removing infected plants. Useful for edgings and carpet-bedding in beds, borders, containers, or under trees and shrubs, it can also be grown as a cool-season annual in hot climates. Good in a formal garden or for seasonal interest. Plant 10 to 25 cm apart for groundcover effect. It will need replacing after a very hard frost. If desired, feed twice weekly with a balanced soluble fertiliser.



GENERAL

Origin	: tropical
Vigour	: normal growth rate
Humidity	: semi-arid, semi-humid, very humid
Propagation	: cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (2500 ppm)
Hardiness	: 0°C

SHAPE

Type	: perennial
Height	: 0.1 m
Spread	: 0.2 m
Foliage	: evergreen

FLOWER

Colour	: white
Size	: 1 cm
Period	: August - August

FRUIT

Type of fruit	: capsule
Fruit size	: 0.2 cm
Toxicity	: edible when processed

Joseph's Coat

GENERAL

Origin	: tropical
Vigour	: fast growing
Humidity	: semi-arid, very humid
Propagation	: sowing and pricking out, direct sowing
Maintenance	: high

CONDITIONS

Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: low (1000 ppm)
Hardiness	: 0°C

SHAPE

Type	: annual, biennial, perennial
Height	: 0.6 m-0.8 m
Spread	: 0.4 m-0.6 m
Foliage	: evergreen

FLOWER

Colour	: white, light green
Size	: 12 cm
Period	: April - May

FRUIT

Type of fruit	: capsule
Fruit size	: 0.2 cm
Toxicity	: edible when processed

The genus *Amaranthus* contains about 70 species, which are generally grown for their colourful, edible leaves and long pendulous flowers reminiscent of a fox's tail. The Amaranths originate in tropical Asia, but are even to be found in Mexico in dry desert areas. In Arriyadh, a strain of *A. tricolor* with its dark red to purple leaves is often to be seen on farms, and, owing to its copious seed production and easy germination, the plants seem to have escaped their agricultural environment and now appear as ornamental plants in many places. Usually an erect, bushy annual with ovate, pointed to rounded leaves up to 5 cm long, the whitish-green flowers produce very small, black or red-brown seeds. These fast-growing plants can also be grown as perennials, requiring full sun to partial shade, and reach a height of 80 cm. Not very frost-hardy, they require water until establishment, but are otherwise quite drought-tolerant. Seed should be sown in spring in fertile, well-drained garden soil, although they will also do well on poor soils. Plants are subject to attacks by aphids. *Amaranthus* is used as a leaf vegetable, comparable to spinach: the leaves can be eaten raw or boiled and young stems can be served like asparagus. They also have medicinal properties and are rich in minerals and vitamins. As an ornamental in the garden with its attractive coloured leaves, *A. tricolor* makes a great impact in borders or in large planters.



Queen's Wreath, Coral Vine, Mexican Creeper, murjan mutasalliq

The Queen's Wreath or Coral Vine (murjan mutasalliq in Arabic) gives a tropical feeling with its lush green appearance. It is a tendril-climbing vine from Mexico that achieves a height of 12 metres. With its fast, vigorous growth, it easily takes over trellises, pergolas and fences, but also shrubs and small trees which it may kill. Shiny, evergreen leaves are about 10 cm long and arrowhead-shaped. Heat and full sun are accepted, but the soil should not be too dry. Deep watering encourages an extensive root system. Established plants survive with less irrigation. General-purpose fertiliser is tolerated, but highly nutritious soil makes Coral Vine produce vegetative growth at the cost of flowers. The floral display turns branches into festoons with bunches of pink flowers that highlight the mounds of deep green foliage and attract bees. Sometimes, cultivars are available. 'Album' has white flowers, while 'Baja Red' has magenta flowers. All flower in summer and autumn. Frost may cause the plant to go dormant. It quickly recovers, even if frozen to the ground. Maintenance is minimal if the location has been chosen carefully. Pruning is best in spring, especially if frost has killed twigs that require removal. The tendrils may need some initial support to reach the top of a wall or a pergola. Greater effort is required if the vine takes over its vicinity of pathways and slow-growing shrubs. The species is easily propagated by seeds, whereas the cultivars should be reproduced by cuttings.

GENERAL	
Origin	: Mediterranean, sub-tropical
Vigour	: fast growing
Humidity	: semi-arid, semi-humid, extremely humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate
CONDITIONS	
Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1200 ppm)
Hardiness	: 0°C
SHAPE	
Type	: climbers
Height	: 5 m-12 m
Spread	: 10 m-12 m
Foliage	: semi-evergreen
FLOWER	
Colour	: pink
Size	: 15 cm - 35 cm
Period	: July - August
FRUIT	
Type of fruit	: nut



Snapdragon, *thum as samaka*, *anf ath thor*

GENERAL

Origin	: Mediterranean
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid
Propagation	: direct sowing, cuttings, division
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: low (1000 ppm)
Hardiness	: 0°C

SHAPE

Type	: biennial
Height	: 0.2 m-1 m
Spread	: 0.6 m-1.2 m
Foliage	: semi-evergreen

FLOWER

Colour	: yellow, pink, red, white, orange, secondary: yellow
Size	: 3 cm - 4.5 cm
Period	: March - October
Smell	: scented, strong, flower

FRUIT

Type of fruit	: capsule
Fruit size	: 1.2 cm

Seemingly more appropriate for a European garden in summer, this showy herbaceous perennial (Arabic name: *thum as samaka*) is grown principally in the Arriyadh region and other arid regions for its bright-coloured flowers and is treated as a biennial, i.e. it is sown and grown in the summer and planted out for winter colour as soon as temperatures begin to fall. In the following year, the plant begins to burn as temperatures rise again, and it is normally removed. In sheltered places, however, it may persist. Its tubular, faintly scented flowers on vertical spikes with their many different colours are striking in massed planting. There are many varieties, some over 1 metre tall, others dwarf in form. *A. majus* requires well-fertilised, friable, rich soil of neutral pH and a sunny position with regular watering, although the soil should be well-drained and not become too wet in winter. When planted densely, it is a good plant for the garden border. Interesting for children to watch, the plants are pollinated by bees, and the flowers close over the insects when they enter, depositing pollen on them. Propagation is by seed. As a garden plant and a perfect cut flower, it will need the usual attention to keep it flowering, such as deadheading, and they should be pinched back to encourage a bushy habit and flowers. Leaves can be susceptible to rust.



Baby Sun-Rose

This succulent perennial groundcover is native to South Africa and belongs to the ice plant family (Aizoaceae, formerly Mesembryanthemaceae). It retains its fleshy leaves all year round. They are heart-shaped, about 3 cm long and their bright green contrasts well with the tiny but numerous magenta flowers that appear in summer and autumn. They consist of string-like petals that enclose a small white centre, and open only during sunshine when they attract bees and butterflies. Flowers are borne in the leaf axils and develop into capsules about 1 cm in size. Plants will not exceed 10 cm height, but stems quickly grow to 60 cm in length. It tolerates full sun when the soil is gritty and not too dry. Even though its succulent leaves store water, *A. cordifolia* does not revel in heat or reflected sun. The plants may even become chlorotic and can eventually expose unsightly bare twigs that will not recover properly. Light frosts, as may occur in Arriyadh, do not harm this plant. In rock gardens, it makes an excellent groundcover. It does well in containers too, where it looks best spilling over the edge. Pruning is easy and possible at any time. Propagation by cuttings is simple and seeds also germinate well. There are variegated types or cultivars with different blossom colours such as white, yellow, red and violet. *A. cordifolia* is best planted in small areas in Arriyadh, where it can be used as a groundcover, in a rockery, a hanging basket or cascading over the edge of a container.



GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fast growing
Humidity	: very arid, semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1200 ppm)
Hardiness	: -3°C

SHAPE

Type	: cacti, succulents
Height	: 0.1 m
Spread	: 1 m
Foliage	: evergreen

FLOWER

Colour	: pink, red
Period	: July - September

FRUIT

Type of fruit	: capsule
Fruit size	: 1.5 cm
Toxicity	: inedible

Hawaiian Baby Woodrose

GENERAL

Origin	: sub-tropical, tropical
Humidity	: semi-arid, semi-humid
Propagation	: cuttings
Maintenance	: moderate

CONDITIONS

Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: +6°C

SHAPE

Type	: shrub
Height	: 3 m
Spread	: 3 m
Foliage	: evergreen

FLOWER

Colour	: lilac, pale pink
Size	: 7 cm
Period	: August - October

FRUIT

Type of fruit	: pod
Fruit size	: 2 cm
Toxicity	: poisonous

Native to India and southeast Asia, this tall, rangy and fast-growing shrub with multi-stems can grow up to 3 metres high. It is not planted in Arriyadh as often as it used to be, but is still occasionally found on farms. The large, heart-shaped leaves are dark green with velvety undersides. Numerous, large, funnel-shaped, pinkish-lilac flowers, appearing in clusters, last only a day or two, but the shrub is an all-year bloomer. Berry-like fruits produce many seeds. *A. campanulata* grows in many soils, especially well in sandy soil, and requires full sun. The shrub is drought-tolerant, but wilts completely after a long period without irrigation; it is also not hardy in a spell of heavy frost. Propagation is by hardwood cuttings. Pruning and irrigation should be carried out regularly to improve the shrub's appearance. Valuable as a dense screen or informal hedge, the lush, green foliage and bright flowers make this shrub a valuable background plant for a park or large garden, or as a contrast in a desert scheme.



Elephant Vine, *Woolly Morning Glory*

A strong-growing, twining climber, which, with support, can reach the top of four-storey building facades, *A. nervosa* is a native of the Indian subcontinent, and has been introduced into many other countries in the tropics. It can often be seen in Arriyadh entwined in fences or tumbling over house boundary walls. The plant has very large, heart-shaped leaves and its flowers are hairy, trumpet-shaped, white outside with purplish-pink petals inside, appearing in cymes. While invasive, it is prized as a particularly attractive, resilient climber with pretty flowers. Traditionally, the leaves and roots of the plants have seen many medicinal uses. The plant is very slow-growing at first, developing into a compact bush, after which it becomes a liana. Without regular irrigation, it will die back and then regenerate with watering. Propagation is from the toughly coated seed, which requires nicking or soaking in boiling water for germination. Flowering often begins soon after germination with sufficient irrigation and plenty of space for root growth. Best in partial shade, leaves may scorch in full sunlight. For best results, *A. nervosa* should be planted in rich, well-drained soil; saturation will cause the plant to wilt and the roots to rot. Under good conditions, it will develop a massive root system. A strong trellis system or steel cables should be provided. The major maintenance effort inevitably involves disentwining the vine from places into which it should not be growing.



GENERAL

Origin	: sub-tropical
Vigour	: fast growing
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: -3°C

SHAPE

Type	: climbers
Height	: 3 m-8 m
Spread	: 4 m-10 m
Foliage	: evergreen

FLOWER

Colour	: pink, throat: violet
Size	: 5 cm - 8 cm
Period	: July - August

FRUIT

Fruit size	: 1.5 cm
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Arundo, Giant Cane, ghab

GENERAL

- Origin : Mediterranean
- Vigour : fast growing
- Humidity : semi-arid, very humid
- Propagation : cuttings, division
- Maintenance : high

CONDITIONS

- Urban climate : resistant
- Dessication : vulnerable
- Stagnant water : resistant
- Irrigation : medium
- Salinity/ppm : high (4500 ppm)
- Hardiness : -12°C

SHAPE

- Type : perennial
- Height : 2 m-6 m
- Spread : 2 m-6 m
- Foliage : evergreen, semi-evergreen

FLOWER

- Colour : pastel yellow
- Size : 30 cm - 60 cm
- Period : September - December

FRUIT

- Type of fruit : achene
- Fruit size : 1.8 cm

Giant Cane, or ghab in Arabic, is a perennial grass which grows in both wet soils, primarily along watercourses, and relatively dry locations, where the conditions can be either fresh or moderately saline. Originally from Asia, it has been cultivated for thousands of years in southern Europe, northern Africa and the Middle East. It is often seen in the Arriyadh region growing on the banks of small ponds or where there are culvert outfalls. *A. donax* can reach a height of up to 6 metres. The long, straight leaves are a lush green, and the flowers appear in late summer as feathery plumes, which are of a high aesthetic value in the wind when the sun shines through them from behind. Its rhizomes can spread invasively and create dense mats; the roots reach a depth of 1 metre. A small piece, split off the root mass, will root again further downstream, establishing a new plant. The plant is well adapted to floods and is easily propagated by rhizomes or seeds. The grass stems contain silica making them strong and flexible. They are also hollow and can be used as fishing rods and walking sticks, as well as for flutes. *A. donax* can be planted on the edges of lakes and ponds, watercourses or as a slope stabilizer. It is also used for wind shelter plantations or as a screen. Considerable maintenance measures are required where the plant has grown vigorously and the roots have become invasive; mechanical force is then necessary to reduce the stand.



Milkweed

The Milkweed or Silkweed is a small, bushy, evergreen shrub with woody stalks at the base, growing to a height of 100 cm. It is indigenous to tropical North America and Africa. Silkweed has umbel flowers both red and yellow in colour that bloom almost the whole year round. It requires a moist, fertile and well-drained soil and nutrients. *A. curassavica* prefers a sunny to a partially shady location. It can withstand frost up to -5°C . The Silkweed takes its name from its seeds. When the longish slender pods open, dark brown seeds become visible which have silky hairs upon them. The plant can be propagated by seeds or cuttings of the green branches or root division. The milky fluid produced in the plant's stems can cause irritation, and contact with the eyes should be avoided. This *Asclepias* is very attractive in private gardens or parks in mixed borders, or as a high groundcover, because of its attractive appearance in both flower and seed. It should be planted together with other plants having similar requirements such as regular irrigation, light and nutrients. Lush, tropical planting themes are, therefore, suitable for the use of this plant. Pinching the tops after flowering improves blooming and encourages dense growth from below; otherwise, the plant needs only low maintenance.



GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: high (3500 ppm)
Hardiness	: -6°C

SHAPE

Type	: sub-shrub, shrub
Height	: 1 m
Spread	: 1 m
Foliage	: evergreen

FLOWER

Colour	: white
Period	: May - September

FRUIT

Type of fruit	: star-shaped fruit
Fruit size	: 6 cm - 8 cm

Ornamental Asparagus

GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: normal growth rate
Humidity	: semi-humid, very humid
Propagation	: division
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: high (3500 ppm)
Hardiness	: -3°C

SHAPE

Type	: sub-shrub
Height	: 0.5 m-3 m
Spread	: 0.6 m-2 m
Foliage	: evergreen

FLOWER

Colour	: white, secondary: green
Period	: August - October
Smell	: scented, weak, flower

FRUIT

Type of fruit	: berry
Toxicity	: inedible

A mound of bright-green, ferny leaves make this *Asparagus* a very attractive perennial. Its rapidly growing, prickly stems trail down walls or may cover the ground, including more slow-growing neighbours. Insignificant, fragrant, white flowers are followed by red berries, which contrast well with the shiny, needle-like foliage. They are, however, considered poisonous. Botanical note: the leaves are what are known as 'cladodes' (modified branches), while the true foliage has degenerated to tiny inconspicuous scales. This South African native looks best in semi-shaded, rather protected locations. For a neat appearance, good drainage and soil with added organic matter are essential. It is drought-tolerant, but only for a short time. Fleshy roots allow a quick recovery, when leggy stems are cut back entirely to renew the plant or when the plant has been damaged by frost. Dividing the rootstock is the easiest propagation method or by seed. *A. d.* 'Sprengeri' has landscape value as a groundcover or foreground planting. The trailing stems are often used in floral arrangements, and this asparagus is frequently seen as a long-lasting indoor or pot plant on a patio. Chlorosis may be a problem in alkaline soils, but can be prevented by an application of ammonium sulphate or iron chelate. The low-maintenance measures include fertilising and periodic pruning.



Asphodel, bayraq, busayl, burwaq

The Onion-leaved Asphodel, or burwaq in Arabic, is an annual or biennial herb, native to the Arabian Peninsula, northern Africa and the Mediterranean. The numerous, narrow leaves appear close to the ground, reaching a height of some 15 cm; the flower spike, looking like a candelabrum, grows up to 30 cm. The tiny, single white flowers are star-shaped with a thin, red line in the middle of each petal. They appear in spring. The fruits are egg-shaped capsules and the root system is fibrous. The Asphodel prefers sandy or loamy soil, and grows in wadis, rocky or sandy deserts. Propagation is very successful by seed, and the plant is also self-seeding. It also has uses as medical plant. The crushed leaves can be applied to ulcers or boiled in water and drunk as a diuretic or laxative. *A. fistulosus* is an indigenous desert plant in the Arriyadh region with usefulness for landscape design, and is a good plant for natural planting schemes in rock or steppe gardens as well as for the renaturalisation of hillsides or as a coloniser.

GENERAL

- Origin : sub-Mediterranean, Mediterranean, sub-tropical
- Humidity : very arid, semi-arid
- Propagation : sowing and pricking out
- Maintenance : low

CONDITIONS

- Urban climate : resistant
- Dessication : resistant
- Stagnant water : vulnerable
- Irrigation : low, none
- Salinity/ppm : moderate (3000 ppm)
- Hardiness : -12°C

SHAPE

- Type : biennial, annual
- Height : 0.15 m-0.3 m
- Spread : 0.1 m-0.3 m
- Foliage : evergreen

FLOWER

- Colour : white
- Size : 1.2 cm
- Period : February - February

FRUIT

- Type of fruit : capsule
- Fruit size : 0.4 cm



Shrubby Orache, *raghal*, *qataf*

GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fast growing
Humidity	: very arid, semi-arid
Propagation	: cuttings, sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: none, low
Salinity/ppm	: very high (30000 ppm)
Hardiness	: -3°C

SHAPE

Type	: shrub, sub-shrub
Height	: 0.5 m-3 m
Spread	: 0.8 m-4 m
Foliage	: evergreen

FLOWER

Colour	: pale yellow
Period	: August - September

FRUIT

Type of fruit	: capsule
Fruit size	: 0.5 cm

This is a tall, densely branched shrub, native to the coastal areas of the Mediterranean, which is distinguished by its silvery-white stems and round, oblong to elliptical, large, silvery leaves. Its Arabic name is qataf. Slow-growing on not too fertile, but also very alkaline, sandy or silty soil, it has a very high salinity tolerance. The plant actually draws salt out of the soil. A very wind-hardy plant, it requires full sun and tolerates severe conditions of drought, reportedly surviving several years without rainfall; frost resistance is good. *A. halimus* is often cultivated as forage for sheep and camels. It excretes salt through hairs on its leaves, which have a salty flavour. It is easily propagated by seed, but germination is very sensitive to salinity and, as a pretreatment, the seeds should be washed to remove salts from their surface and then soaked in water. Cuttings of soft wood, or mature wood of the current season's growth, are also possible. Deep-rooting, the plant is suitable for erosion control of slopes and for sand stabilisation. It is also effective as an accent plant, as a contrast with green-leaved shrubs, or for creating a screen. *A. halimus* can also be clipped into topiary forms and makes a good barrier or low-growing hedge. Generally problem-free, little maintenance is required; this shrub is at its best when given the space to grow freely. However, to improve its appearance, for example, by cutting off the dry flowers, the plant can be cut back into old wood, from which it quickly regrows.



Saltbush, *Orache*, *raghal*

There are some ten species of *Atriplex* growing presently in Saudi Arabia: seven are native (*Atriplex coriacea*, *A. dimorphostegia*, *A. farinosa*, *A. glauca*, *A. halimus*, *A. leuoclada* and *A. tatarica*), and three have been introduced and cultivated (*A. canescens*, *A. semibaccata* and *A. suberecta*). *Atriplex* is a halophytic plant which has developed various strategies to adapt to saline environments with excessively high salt content in the soil. Originating in the Mediterranean basin, *A. leuoclada*, known in Arabic as *raghal*, is a low perennial shrub with upright grey stems and triangular leaves and densely clustered, bell-shaped flowers and fruits, which appear on spikes in spring. The shrub grows in many different habitats, but it usually occurs on sabkha, coastal and inland salt marshes with a high accumulation of salts, and occasionally on silty soils. Frost-tolerant with a medium growth rate, the species is polymorphic, meaning that the shape and size of its leaves may vary according to season and habitat. *A. leuoclada* is an important species for agricultural use in arid regions. *Atriplex* species can be planted for soil desalination, and CO₂ sequestration. Studies have shown that *Atriplex* is able to survive sodium chloride salinity up to more than 100% of seawater salinity, indicating that *A. leuoclada* can be grown productively at moderate salinity. It is a useful plant for desert and extensive landscape schemes as a groundcover, occasionally requiring watering and maintenance to improve its appearance.

GENERAL	
Origin	: Mediterranean
Humidity	: extremely arid, very arid, semi-arid
Propagation	: direct sowing
Maintenance	: low
CONDITIONS	
Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: none, low
Salinity/ppm	: very high (30000 ppm)
Hardiness	: -6°C
SHAPE	
Type	: sub-shrub
Height	: 0.5 m
Spread	: 1 m
Foliage	: evergreen
FLOWER	
Colour	: pale green
Period	: April - April
FRUIT	
Type of fruit	: capsule
Fruit size	: 0.6 cm



Neem Tree, *neem*, *shereesh*

GENERAL

Origin	: sub-tropical, tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium, high
Salinity/ppm	: very high (10000 ppm)
Hardiness	: +6°C

SHAPE

Type	: tree
Height	: 15 m-30 m
Spread	: 10 m-20 m
Foliage	: evergreen, semi-evergreen, deciduous

FLOWER

Colour	: white, light yellow
Size	: 30 cm
Period	: March - May
Smell	: pleasantly scented

FRUIT

Type of fruit	: drupe
Fruit size	: 2 cm

The Neem tree belongs to the mahogany family. It originates from Myanmar, but was dispersed to many tropical countries. Usually, it grows to about 15 metres in height and 10 metres diameter. Its bark is deeply fissured and dark grey in colour. Alternate leaves are pinnate, up to 40 cm long and light green; leaflets are ovate with a serrated margin. In mild winters, they may last until spring, but generally this tree sheds its foliage in Arriyadh's climate. *A. indica* struggles somewhat in Arriyadh's extremely dry air and rarely achieves the beauty of Neem trees growing in Jeddah, for example. White or pale-yellow flowers appear in spring and are slightly fragrant. Self-incompatibility hinders isolated trees to grow fruit. They may develop into round drupes that turn yellow or purple when ripe. Fruits are eaten raw or processed. Birds eat them and in this way may disperse the seeds. The tree has achieved an almost pan-tropical distribution owing to its adaptability on the one hand and its various qualities on the other. Mature Neems tolerate some frost and tolerate full sun. Any soil is tolerated, unless it is waterlogged. Neem trees are used to control erosion and to fix dunes. They are easily raised from seeds after the pulp has been washed off. Vegetative propagation is possible, such as by hardwood cuttings. Branches are easily reproduced after hard pruning. The rough wood repels insects, and resists even termites. Neem glue and neem tea are therefore ideal replacements for insecticides. Neem oil is extracted from the kernels.



Bassia, umm haas

This is a native, halophytic species commonly seen on desert ground on saline and non-saline, sandy soils and in desert wadis in the ArArriyadh Region. Its Arabic name is umm haas. An annual herb with brittle branches and flowers on dense spikes in late spring, it becomes almost completely covered by a white, cotton wool-like fleece. Propagated by seed or annual self-seeding and perpetuating in situ, this is a plant for very extensive use in totally natural situations. When covering gravel or sand like a carpet, its woolly appearance makes it an attractive plant with a potentially high landscape value.

GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Humidity	: extremely arid, very arid, semi-arid
Propagation	: direct sowing
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: none
Salinity/ppm	: high (3500 ppm)
Hardiness	: -3°C

SHAPE

Type	: annual, biennial
Height	: 0.15 m
Spread	: 0.25 m
Foliage	: evergreen

FLOWER

Colour	: white
Size	: 0.1 cm - 0.3 cm
Period	: March - June

FRUIT

Type of fruit	: achene
Fruit size	: 0.1 cm



Burning Bush, *Summer Cypress*

GENERAL

Origin	: temperate, Mediterranean, sub-tropical
Vigour	: fast growing
Humidity	: semi-arid, semi-humid
Propagation	: direct sowing, sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: high (3500 ppm)
Hardiness	: 0°C

SHAPE

Type	: annual
Height	: 0.3 m-1.3 m
Spread	: 0.2 m-0.8 m
Foliage	: deciduous

FLOWER

Colour	: green
Size	: 1 cm
Period	: July - September

FRUIT

Type of fruit	: achene
Fruit size	: 0.4 cm

The Summer Cypress is a fast-growing annual with soft foliage that resembles a Cypress tree. During summer, it has a lush impact with its fresh, bright-green leaves, while in autumn the colour becomes a showy reddish-purple. In Arriyadh, both colours are an attractive, seasonal addition to the garden and have some use in public green areas. The leaves, are arranged alternately and are linear in shape. It is more likely that it will establish itself on disturbed sites such as roadsides and ditch banks. The thin but dense foliage, on fleshy twigs, makes the plant vulnerable to heavy rain and wind. Inconspicuous flowers with green, leaf-like bracts occur in spikes during summer. Small, oval fruits contain tiny dark-brown or black seeds. Its attraction is its lush, egg-shaped appearance and the bright colour. The plant may reach a height of 1.3 metres if conditions are favourable. It may be grown as an annual hedge for low screening, or it can even be clipped to any topiary shape. On slopes, it may be planted to control erosion. Any soil is tolerated, but stagnant water kills the plant just as a single, frosty night might also do. Alkaline soils and high salinity are not a problem, but plants look poor in periods of prolonged drought. Seeds germinate within two to three weeks. Seedlings can be grown in pots first, or the seeds may be sown directly on site. Water frequently until established. Maintenance is minimal during growth, but after a short time the plants have to be removed. Summer Cypressess are not poisonous.



Butterfly Tree, *khof al gamal*

The Butterfly Tree, or khof al gamal in Arabic, is native to southeast Asia and thrives well in hot, subtropical and tropical climates. It is one of the most desirable of small trees with a fast growth, reaching a maximum height of 6 to 10 metres, and a similar width. There are many rather isolated occurrences of the tree in Arriyadh, but it will really look its best only in a protected environment with shelter, high relative humidity and frequent irrigation. Foliage remains on the tree in mild winters, to be shed when the extraordinary flowers appear. Cold winters may induce a brief period of dormancy when the twigs become bare. Inflorescences resemble orchids in colours from pink to magenta. They measure some 12 cm across, attract bees and emit a light fragrance. Its fruits are brown pods 30 cm in length, filled with spherical seeds. These easily germinate in sandy soil. The light-green leaves are bi-lobed, like a camel's foot. They sprout soon after flowering begins. Growth habit is an open canopy with arched branches, and Butterfly Trees are often multi-stemmed or grow as a shrub. The plants should not be exposed to wind. Pruning in winter is possible to achieve the desired shape and it is recommended for young plants in particular. Frequent irrigation, sufficient nutrients, good drainage and full sun will ensure a good appearance. It will survive drought, but becomes stunted and will not flower if humidity is too low. Bauhinias are ideal trees in urban areas and pedestrian precincts even in containers.



GENERAL

Origin	: sub-tropical
Vigour	: normal growth rate
Humidity	: semi-arid, very humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high, medium
Salinity/ppm	: moderate (1500 ppm)
Hardiness	: -3°C

SHAPE

Type	: tree, shrub
Height	: 6 m-10 m
Spread	: 6 m-10 m
Foliage	: evergreen

FLOWER

Colour	: purple
Size	: 12 cm
Period	: October - December
Smell	: scented, flower

FRUIT

Type of fruit	: pod
Fruit size	: 25 cm

Eyelash Plant, *shawk al thub*

GENERAL

Origin	: sub-tropical
Vigour	: fast growing
Humidity	: extremely arid, very arid, semi-arid
Propagation	: direct sowing, sowing and pricking out
Maintenance	: moderate

CONDITIONS

Urban climate	: vulnerable
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: none
Salinity/ppm	: moderate (1500 ppm)
Hardiness	: -3°C

SHAPE

Type	: perennial
Height	: 0.15 m-0.3 m
Spread	: 0.1 m-0.2 m
Foliage	: semi-evergreen

FLOWER

Colour	: blue
Size	: 2 cm
Period	: January - April

FRUIT

Type of fruit	: capsule
Fruit size	: 0.7 cm

Blepharis, or Eyelash Plant, is indigenous to Saudi Arabia. The common name is naghi, or shawk al thub. Blepharis is a small, thorny, fast-growing perennial herb. The branches are prostrate to the ground, and the whole plant reaches a maximum height of 30 cm. Each branch is completely covered with thorny, silver-green leaves. The blue flowers appear in spring, developing later into capsule fruits. Seeds are recommended for success in propagation, and these should be harvested in summer and autumn. *B. ciliaris* has a tap root and grows in stony gravel deserts. In Arabia, it is also used as a medical plant. The woody parts of the plant are burned and mixed with antimony to make a black powder, which is applied to the eyes as a cosmetic. This plant has an attractive structure, making it useful for natural planting schemes. It can be used as groundcover or in rock or steppe gardens in extensive landscape schemes. Because it is indigenous, maintenance is very low and only dry parts of the plant need to be removed from time to time.



Red Kapok Tree, *Red Silk Cotton*, *shagarit al harir*

The impressive Silk Cotton trees, or shagarit al harir in Arabic, originate in India, Sri Lanka and Myanmar. In their natural habitat they reach a height of up to 50 metres, but in cultivation they usually grow no higher than 25 metres. Wide-spreading branches emanate from straight trunks. Both are covered by pointed, conical prickles. The deciduous leaves are pinnate, consisting of about seven oval leaflets of 20 cm in length. When they are shed, the showy flowers appear. Red, pink or white petals form a cup with protruding black anthers, and make this tree an eye-catcher in winter. For about four weeks, the 12-cm wide flowers draw attention when most other trees go dormant. A single flower is short-lived, but new buds develop during the flowering period. Trees should not be located where littered fallen flowers will bother pedestrians. Silk Cotton trees tolerate heat, but require good irrigation and deep, fertile soil. They are highly ornamental specimen trees for public parks and have occasionally been planted in parks and large gardens in Arriyadh, where they have grown well under good conditions. *Bombax* received its common name thanks to the silky floss that encloses the numerous seeds embedded in a woody capsule. These fibres, known as kapok, are used to stuff pillows. The calyces may be cooked as a vegetable, and the roots have stimulant effects. The gum may be used as an astringent. Hardwood cuttings and air layering are possible methods of propagation, but are less frequently used than sowing the black seeds.



GENERAL

Origin	: sub-tropical, tropical
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: 0°C

SHAPE

Type	: tree
Height	: 25 m-30 m
Spread	: 20 m-40 m
Foliage	: deciduous

FLOWER

Colour	: orange, red, pink, white
Size	: 12 cm
Period	: January - February

FRUIT

Type of fruit	: capsule
Fruit size	: 12 cm
Toxicity	: edible when processed, fruit

Bougainvillea, Paper Flower, janamiyah

GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: cuttings
Maintenance	: high

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (1000 ppm)
Hardiness	: -3°C

SHAPE

Type	: climbers
Height	: 5 m-12 m
Spread	: 4 m-5 m
Foliage	: semi-evergreen

FLOWER

Colour	: purple, violet, magenta, pink, red, orange, white
Size	: 2 cm - 4 cm
Period	: April - June

FRUIT

Type of fruit	: achene
Fruit size	: 0.4 cm

Bougainvillea, or janamiyah in Arabic, is a woody climber with an armour of strong thorns. It provides vivid splashes of colour in an arid environment and grows well in Arriyadh, although it will tolerate only a few degrees below freezing. On appropriate supports, it may reach a height of 10 metres with relatively fast growth rate. It tolerates full sun, wind if trained well on its support. The plant's vigorous nature necessitates frequent attention and the branches require strong trellises or pergolas. In favourable conditions, the foliage is evergreen, while the tiny flower itself is white and insignificant. Much more spectacular are the clusters of papery bracts that come in shades of violet, magenta, pink, red, orange and white. Good drainage, nutrient-rich soil and frequent irrigation allow it to grow rapidly and produce a multitude of flowers from spring till autumn. During the winter months, the plants survive with little and should not be fertilised, in order to allow the plants to rest. Urban microclimates and drought are also tolerated, but at the cost of appearance. *Bougainvillea glabra* 'Mini Thai' is a dwarf variety with purple bracts. It grows slowly to a hemispherical, compact shrub 1.5 metres high and about 2 metres wide. This plant is best suited to growing in containers. Propagation is easy by means of hardwood cuttings in spring. Offshoots should be covered during rooting to ensure high humidity. Winter pruning of frost-damaged wood should be avoided, because it shelters new growth from surviving wood.



Bougainvillea, Paper Flower, janamiyah

The generic name for Showy Bougainvillea was given in honour of Admiral Comte de Bougainville, who sponsored a journey to Brazil where the plant originates. It is probably the better choice for Arriyadh, because it is hardier than *B. glabra*. This sprawling climber is well protected by strong, curved thorns on hairy, woody stems. Its leaves are smaller than *B. glabra* and shiny on top and soft and hairy underneath. They last during mild winters, but are sometimes shed if conditions are unfavourable. The specific epithet stands for the spectacular colourful clusters of white, pink, red or purple flowers that appear seasonally, especially in spring. Three true, pale-yellow flowers are surrounded by bracts that make the magnificent display. Dormancy factors such as low temperatures or drought seem to trigger flowering. Its vigorous growth up to 20 metres, depending on its support, demands frequent pruning, and branches need to be attached to a wall, pergola, trellis or strong fence. Showy Bougainvilleas may also be hedged. Clipping is possible at any time of the year, but severe cutting should be done after the flowering season in autumn. This species may even be grown as a bonsai or topiary plant. Full sun and nutrient-rich, well-drained garden soil suit it best. In pots or containers, plants should be given a soluble fertiliser weekly, except in winter. On north-facing walls, the lack of light results in few or no flowers. The numerous cultivars are easily propagated by hardwood cuttings placed in indirect sunlight.



GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: cuttings
Maintenance	: high

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (1000 ppm)
Hardiness	: -3°C

SHAPE

Type	: climbers
Height	: 10 m-25 m
Spread	: 4 m-10 m
Foliage	: semi-evergreen

FLOWER

Colour	: red, purple, pink, white
Size	: 2 cm - 4 cm
Period	: April - June

FRUIT

Type of fruit	: achene
Fruit size	: 0.4 cm

Australian Flame Tree, *Flame Kurrajong*

GENERAL

Origin	: sub-Mediterranean, Mediterranean, sub-tropical, tropical
Vigour	: slow-growing
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (2000 ppm)
Hardiness	: -3°C

SHAPE

Type	: tree
Height	: 10 m-12 m
Spread	: 7 m-8 m
Foliage	: semi-evergreen

FLOWER

Colour	: red
Size	: 2 cm - 3 cm
Period	: March - May

FRUIT

Type of fruit	: capsule
Fruit size	: 4 cm

Australian Flame Trees have maple-like, semi-evergreen foliage. Showy red flowers appear in spring when the branches are still bare. Like flames, the flowers attract the eye immediately. They are small but numerous, bell-shaped and grouped on branched, red stalks. They are worth waiting for, since trees do not bloom so spectacularly until they are 20 years old. Both flowering and durability of the leaves can vary from year to year, presumably depending on climatic conditions. The Australian Flame Tree is native to Queensland and New South Wales, where it grows to a height of about 36 metres. In Arriyadh, it usually does not exceed 12 metres high and about 8 metres across, where it requires shelter from hot, desiccating, strong winds. The straight trunk is covered in green bark that turns light grey with age. Young leaves emerge in pink and turn green as they mature. In late summer, boat-shaped fruits ripen and release edible, yellow seeds. Australian Flame Trees thrive in full sun and deep, fertile soil, which should be low in salt. The root zone should be soaked thoroughly every month during the summer. Drainage is important and some humus should be added, if the ground is alkaline. Phosphorus is important and irrigation should be stopped in winter to induce flowering. Popular in parks, it creates pleasant shade for pedestrians. Young plants should be protected from frost. Established trees simply shed their foliage in cold weather without any further damage. A central leader should be encouraged by removing lower branches.



Bottle Tree, *boudret al afreet*

This *Brachychiton* is more drought-resistant than *B. acerifolius*. It tolerates full sun and a hot desert climate, just like in its native country, the semi-arid inland of eastern Australia. Trees are found growing there amongst rocks of granite or limestone, but also thriving in deep soil. Narrow and pyramidal when young, the plant's name refers to the widened base of the trunk which is an adaptation for storing water during prolonged periods without rainfall. On the other hand, it responds well to irrigation by growing faster. It may reach 10 metres easily, while 20 metres are to be expected only in its native environment. Known in Arabic as *boudret al afreet*, it is often seen in Arriyadh, where the shiny, bright-green fluttering leaves provide a lush effect. The green bark is smooth and attractive. They allow distinguishing two subspecies; *Brachychiton populneus* ssp. *populneus* has reduced lateral lobes, while three or five lobes create the palmate leaf of ssp. *trilobus*. Both subspecies have flowers in light yellow with purple centre appearing in spring. Cultivars may also flower in pink or red. Stagnant water is one factor to avoid definitely, hence soil should drain well. This tree blends in well in desert landscapes, creating dense shade. Not many trees do as well in lawn areas as the Bottle Tree. The root zone should be soaked thoroughly every couple of months in summer. It survives in an urban microclimate, but the littering fruit and annoying itchy hairs limit it to area where the dry pods do not affect passers-by.



GENERAL	
Origin	: sub-Mediterranean, Mediterranean, sub-tropical, tropical
Vigour	: fairly fast growing
Humidity	: very arid, semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out
Maintenance	: moderate
CONDITIONS	
Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: high (4500 ppm)
Hardiness	: -6°C
SHAPE	
Type	: tree
Height	: 10 m-20 m
Spread	: 8 m-15 m
Foliage	: evergreen
FLOWER	
Colour	: light yellow, light red
Size	: 1 cm - 2 cm
Period	: April - May
FRUIT	
Type of fruit	: capsule
Fruit size	: 7 cm - 8 cm

Snow Bush

GENERAL

Origin	: tropical
Vigour	: normal growth rate
Humidity	: semi-arid, semi-humid, very humid
Propagation	: cuttings
Maintenance	: high

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1500 ppm)
Hardiness	: +3°C

SHAPE

Type	: shrub
Height	: 1 m-2 m
Spread	: 1.5 m-3 m
Foliage	: evergreen

FLOWER

Colour	: white
Period	: July - September

FRUIT

Type of fruit	: berry
Fruit size	: 1.2 cm

This is a medium-sized, showy, tropical shrub actually originating in the South Pacific, but now gradually being seen in Arriyadh in intensively designed open spaces that are regularly irrigated and thus have the level of moisture that this plant requires. Its basic attraction is the variegated leaves, which at a distance look like flowers, and the white mottled leaves look as if they have been snowed on. *B. disticha* var. 'Roseo-picta' has a mixture of green, white, pink and red leaves on pink and red stems in a zigzagged fashion. The small, greenish, petal-less flowers are inconspicuous. The shrub thrives in partial or light dappled shade. Not frost-hardy, foliage will return after the winter. It is propagated by softwood cuttings in summer or root suckers. Pinching out stem tips when young will promote branching growth. The plants, which spread with their root suckers, can be invasive in a garden. It also drops its seeds frequently, which then germinate quickly underneath the plant. Good for mass planting, as a useful background shrub, or as an accent in a shrub border, it can also be clipped as a hedge or used as an edging plant. The dwarf variegated form is useful as a ground cover and the pink leaves are attractive in containers. *B. disticha* requires high maintenance, and, needs regular fertilising with nitrogen and potassium. Regular trimming promotes compact, new growth, and thus a new display of colour. Shrubs require regular irrigation and consistently moist soil, since otherwise leaf drop may occur.



Yellow Bird-of-Paradise Shrub, *bonsiana gillias*

The Yellow Bird-of-Paradise, known in Arabic as *bonsiana gillias*, is native to South America, but may sometimes naturalise without becoming invasive. It is a popular shrub for the desert landscape, thriving in heat and drought, although its relative, *C. pulcherrima*, is more often seen in Arriyadh, because it is more showy. Light frosts to -6°C , as may occur in Arriyadh, do not have any real impact, since the shrub tends to be leafless in winter and quickly comes back into growth in the spring. It will withstand poor conditions at the cost of its showy flowers; however, it rewards better soil and irrigation with rapid growth to about 2 metres in height and width. In summer, clusters of numerous yellow leguminous pea-flowers feature long protruding red stamens. These are certainly among the most exotic inflorescences produced by shrubs. Open in form, shrubs have slender, irregular branches with finely cut deciduous leaves. The brown pods are spotted and contain poisonous seeds that easily germinate when scarified and germinated. Little pruning is required to keep an attractive shape, but heavy pruning every few years results in rejuvenation. Landscape uses include flowering hedges and massed plantings, or as a showy specimen in parks and pedestrian precincts. During establishment, the soil should be kept moist while established plants will tolerate drought with occasional deep watering in summer. Slow-release fertilisers may be applied in spring. Low maintenance: pruning is necessary only to develop its natural growth habit.



GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: normal growth rate
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: very high (5500 ppm)
Hardiness	: -6°C

SHAPE

Type	: shrub
Height	: 2 m-3 m
Spread	: 1.5 m-3 m
Foliage	: semi-evergreen

FLOWER

Colour	: yellow, purple
Size	: 2.5 cm - 3.5 cm
Period	: June - September

FRUIT

Type of fruit	: pod
Fruit size	: 6 cm - 10 cm
Toxicity	: poisonous

Dwarf Poinciana, *Pride of Barbados*, *hmar*, *zahrat al tawose*

GENERAL

- Origin : sub-tropical, tropical
- Vigour : fairly fast growing
- Humidity : semi-arid, semi-humid, very humid
- Propagation : sowing and pricking out, cuttings
- Maintenance : low

CONDITIONS

- Urban climate : resistant
- Dessication : vulnerable
- Stagnant water : vulnerable
- Irrigation : high
- Salinity/ppm : very high (5500 ppm)
- Hardiness : -6°C

SHAPE

- Type : shrub
- Height : 3 m
- Spread : 3 m
- Foliage : semi-evergreen

FLOWER

- Colour : red, orange, yellow
- Size : 3 cm - 4 cm
- Period : June - September

FRUIT

- Type of fruit : pod
- Fruit size : 10 cm - 12 cm
- Toxicity : poisonous

This Mexican native makes a more lush impact than its yellow relative, *Caesalpinia gilliesii*. Its relation to the flamboyant tree is obvious and indicated by its synonym, *Poinciana pulcherrima*. The shrubs may become tree-like in their native region, but in Arriyadh they remain vase-shaped shrubs to about 2 metres high. Only a few bushes produce such a display of bright-red flowers in the hottest summer. Panicles of exotic inflorescences make the *Pride of Barbados*, or *zahrat al tawose* in Arabic, conspicuous over a long period. Brown, hard pods contain poisonous seeds that easily germinate when scarified. Most result in red, or sometimes in orange flowers. Yellow varieties such as 'Phoenix' also appear occasionally. The foliage is feathery. Protected locations allow leaves to last throughout the winter, but they usually turn red before they fall. This bush is tolerant of various soil conditions and even survives drought, but heavy soils may lead to chlorosis. Frequent irrigation is welcome during the growth season, but supplemental watering in winter should be avoided. Light frosts are tolerated. Unsightly growth may be cut to the ground, when ammonium sulphate is applied in spring to ensure quick recovery. In most cases, hard pruning still allows flowering within the same year, and makes for a more compact shape. The *Pride of Barbados* makes an ideal plant for both gardens and parks with a floral splendour that attracts from near and far. It is striking as a specimen grown in a container next to a seating area.



Aklelmulk, *Marigold*

Marigolds, which have their origin in the Mediterranean, are easy-to-grow hardy annuals, which seed very readily and once grown are even difficult to eradicate, appearing year after year in the same spot. In Arriyadh, they make a popular garden plant, and have often been used for winter colour on roadsides. A bushy plant with bright-green leaves, which are oblong, fleshy and have a spicy fragrance, they grow from 30 to 60 cm high and bear showy, daisy-like flowers up to 7 cm across, usually yellow or orange, often double. Propagated by seed, they are tolerant of poor soil, as long as it is moist but well-drained. Planted in full sun, they need regular watering until established, and are best when given only little water after that. In the summer, they will become scorched by the sun and need renewing for a winter display: it must be said that they are not particularly hardy to frosts. Prone to attacks by aphids, occasional deadheading will improve their appearance in the garden. Apart from their landscape value as a pot plant, in gardens and winter colour in public spaces, they have no great landscape value.



GENERAL

Origin	: Mediterranean
Vigour	: fairly fast growing
Humidity	: very arid, semi-arid, semi-humid, very humid, extremely humid
Propagation	: direct sowing, sowing and pricking out
Maintenance	: high

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (1000 ppm)
Hardiness	: -3°C

SHAPE

Type	: annual
Height	: 0.3 m-0.6 m
Spread	: 0.5 m-1 m
Foliage	: evergreen

FLOWER

Colour	: yellow, orange, brown, red
Size	: 4 cm - 7 cm
Period	: April - November
Smell	: aroma, strong, pleasantly scented, leaf

FRUIT

Type of fruit	: achene
Fruit size	: 2 cm - 5 cm
Toxicity	: edible

Calligonum, abal, arta

GENERAL

- Origin : sub-tropical
- Vigour : fast growing
- Humidity : very arid, semi-arid
- Propagation : direct sowing, sowing and pricking out, cuttings
- Maintenance : low

CONDITIONS

- Urban climate : vulnerable
- Dessication : resistant
- Stagnant water : vulnerable
- Irrigation : none
- Salinity/ppm : very high (5500 ppm)
- Hardiness : -3°C

SHAPE

- Type : shrub
- Height : 2 m-3 m
- Spread : 2 m-5 m
- Foliage : evergreen

FLOWER

- Colour : yellow, white
- Size : 0.8 cm
- Period : February - April
- Smell : sweet

FRUIT

- Type of fruit : nutlet
- Fruit size : 1.3 cm

An almost leafless, evergreen shrub with many stiff, upright branches, this plant is widespread in the desert and arid zones of Saudi Arabia, where it is known in Arabic as abal or arta. It is characteristic of deep sand, has a very long tap root reaching down to the water table and helps to stabilise the surrounding dunes. It is often seen growing in a hummock with the sand collected around it: it also occurs in plains and wadis, and is cultivated around desert plantations as a windbreak. Its abundant, yellowish-white flowers appearing in spring are not only attractive, but also edible and have a sweet scent. Relatively high, its fragile twigs are slender, the leaves tiny and the pretty, red, oval fruit is covered with hairy spines. It is fast-growing on sandy and gravelly soils and rock, and is very hardy with a high salt tolerance. Important for grazing, it is browsed by camels. It features frequently in the folk medicine of the desert owing to its food value, high in sugar and nitrogen. It is used for gastric, ophthalmic and stomach problems, as well as for hair scenting and dyeing; the dried leaves and stems are used to treat toothache. Propagation is by seed or cuttings. The vertical structure of *C. comosum* is extremely interesting for landscape schemes, although with age the plant tends to fall over and become untidy. It is a useful plant for sand dune stabilisation, hedges, massed planting and in the foreline of afforestation. Maintenance is low, and in extensive landscape schemes the plant will look after itself.



Bottle Brush, *furshat az zujaj*

The Bottle Brush, or *furshat az zujaj* in Arabic, is named for its spikes of crimson flowers that appear in spring and summer. Inflorescences with no petals, but instead spikes of bright stamens, radiate from the twig's end, where they attract butterflies. This native of eastern Australia grows as a spreading, evergreen shrub that may be trained into a small tree. Without pruning, it may reach a height of 5 metres and almost the same width. Its lance-shaped stiff foliage grows upward and exudes a scent of citrus when crushed. Young leaves are copper-coloured and turn deep green as they mature. The fruits are pea-sized, woody capsules that release hundreds of tiny seeds. The bark is grey and much-fissured. Full sun, dry air and some drought are tolerated, but the tree is prone to frost. Flowering is far less profuse in shady locations. Alkaline soils and even flooding are tolerated, owing to the plant's origin on riverbanks. High soil salinity results in chlorosis that may be cured by applying iron chelate. Pruning should not be hard, and care should be taken in shaping and trimming. Propagation is easy by seeds or cuttings. Cultivars vary in colour, shape and size: 'Jeffers' grows more compact with magenta flowers, while 'Splendens' is an improved selection with red flowers. Other colours are shown by 'Violaceus', 'Mauve Mist' and 'Perth Pink'. Bottle Brushes do well in containers, as specimens or grouped. They make a good screen and serve well as flowering hedges.



GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: resistant
Irrigation	: medium
Salinity/ppm	: moderate (2500 ppm)
Hardiness	: -3°C

SHAPE

Type	: shrub, tree
Height	: 2 m-5 m
Spread	: 3 m-4 m
Foliage	: evergreen

FLOWER

Colour	: bright red
Size	: 5 cm - 15 cm
Period	: May - September
Smell	: aroma, weak, leaf

FRUIT

Type of fruit	: capsule
Fruit size	: 0.7 cm

Weeping Bottlebrush

GENERAL

Origin	: sub-tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (2500 ppm)
Hardiness	: 0°C

SHAPE

Type	: shrub, tree
Height	: 5 m-10 m
Spread	: 3 m-5 m
Foliage	: evergreen

FLOWER

Colour	: bright red
Size	: 5 cm - 15 cm
Period	: April - September

FRUIT

Type of fruit	: capsule
Fruit size	: 0.6 cm

This shrub from eastern Australia may be trained as a small tree up to 10 metres high, but will require support until the stem is strong enough to bear the crown. Its weeping branches produce bright-red flowers from spring onwards. It makes a terrific silhouette when grown as a multi-trunked, small tree. The evergreen leaves are up to 10 cm long and flushed with bronze when young turning light-green later on. Full sun and fertile, well-drained soil are the main requirements to promote healthy growth. Some drought is tolerated, while wind and overwatering may harm the plant. Frost damage is likely to occur in Arriyadh, so that the planting location should not be exposed. Some cultivars are available, such as 'Captain Cook', which is a dwarf variety. The latter is reproduced by cuttings, while the species may also be propagated by seeds. Its compact size and moderate requirements make the Weeping Bottlebrush an ideal small tree for public parks and private gardens alike. Maintenance is little with occasional trimming to keep an attractive shape. Pruning is best done after flowering, saving the plants' energy by stopping seed production. Standard trees require some thinning to adapt the crown's size to the stability of the trunk. Transplanting should be done in spring and watering must be frequent until the plant is established. A dense screen can be created by close planting of Bottle Brushes. It is useful in a street situation, good on lawns and can be grown in containers.



Felt Plant, *ashar*

The Calotropis or Felt Plant is known in Arabic as *ashar*. It is indigenous in Saudi Arabia, but is also native to southeast Asia and tropical Africa. The shrub can grow to between 3 and 5 metres high, and about the same width. The fact that it is poisonous (eye and skin contact should be avoided) means that it is not often planted ornamentally. However, *C. procera* is an interesting plant and wrongly maligned. With its bold foliage, the leaves are light silver-green on top and velvety underneath; they are large, fleshy and ovate. The flowers are grey on the outside and purple on the inside, in clustered axillary inflorescences. The impressive fruit is a large capsule, which opens to release dark seeds with silky hairs for distribution by the wind. These unusual attributes make the shrub valuable for landscape design. Bark, roots, leaves and flowers have long been used as remedies for numerous illnesses. *C. procera* can be propagated by seed or cuttings. The shrub has a tap root and it grows very well in sandy or silty desert conditions. The Felt Plant can tolerate high salinity and requires no irrigation once established. It is an attractive plant for natural garden themes, in rock or steppe gardens, and as a specimen making a silhouette against a wall or in group planting. It can be used in both open desert and urban areas. *C. procera* plays an important role in improving soil fertility, and also improves the water-retaining capacity of soil. Maintenance measures are necessary from time to time to improve its appearance.



GENERAL

Origin	: tropical
Vigour	: normal growth rate
Humidity	: extremely arid, very arid, semi-arid, semi-humid
Propagation	: direct sowing, sowing and pricking out, cuttings
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: none
Salinity/ppm	: very high (6000 ppm)
Hardiness	: -3°C

SHAPE

Type	: shrub
Height	: 2 m-5 m
Spread	: 2 m-4 m
Foliage	: evergreen

FLOWER

Colour	: pastel white, secondary: pastel violet, pastel purple
Period	: June - October
Smell	: scented, flower

FRUIT

Type of fruit	: capsule
Fruit size	: 7 cm - 10 cm
Toxicity	: poisonous

Canna, *Indian Shot*

GENERAL

Origin	: sub-tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: division, sowing and pricking out
Maintenance	: high

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: resistant
Irrigation	: high
Salinity/ppm	: moderate (3000 ppm)
Hardiness	: 0°C

SHAPE

Type	: perennial
Height	: 1 m-1.5 m
Spread	: 0.5 m-0.8 m
Foliage	: evergreen

FLOWER

Colour	: red, deep orange
Size	: 8 cm - 10 cm
Period	: April - November

FRUIT

Type of fruit	: capsule
Fruit size	: 2 cm

Cannas are beautiful, herbaceous perennials, which provide a colourful display from red to orange and yellow, when their basic needs are met: rich soil with lots of humus and plenty of water. They originate in the humid tropics, where the more than 30 different types of *Canna* are native to Central and South America. New cultivars have been created, particularly those with almost black foliage, or very deep-coloured red flowers and variegated leaves. An outstanding feature is that they bloom almost non-stop throughout the year. The attractive leaves are large, broad, oval, veined and rubbery-textured on glabrous stems; the roots are tuberous rhizomes. Exposure to the sun is essential, although partial shade encourages stronger growth, and a lack of light may reduce flowering. Cannas may be propagated by seed, and the fleshy rhizomes of cultivars with their bright colours require division. All parts of the plant are frost-tender. Alkaline soils with a high pH may cause chlorosis. *C. indica* can be used as a potted plant, or planted in herbaceous borders, on the edge of ponds, and as a patio plant. They should be set about 50 cm apart and mulching the soil helps to keep in moisture. Clumps of Cannas look more natural than massed planting. High winds tear the leaves, and so a protected location is recommended, especially in Arriyadh, where leaf scorch could potentially be a problem. Dead flowers should be cut off to stimulate new flowers. Any ungainly leaves should be removed to the ground to encourage new shoots with lush foliage.



Caper, lasaf, shaflah

Capparis spinosa has the common Arabic names shaflah, lasaf and malat. The shrub grows slowly to a height of 1 metre. It can often be seen in Arriyadh, particularly in cracks on the rocky edges of wadis. The branches with tiny spines in pairs grow from the ground and the 2–4 cm-small leaves are alternate; they have an ovate form and grey-green colour. The flowerbuds can be pickled to make capers, used in cooking. The beautiful flowers have four petals with stamens almost as long as the petals. The shrub is propagated by seed and cuttings. *Capparis decidua* has a number of common Arabic names including kerda and karir. The generic name is derived from the Arabic kapar. It is a slow-growing, small tree or shrub reaching a height of 5 metres and thrives on shallow, hard soils and stony outcrops. The *Capparis* is native to arid zones growing on rocky, clayey and silty soils in Africa, the Middle East and southern Asia. The branches seem to be leafless, because the leaves are only 2 mm in size. The bark turns silver-grey with time, and tiny spines in pairs are distributed over the branches. The flowers are bright red and conspicuous, and appear in small groups in spring and summer. In Africa, the fruits are used for camel fodder, where it is a very popular and useful plant in agroforestry. *C. decidua* grows on alkaline, sandy and gravelly soils. It is well adapted to drought, fire and frost. Both *Capparis* species are valuable for landscape design, afforestation and planting for erosion control. Low maintenance requirement.



GENERAL	
Origin	: Mediterranean, sub-tropical, tropical
Vigour	: slow-growing
Humidity	: very arid, semi-arid, semi-humid
Propagation	: direct sowing, sowing and pricking out
Maintenance	: low
CONDITIONS	
Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: none
Salinity/ppm	: moderate (2000 ppm)
Hardiness	: -3°C
SHAPE	
Type	: shrub
Height	: 0.3 m-1 m
Spread	: 0.6 m-2 m
Foliage	: deciduous
FLOWER	
Colour	: white, purple
Size	: 5 cm - 7 cm
Period	: June - August
FRUIT	
Type of fruit	: berry
Fruit size	: 3 cm - 5 cm
Toxicity	: edible when processed, edible

Melon Tree, *Papaya*, *fifaiy*, *paw-paw*

GENERAL

- Origin : tropical
- Vigour : fast growing
- Humidity : semi-arid, very humid, extremely humid
- Propagation : sowing and pricking out
- Maintenance : moderate

CONDITIONS

- Dessication : vulnerable
- Stagnant water : vulnerable
- Irrigation : medium, high
- Salinity/ppm : moderate (1500 ppm)
- Hardiness : 0°C

SHAPE

- Type : tree
- Height : 3 m-8 m
- Spread : 1.5 m-3 m
- Foliage : evergreen

FLOWER

- Colour : pastel yellow
- Size : 3 cm - 4 cm
- Period : January - December

FRUIT

- Type of fruit : berry
- Fruit size : 20 cm - 30 cm
- Toxicity : produced for food, edible, fruit

Originating in South America, this evergreen tree, bearing the papaya fruit, grows to a height of up to 8 metres and is often seen on farms in and around Arriyadh where other fruit trees are being cultivated. Occasionally, it will be seen in a garden in the city. The large multi-lobed leaves up to 60 cm across are to be found at the top of the non-branched trunk where the delicious fruits grow throughout the year just under the crown of the leaves. Not very long-lived – perhaps up to 15 years – the papaya tree requires full sun, but appreciates light shade in Arriyadh, obtained from nearby palm trees, which also provide the necessary protection against wind. Trees will grow in most soils, but they must be well drained and irrigation should be regular. Propagated by seeds, they suffer from mealybugs and scale insects. *C. papaya* is useful as a specimen tree in a garden, but does not have any real landscape value.



Natal Plum

This spiny shrub is native to South Africa. Its leathery leaves are shiny and oval with acute tips. Many sharp thorns protect the twigs, making planting close to walkways somewhat hazardous. Milky sap is secreted when the branches are injured. Showy, white flowers contrast perfectly with the dark-green foliage. They may reach 5 cm in diameter, are star-shaped, sweetly scented, and grow in clusters in spring and early summer. The fruit is a red, egg-shaped berry up to 5 cm long with a delicious, refreshing taste. The Natal Plum is frost-tender but revels in heat, and grows at a moderate speed to a height and width of 3 metres. In its home country, it may even become a small tree up to 9 metres high. It does well in full sun, but also tolerates some shade at the cost of flowering and fruiting. The glossy leaves resist desiccation from wind. Cultivars grow more compactly and remain shrubs of manageable size. They are ideal bushes for small gardens and are useful as screening hedges, groundcover, grouped planting or in containers. The soil should be well drained and neutral. To encourage establishment by an extended root system, watering must be deep. Both drought and soil with a high salt content are tolerated. General-purpose fertilisers are best applied in early spring after the plants' dormancy. As a hedge plant, it takes shearing in spring after flowering, but recovers slowly from harsh cutting back. Recovering rapidly from frost, damaged branches need to be removed, which may spoil the shrub's appearance.



GENERAL

Origin	: Mediterranean, sub-tropical
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Desiccation	: resistant
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: high (5000 ppm)
Hardiness	: 0°C

SHAPE

Type	: shrub
Height	: 1 m-3 m
Spread	: 1 m-3 m
Foliage	: evergreen

FLOWER

Colour	: white
Size	: 4 cm - 5 cm
Period	: April - July
Smell	: scented, moderate, flower

FRUIT

Type of fruit	: berry
Fruit size	: 2 cm - 5 cm
Toxicity	: edible, fruit

Red Hottentot-Fig, *hay alam*

GENERAL

Origin	: Mediterranean
Vigour	: fast growing
Humidity	: very arid, semi-arid, semi-humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: very high (8000 ppm)
Hardiness	: 0°C

SHAPE

Type	: sub-shrub
Height	: 0.15 m
Spread	: 2 m
Foliage	: evergreen

FLOWER

Colour	: pink, lilac, light yellow
Size	: 10 cm - 15 cm
Period	: March - June

FRUIT

Type of fruit	: capsule
Fruit size	: 2 cm

The Red Hottentot Fig, or hay alam in Arabic, originates in South Africa, but is now naturalised in regions with a Mediterranean climate, where it may become invasive. It withstands coastal conditions such as high winds and salinity. Not always successful in Arriyadh, *C. acinaciformis* suffers frost damage during cold winters and often dieback, requiring replanting from time to time. Shoots form mats of upright, succulent leaves. The foliage is sharply angled. It is fresh green when young, turning dull green later on, and may become red with age. The pink or magenta, daisy-like flowers, 15 cm in diameter, are highly ornamental. The flowering climax is late spring to early summer, but intermediate flowers may appear all year round. A large number of seeds develop in sweet, sticky fruits that ripen from August to September when they turn yellow and emit a sweet scent. Soil should be well drained. Watering should be moderate during warm weather. In winter, irrigation should be just enough to keep the plants from withering. If conditions are suitable, the shoots keep growing without dormancy up to one metre per year. They should be protected against frost, and overwatering may also result in loss of the plant, owing to fungus disease causing stem rot. The Red Hottentot Fig does well in erosion control planting, as a groundcover in rock gardens and in all areas with low maintenance, although bare patches require replanting with cuttings. Roots may be aggressive, competing for water with shrubs and trees in the same area.



Yellow Hottentot Fig, *hay alam*

The Hottentot Fig, or hay alam in Arabic, grows wild in South Africa. It is a coarse-textured, vigorously spreading groundcover with bold, succulent leaves. They are triangular in section, curved and up to 12 cm long. Creamy or yellow flowers appear in spring and may be seen until summer. *Carpobrotus edulis* var. *rubescens* has pink flowers that resemble those of the Red Hottentot Fig. The edible fruits are not at all as tasty as true figs (*Ficus carica*). Hottentot Figs expand quickly when the woody branches root wherever they touch ground. It fits in well in rock gardens, but may also be used as a ground cover next to a pool or along roads. Soils should be sandy with good drainage. Full sun is essential for healthy plants and profuse flowering. Supplemental watering is needed in summer, while heat and low temperatures are tolerated. The plants sometimes become bare when old, and must be discarded to prevent an unsightly appearance. Alternatively, cuttings may be placed wherever bare spots show up. In order to quickly cover a new area, the plants should be spaced about 40 cm apart. The fleshy foliage should never be stepped on. Cutting it back entirely usually results in the loss of the plant. In spring, seeds may be sown in warm, moist conditions. Much faster is propagation by stem cuttings that should be allowed to dry before placing them in compost. The latter method is most successful in late summer. Invasions are to be expected on disturbed sites only. Suffers from fungus disease if overwatered.



GENERAL

Origin	: Mediterranean
Vigour	: fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: very high (8000 ppm)
Hardiness	: 0°C

SHAPE

Type	: cacti, succulents
Height	: 0.15 m-0.2 m
Spread	: 2 m-4 m
Foliage	: evergreen

FLOWER

Colour	: yellow, pink, light yellow
Period	: March - June

FRUIT

Type of fruit	: capsule
Fruit size	: 2 cm
Toxicity	: edible when processed, fruit

Crown-of-Gold Tree, *Golden Shower*, *khiyar shambar*

GENERAL

- Origin : tropical
- Vigour : fast growing
- Humidity : semi-arid, semi-humid, very humid
- Propagation : sowing and pricking out, cuttings
- Maintenance : moderate

CONDITIONS

- Urban climate : resistant
- Dessication : vulnerable
- Stagnant water : vulnerable
- Irrigation : medium, high
- Salinity/ppm : moderate (1500 ppm)
- Hardiness : -3°C

SHAPE

- Type : tree
- Height : 10 m-20 m
- Spread : 8 m-12 m
- Foliage : semi-evergreen

FLOWER

- Colour : bright yellow
- Size : 20 cm - 30 cm
- Period : March - April
- Smell : scented, flower

FRUIT

- Type of fruit : pod
- Fruit size : 40 cm - 50 cm
- Toxicity : poisonous

This native from southern Asia retains some leaves during mild winters to shed these just before flowering. The Golden Shower Tree, known in Arabic as khiyar shambar, deserves its name for a spectacular floral display in spring before new leaves emerge. Some pendant, yellow flowers still show up during summer. They are lightly fragrant. The tree grows slowly to form a wide canopy in time, reaching up to 10 metres in height and even 20 metres in its native environment. Often planted in Arriyadh, it does not always grow well owing the lack of humidity and to its susceptibility to chlorosis and frost damage. Its bark is pale grey and smooth when young, becoming dark brown and rough with age. The bright-green leaves are pinnate with pairs of ovate leaflets. Bright yellow flowers are borne on drooping racemes that may reach 60 cm in length. Single flowers are about 6 cm in diameter. They are followed by indehiscent pods that contain up to 100 poisonous seeds. It takes them about a year to ripen. When spent flowers are discarded, a second flowering may take place in autumn. The Golden Shower Tree grows in full sun but tolerates some shade, a little salinity and alkaline soil. Well-drained soil is essential and some drought is tolerated. Seeds should be scarified before sowing. In Arriyadh, its landscape value includes specimen trees in private gardens and parks. Falling seedpods may cause a litter problem. For frequent heavy flowering, terminal branches on young trees should be pruned to a side bud at the end of the flowering season.



Dog Senna, *Makkah Senna*, *ishriq*

This undershrub, native to the Arabian Peninsula, has soft branches from a woody base. It is fairly common in the desert, growing on rocky or gravelly sites, and its local name is *ishriq*; it is also referred to as *Makkah Senna* in English. The leaflets in pairs are obovate to oblong and blue-green in colour. Its flowers are up to 2 cm in size with yellow petals striped with violet veins. The plant flowers throughout the year, especially in summer. The seedpods are long, papery, slightly curved and conspicuous on the plant. *Ishriq* is well known for its medicinal properties, and is used as a purgative and a stimulant. It is often afflicted by aphids, and the honeydew which they secrete attracts ants. It will adapt to many sites, and in hot summers its green foliage is very noticeable in a desert landscape. *C. italica* can be recommended for use in landscape design in open situations as a coloniser or slope stabiliser, and for environmental consolidation. It will be valuable for the rehabilitation of natural plant cover. In inner-city locations with only minimal irrigation, its foliage will make an impact by staying green throughout the year. Some tidying will be necessary. It can be considered for natural themes or in situations where other plants are struggling because of harsh site conditions such as roadside greening.



GENERAL

Origin	: sub-tropical
Vigour	: fast growing
Humidity	: very arid, semi-arid
Propagation	: direct sowing, sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: none
Salinity/ppm	: moderate (1500 ppm)
Hardiness	: -6°C

SHAPE

Type	: sub-shrub
Height	: 0.5 m-0.6 m
Spread	: 3 m-6 m
Foliage	: semi-evergreen

FLOWER

Colour	: yellow
Size	: 2 cm
Period	: June - July

FRUIT

Type of fruit	: pod
Fruit size	: 6 cm

Apple Blossom Shower, *khiyar baladi*

GENERAL

Origin	: tropical
Vigour	: fairly fast growing
Humidity	: semi-humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: -3°C

SHAPE

Type	: tree, shrub
Height	: 15 m
Spread	: 15 m
Foliage	: deciduous

FLOWER

Colour	: pink, dark red, dark pink
Size	: 3 cm
Period	: March - April

FRUIT

Type of fruit	: pod
Fruit size	: 60 cm

The Apple Blossom Shower, or khiyar baladi in Arabic, is a deciduous, flat-topped tree with pinnate leaves. It grows comparatively quickly to 15 metres or more, and has a canopy of a similar size. The branches droop gracefully and may even sweep the ground. Oblong leaflets are some 5 cm long and arranged even-pinnate on midribs of up to 70 cm in length. It is not easy to trace back the natural area of distribution, because this tree has long been planted for ornamental purposes. Java and Sumatra would appear to be their native islands. Not often seen in Arriyadh, where frosts may lead to severe damage, their natural habitat ranges from evergreen or deciduous forests to savannah-like habitats. For a period of about six weeks, showy pink, slightly fragrant flowers appear on racemes in spring while the twigs are still bare. Numerous flat seeds mature in pods that may reach 60 cm in length. This tree may naturalise where its requirements are met. Propagation is common by scarified seeds. They may also be used for medicinal purposes as a laxative, but can also cause emesis. Its reddish wood may serve for construction purposes. A number of subspecies are cultivated in tropical climates. *Cassia javanica* ssp. *agnes* is a highly ornamental subspecies with larger flowers. It is suitable for urban areas and may grow along roads as long as the pods do not litter trafficked areas. Wind exposure may damage the brittle branches. Chlorosis often occurs as a result of iron deficiency. Pruning is best done at the end of spring, after flowering.



Australian Pine, Beefwood, Horsetail Tree, She-Oak

The Horsetail Tree grows fast to about 15 metres high and 4 metres wide. In its homelands, mature trees reach up to 60 metres. It is native to northern Australia, Indonesia, Malaysia, the Philippines and New Zealand. Often seen in Arriyadh on farms, where it is planted as a windbreak, it may be damaged by heavy frosts. Some people confuse the tree with Tamarix or athl.. In maturity, the crown becomes flat, but mostly the trees retain their conical shape. The tree's evergreen foliage consists of pale-green needles, although it is not a conifer. The lower part of the straight trunk is mostly branchless. The light-grey bark is smooth at first, but becomes rough over time. Male and female inflorescences are usually borne on the same plant, but are inconspicuous. Pollination is by wind. Winged nuts are released gradually when ripe and are also the common method of propagation. Alternatively, cuttings are also used to propagate this tree. *C. equisetifolia* is tolerant of many soil types and both a high water table and several months of drought. Highly salt-tolerant, it thrives in sand. It enhances soil fertility over time by increasing nitrogen and humus. Its landscape values are stabilisation of slopes or banks, screens and windbreaks. For more elegant landscapes, regular pruning is required to improve appearance. Pruning should also be done frequently to remove old and dead branches. Severe cutting back is not tolerated. Leaf litter may be a problem, and aggressive roots may restrict the growth of nearby plants.



GENERAL	
Origin	: Mediterranean, sub-tropical, tropical
Vigour	: fairly fast growing
Humidity	: very arid, semi-arid, very humid, extremely humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate
CONDITIONS	
Urban climate	: resistant
Dessication	: resistant
Stagnant water	: resistant
Irrigation	: low
Salinity/ppm	: very high (20000 ppm)
Hardiness	: -3°C
SHAPE	
Type	: tree
Height	: 10 m-30 m
Spread	: 4 m-8 m
Foliage	: evergreen
FLOWER	
Colour	: light green
Size	: 1.2 cm
Period	: April - May
FRUIT	
Type of fruit	: cones, nutlet
Fruit size	: 1.2 cm - 1.5 cm

Madagascar Periwinkle, *ain al bazzun*

GENERAL

Origin	: sub-tropical, tropical
Vigour	: fast growing
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out, cuttings, division
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: moderate (2500 ppm)
Hardiness	: 0°C

SHAPE

Type	: perennial, sub-shrub
Height	: 0.15 m-0.2 m
Spread	: 0.15 m-0.2 m
Foliage	: deciduous

FLOWER

Colour	: pink, white, purple
Size	: 2.5 cm - 3.5 cm
Period	: January - December

FRUIT

Type of fruit	: capsule
Fruit size	: 3 cm
Toxicity	: highly poisonous

Originating in Brazil and southeast Asia, the Madagascar Periwinkle, previously known under the genera of *Lochnera* and *Vinca*, this small, erect, bushy perennial shrub has been a reliable plant, seen in Arriyadh for many years. Available in a variety of colours from dark pink, to pink, white or white with a red eye, the showy flowers are large, flat and star-shaped. The leaves are oblong, deep glossy green with a centre vein, but the flowers are sometimes so numerous they almost seem to cover them. Quite frost-tolerant, it is said that the pink-flowering form is hardier, and self-sown plants revert to the pink anyway. Flowering throughout the year, they thrive in full sun, have a medium tolerance to salinity and are also fairly drought-tolerant. The plant is poisonous. Propagated by seed and cuttings, plants tend to become straggly and can be pruned back to the lowest leaf for rejuvenation. However, replanting every few years is recommended, since the flowering is best on younger plants. Prone to attack by white fly and other aphids, it also tends to become chlorotic. For a time, it seemed to be Arriyadh's only flowering groundcover, since it was so common everywhere. *C. roseus* is, nevertheless a good groundcover, when planted appropriately – the white form with the red eye can look very attractive in a 'white garden' in twilight – without the need for massive numbers. It is also useful as a pot plant.



Plume Flower, *Cockscomb*

Originating in southeast Asia, the Cockscomb is a brightly flowering annual with an erect, bushy habit. Often seen in Arriyadh's gardens, as a pot plant and also planted for winter colour, the loose, feathery, plume-shaped flowers have a wide range of colours, including magenta, yellow and orange. The fresh green, pointed leaves are often bronze-hued. The plant will grow to a height of 1 metre. Propagated by seeds, preferably in the flowering site since they resent disturbance, they like rich well-draining soils in full sun and thrive on sandy soils. Regular irrigation is required and the plants are not very frost-tolerant. Like all annuals planted for winter colour in Arriyadh in October/November, their life is shortened even more by the onset of hot weather in the spring, and plants soon become straggly. Relatively pest-free but maintenance-intensive, the dying flowers should be removed regularly to keep plants looking good, and eventually they will have to be removed. Apart from its use as a colourful ground cover or as a pot plant, *C. argentea* has no great landscape value.

GENERAL

Origin	: tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid
Propagation	: direct sowing, cuttings
Maintenance	: high

CONDITIONS

Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (700 ppm)
Hardiness	: +3°C

SHAPE

Type	: annual
Height	: 0.2 m-1 m
Spread	: 0.3 m-1 m
Foliage	: evergreen

FLOWER

Colour	: red, orange, yellow, magenta
Size	: 2 cm
Period	: January - March

FRUIT

Type of fruit	: capsule
Fruit size	: 0.2 cm



Dubrovnik Cornflower, *Dusty Miller*

GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Humidity	: semi-arid, semi-humid
Propagation	: direct sowing, sowing and pricking out, cuttings, division
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: low (1000 ppm)
Hardiness	: -9°C

SHAPE

Type	: perennial, sub-shrub
Height	: 0.3 m-0.4 m
Spread	: 0.3 m-0.6 m
Foliage	: evergreen

FLOWER

Colour	: yellow
Size	: 1.5 cm
Period	: April - May

FRUIT

Type of fruit	: achene
Fruit size	: 1 cm

This is a relatively short-lived perennial, with rosettes of striking, silvery-grey, lobed leaves. It is known commonly as Dusty Miller and has its origin in the Mediterranean and Croatia. It is to be found in Arriyadh in gardens and sometimes parks, where it has adapted well to the desert climate. The plant grows to a height of about 30 cm and produces side-shoots to about the same diameter. The fat, thistle-like, bright-yellow flowers show off well against the grey foliage. Plants thrive and grow fast, at first making compact mounds in dry or minimally irrigated even poor, stony, well-drained soils. Propagation is by seed or cuttings taken by pulling a 'heel' from the parent plant. Cuttings root relatively easily and it is therefore possible to replace the parent plant quickly when it has become worn out. Plants can also be lifted and divided in winter. They are generally frost-tolerant and pest-free. With its silvery foliage, *C. ragusina* is a useful plant for creating colour contrasts in the garden; it also blends well with desert plants in an arid situation, where such plants often also have grey foliage. Relatively maintenance-intensive, although it can be left to run wild, it does not have any particular landscape value for large-scale schemes.



Carob Tree, *St. John's Bread, carob, qarmatt*

This evergreen tree, known in Arabic as carob and English as St. John's Bread, used to be native to the Arabian Peninsula as a wild variety. The Egyptians cultivated it 4,000 years ago. Nowadays, it can be found in the Mediterranean and in southern Europe. It is, however, only seldom seen in the Arriyadh region, sometimes on farms or in sheltered private gardens, and is probably more suitable for a coastal setting. Carob is a tall shrub or tree which grows up to 10 metres high with an equal spread, and has a dense crown. It is slow-growing and often multi-stemmed. There are both male and female trees (the pods appear on the latter). The dark-green leaves are pinnate with up to ten glossy oval leaflets. The flowers appear in small clusters in late summer on pale-yellow racemes directly on the stem and branches. The fruit is more imposing, and gives the tree its name. Huge, green and later dark-brown elongated pods hang all over the tree. *C. siliqua* grows on sandy, limey soil with good drainage and is highly salt-tolerant. It does require some humidity, but once established it is relatively drought-tolerant, because of its deep tap roots. It is sensitive to frost. In ancient times, people in the Middle East used to weigh gold and gems against the seeds of the carob tree, which was known in Greece as keration. *C. siliqua* is propagated by seed and cuttings. *Ceratonia* is a beautiful specimen shade tree for parks and private gardens. The root zone should be thoroughly soaked once per month. All parts of the tree create litter.



GENERAL

Origin	: Mediterranean
Vigour	: normal growth rate
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out, aerial layering
Maintenance	: moderate

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: -3°C

SHAPE

Type	: tree, shrub
Height	: 4 m-10 m
Spread	: 5 m-10 m
Foliage	: evergreen

FLOWER

Colour	: pale yellow, pastel red
Size	: 10 cm
Period	: August - October
Smell	: scented, malodorous, gives freely of its scent, flower, sweet

FRUIT

Type of fruit	: pod
Fruit size	: 10 cm - 30 cm
Toxicity	: edible when processed, fruit

Blue Palo Verde

GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: fairly fast growing
Humidity	: extremely arid, very arid, semi-arid, semi-humid
Propagation	: sowing and pricking out
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: -9°C

SHAPE

Type	: tree, shrub
Height	: 5 m-9 m
Spread	: 5 m-9 m
Foliage	: deciduous

FLOWER

Colour	: bright yellow
Size	: 1 cm - 2 cm
Period	: March - April

FRUIT

Type of fruit	: pod
Fruit size	: 9 cm - 8 cm

Native to the Sonoran and Mojave deserts of Arizona and California, *Cercidium* species are not only some of the most drought-tolerant of trees, but are also outstanding flowerers, deserving to be used much more prominently in Arriyadh. Not often planted in Saudi Arabia, *C. floridum* is nearly always mistaken for the very common *Parkinsonia aculeata* (Jerusalem Thorn), which in many ways is quite similar. However, with careful observation, it is noticeable that the smooth, bright-green bark of *Cercidium* is different to that of *Parkinsonia*. *C. floridum* is to be found in the central median of the King Khalid International Airport highway. This slow-growing tree reaches a height of 9 metres with equal spread, and is deciduous in dry and cold spells. When it loses its fine-textured foliage, the dense, green and spiny twigs give it the appearance of an evergreen. Fragrant masses of bright-yellow, pea-shaped flowers are a wonderful sight covering the whole tree in spring. They are followed by pods. The blue palo verde withstands great heat and intense sun; drought-tolerant once established, deep watering on a regular basis during the growing season encourages faster growth and spectacular flower displays. It tolerates alkaline soils and is moderately frost-tolerant. It is propagated by seed, which germinates readily once the hard seed coat is scarified. Blue Palo verde is a beautiful, small shade tree providing stunning spring colour. It is useful for road and footpath planting, and as an accent in gardens, courtyards and parks.



Red Cestrum

This Mexican native shrub has arching branches reaching almost 3 metres in height. Red Cestrum develops large numbers of tubular, bright-red flowers in dense clusters on the twigs' ends that attract butterflies. The pretty display lasts from spring to early autumn. Pollinated flowers develop violet-coloured berries that attract birds. The evergreen leaves are lance-shaped and hirsute. High temperatures are no problem as long as soil moisture is plentiful. Alkaline soil may result in chlorotic foliage. Yellow leaves may also be caused by full sun in unfavourable conditions. The ground should be fertile and well drained. Light pruning can be done at any time of the year. Low temperatures are tolerated down to -9°C , but prolonged periods of frost may harm the leaves. They quickly recover in spring, since the shrub responds well to feeding. Pruning should be performed during dormancy, but the shrub tolerates clipping at any time to keep a neat shape. For this purpose, pinching out the tips of young branches is appropriate. *C. elegans* should not be exposed to drying winds, which may cause necrotic leaf-margins. Regular irrigation in summer is vital, but should be reduced in winter. Red Cestrum makes an accent bush in mixed borders both in private and public gardens. It grows well in containers when drainage, feeding and irrigation are well maintained. Flowering branches last quite long as cut flowers. Propagation is generally performed by softwood cuttings that need some shelter to retain moisture.



GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Vigour	: fast growing
Humidity	: semi-arid, semi-humid
Propagation	: cuttings
Maintenance	: moderate

CONDITIONS

Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: -9°C

SHAPE

Type	: shrub
Height	: 1 m-3 m
Spread	: 1.5 m-4 m
Foliage	: evergreen

FLOWER

Colour	: bright red
Size	: 6 cm - 10 cm
Period	: May - September

FRUIT

Type of fruit	: berry
Fruit size	: 1 cm - 1.5 cm

Night Jessamine, *Queen of the Night*, *malikat al lail*

GENERAL

- Origin : Mediterranean, sub-tropical, tropical
- Vigour : fast growing
- Humidity : semi-arid, semi-humid
- Propagation : sowing and pricking out, cuttings
- Maintenance : moderate

CONDITIONS

- Urban climate : resistant
- Dessication : vulnerable
- Stagnant water : vulnerable
- Irrigation : medium
- Salinity/ppm : moderate (2000 ppm)
- Hardiness : -9°C

SHAPE

- Type : shrub
- Height : 1.5 m-4 m
- Spread : 2 m-5 m
- Foliage : evergreen

FLOWER

- Colour : pastel white, pale yellow
- Size : 2.5 cm
- Period : June - October
- Smell : scented, strong, gives freely of its scent, flower, sweet

FRUIT

- Type of fruit : berry
- Fruit size : 1 cm

This medium-sized shrub is native to the West Indies and tropical America, and grows to about 3 metres high into a round shape. Night Jessamine, or malikat al lail in Arabic, is often planted in Arriyadh's gardens and has a very pronounced sweet, heavy fragrance after sunset which attracts moths. Shrubs may be cut back hard after flowering. Shearing is possible to create hedges or any form desired. Evergreen, oval-shaped, waxy leaves are up to 20 cm long and 4 cm wide, and are sensitive to frost. Clusters of pale-cream, tubular flowers are borne from spring until October. Their appearance is inconspicuous, but they are famous for their sweet scent. Opening in the evening, the released fragrance may even be too strong for a permanent position next to seating areas. Pollinated flowers develop into whitish berries. The poisonous seeds cause vomiting and feverish symptoms, and the sap may also irritate the skin. The shrubs withstand some drought, alkaline soil and even salinity, but reduce flowering under such conditions. Heat and sun are tolerated and frequent irrigation is welcome in well-drained soil. They respond well to fertilising. Container plants do best with weekly liquid applications, while in open ground complete fertilisers should be given in early spring and again in summer. Scale and mites can occasionally infect the shrubs. Night Jessamine does well in containers, mixed borders or as poolside plants. Propagation via heel cuttings and seeds is simple and self-sowing may result in naturalisation in humid climates.



Willow Jessamine

This Chilean native shrub grows quickly up to 3 metres high with an equivalent width in a somewhat straggly shape. The Willow Jessamine has yellow, fragrant flowers at night from summer through to autumn. They emerge in loose clusters with a tubular shape, about 2 cm in length, and mainly appear at the tips of the upright branches. Slender twigs are lined alternately with deciduous linear leaves that resemble the foliage of willows. They are shiny on top, up to 12 cm long, and release an unpleasant smell when crushed. In Arriyadh, where it is occasionally found in protected gardens, frost may damage the leaves and even kill the branches, but the shrubs readily recover and even flower the same year. Pollinated by moths or butterflies, they develop into small dark-brown, egg-shaped berries. These fruits attract birds which distribute the seeds. The plants may become a nuisance when they invade favourable sites, and their toxic seeds may endanger livestock such as cattle and poultry. *C. parqui* tolerates some shade, but does best in partial sun with fertile soil. Irrigation in summer is necessary, while it withstands some drought in winter after the leaves are shed. In early spring, it may be cut to the ground to renew growth which should be aided by an application of general-purpose fertiliser. Pinching out is recommended at any time of the year to keep a compact shape. This shrub looks good in groups and may enhance pedestrian precincts with its fragrance.



GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Vigour	: fast growing
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: -6°C

SHAPE

Type	: shrub
Height	: 2 m-3 m
Spread	: 2 m-3 m
Foliage	: deciduous

FLOWER

Colour	: pale green
Size	: 10 cm - 25 cm
Period	: June - October
Smell	: scented, strong, gives freely of its scent, flower, sweet

FRUIT

Type of fruit	: berry
Fruit size	: 0.8 cm - 1 cm

Dwarf Fan Palm

GENERAL

Origin	: sub-Mediterranean, Mediterranean
Vigour	: normal growth rate
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: -12°C

SHAPE

Type	: shrub
Height	: 1 m-4 m
Spread	: 1 m-3 m
Foliage	: evergreen

FLOWER

Colour	: yellow
Size	: 15 cm - 35 cm
Period	: June - July

FRUIT

Type of fruit	: drupe(fleshy/ juicy)
Fruit size	: 1.2 cm - 3 cm
Toxicity	: inedible, fruit

The Dwarf Fan Palm is native to the Mediterranean area and is one of the few palms to grow naturally in Europe. These small palms are often seen in Arriyadh, where they withstand occasional cold snaps with frost well. In the wild, they usually have a single trunk some 4 metres high, while cultivated ones are mostly multi-stemmed. Unless trimmed, the trunk is covered by remnants of old fronds. The fans are triangular spades 60 cm across and sharp thorns align the margins of the petiole that measures more than 1 metre in length. Yellow inflorescences appear in early summer at the base of the crown. Male and female flowers usually grow on different plants. In autumn, tiny, inedible dates develop to 1 cm in diameter with yellow, orange or brown rind. Dwarf Fan Palms are very tough and tolerate full sun, wind and some salinity. Drought is tolerated by an established specimen, but stagnant water may kill it. Rich, well-drained soil and deep, regular irrigation are preferred. *C. humilis* can be planted very decoratively in Arriyadh. They make striking accent plants in rock gardens and containers, and look good in groups on slopes where they do not have to compete with larger shrubs or trees. In former times, the fibres were used for making mats, ropes and brooms. Nowadays, the leaves may be fabricated as a substitute for linen or as 'vegetable horsehair'. Propagation by seed is most common, but offshoots can be detached from a clump. Maintenance is low: removal of dead fronds and unwanted shoots is occasionally necessary.



Desert Catalpa, *Desert Willow*

The desert willow, native to the U.S. Southwest and Mexico, is a graceful, deciduous, small tree growing up to 9 metres high with a similar spread. Its habitat is drainage channels, foothills and desert grassland at heights over 500 metres above sea level. Accordingly, it has good potential for planting in the Arriyadh region. With moderate to fast growth, the tree has slender branches and bright-green leaves 10 to 30 cm long. It bears terminal clusters of fragrant, funnel-shaped flowers in shades of pink and lavender from spring to summer. Relatively frost-hardy, the Desert Willow requires full sun and is very drought-tolerant: to improve its appearance and development, and also to prolong flowering, it should be deep watered once a month in summer. *C. linearis* will grow in most soils with good drainage. Propagation is by seed, cuttings, layering and grafting. This is a low-maintenance tree, requiring occasional pruning for shaping. Seed and leaf litter may be a problem, and, because it seeds easily, it may become invasive. This willowy tree with an interesting trunk makes an effective accent or specimen or a loose background plant. It is very attractive when planted in groups, and makes a pleasing textural contrast with other desert vegetation.



GENERAL

Origin	: sub-tropical
Vigour	: fast growing
Humidity	: very arid, semi-arid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: low
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: -15°C

SHAPE

Type	: tree, shrub
Height	: 5 m-9 m
Spread	: 4 m-9 m
Foliage	: deciduous

FLOWER

Colour	: white, pink, purple
Size	: 3 cm
Period	: March - July
Smell	: scented, flower

FRUIT

Type of fruit	: capsule
Fruit size	: 10 cm - 30 cm
Toxicity	: inedible

Floss-Silk Tree

GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out
Maintenance	: moderate

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (2500 ppm)
Hardiness	: -6°C

SHAPE

Type	: tree
Height	: 6 m-18 m
Spread	: 8 m-15 m
Foliage	: deciduous

FLOWER

Colour	: white, pink, magenta, purple, violet
Size	: 10 cm - 16 cm
Period	: October - December

FRUIT

Type of fruit	: capsule
Fruit size	: 20 cm
Toxicity	: inedible, fruit

Floss-Silk Trees are large, winter-deciduous trees, native to subtropical South America, and tolerate some frost to about -7°C , when mature. Young trees are more sensitive to cold. They grow to about 18 metres high and about 9 metres wide with horizontal but gnarled branches that shed the palmate foliage in autumn. They are composed of five to seven oval leaflets. After the leaves have fallen, showy pink flowers with curved petals are borne with up to 16 cm in diameter. They are pollinated by butterflies and develop fruits that are reminiscent of small, brown avocados with woody rind. These split open when ripe to release black seeds that are muffled by white, cottony fibres. Like those of Silk Cotton Trees (*Bombax ceiba*), they are used for stuffing pillows. An edible oil may be obtained from the bean-sized seeds. The dull-green trunk is covered with grey, conical spines, giving it a decorative feature. It becomes bulky with age in its lower third, and eventually achieves the shape of a bottle. The green bark performs photosynthesis before it turns light grey when old. Established trees do well in full sun and require occasional soaking in summer. Good drainage is important and the soil should be fertile. *C. speciosa* is a magnificent specimen tree for parks and courtyards, where it may be protected from frosts. Its interesting trunk should be admired from close by, and not hidden by shrubs. Maintenance is minimal with occasional pruning every few years. Floss-Silk Trees are best propagated by seeds.



Fiddlewood

Citharexylum spinosum syn. *quadrangulare* is an evergreen, medium-sized tree, which grows to a height of 15 metres and is beautiful because of its long tassels of richly scented, white flowers. It has, no spines, but smooth, quadrangular twigs. The bark is light brown, and becomes fissured with maturity. Its common name is Fiddlewood and it is a native of the West Indies, where it generally grows in wet habitats below 500 metres elevation in agricultural, coastland and urban areas. Leaves are ovate and have orange petioles. They turn an orange-brown colour during the dry season, and without regular irrigation the tree can be deciduous. Flowers borne in racemes cover the tree from spring to autumn. The fruits are red to black drupes. Hardy to -6°C , *C. spinosum* requires full sun to partial shade and grows in most soils, preferring neutral to mildly alkaline, well-drained soils. Fiddlewood trees should not be overwatered. Propagation is best from woody stem cuttings or seeds. Easy to grow, and with its dark-green, shiny and ornamental foliage, it makes a good tree for landscape use. It does, however, have major disadvantages in that all parts of the plant are poisonous and it may become an invasive, noxious weed. *C. spinosum* is a tree that is now being planted in Arriyadh for its aesthetic appeal. Its roots are very aggressive. Regular pruning is necessary to shape trees. If removal of the tree is desired, it is necessary that the whole root mass also be removed, since *C. spinosum* will grow back quickly from a cut down trunk.



GENERAL

Origin	: sub-tropical, tropical
Humidity	: semi-humid, very humid, extremely humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: high

CONDITIONS

Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (2000 ppm)
Hardiness	: -6°C

SHAPE

Type	: tree
Height	: 15 m
Spread	: 12 m
Foliage	: semi-evergreen, evergreen

FLOWER

Colour	: white
Size	: 40 cm
Period	: April - September
Smell	: scented

FRUIT

Type of fruit	: drupe(fleshy/ juicy)
Fruit size	: 1 cm
Toxicity	: poisonous

Bitter Apple, *hanzal*, *bateekh*

GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Vigour	: fast growing
Humidity	: very arid, semi-arid, semi-humid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: none
Salinity/ppm	: low (1000 ppm)
Hardiness	: 0°C

SHAPE

Type	: perennial
Height	: 0.3 m
Spread	: 3 m
Foliage	: deciduous

FLOWER

Colour	: yellow
Size	: 2.5 cm
Period	: March - July

FRUIT

Type of fruit	: berry
Fruit size	: 7 cm
Toxicity	: poisonous

Citrullus colocynthis, known in English as Bitter Apple and in Arabic as *hanzal*, is a fast growing, prostrate, trailing or climbing perennial herb with tendrils that can extend up to 3 metres. It occurs throughout northern and southern Africa, southwest Asia and the Arabian Peninsula, where it is widespread, especially in the Arriyadh region, owing to its hardiness in the summer. A more common relative of *C. colocynthis* is *Citrullus lanatus*, the watermelon. The leaves are triangular, grey-green and deeply lobed with three to seven lobes. The branches are hairy. The small, yellow flowers appear in summer. The fruit is about 7 cm in size, initially fleshy and a mottled green with yellow bands. Older fruits are yellow, and rattle if shaken. The fruit was used formerly as a digestive, and the taste is very bitter. Nowadays, its medicinal uses are limited, because it can damage the liver. Propagation is by seed. It grows on sandy soil, is moderately salt-tolerant, and for landscape purposes little maintenance is necessary once established. *C. colocynthis* will not tolerate frost, but recovers during summer. The Bitter Apple is very useful for open land as a coloniser and slope stabiliser. It can be also planted in extensive landscape schemes such as rock or steppe gardens, and as a groundcover.



Key Lime, *Lime*, *loomi*

Lime trees are usually grown as shrubs or small multi-stemmed trees. They originate in southeast Asia, and are, perhaps, the most cold-sensitive citrus. Nevertheless, they are not uncommon in Arriyadh, where, despite the possibility of strong frosts, they thrive on farms in environments protected by other trees. Large, white flowers in spring emit a sweet scent. After pollination, the tree bears rounded green fruits that turn greenish-yellow when fully mature. Deep-green leaves are accompanied by thorns at their base. Cultivars are commonly spineless and less acidic. They exceed the aroma of lemons. Limes require abundant sunlight, good nutrition and require humidity. Sufficient irrigation is essential in well-drained, fertile soil. It should be omitted in autumn, but wilting must nevertheless be inhibited. Some drought is tolerated if the soils are deep. Frost damages leaves and may cause branches to die back. *C. aurantiifolia* grows well in containers, near pools and is suitable for both public and private gardens. Commercially grown cultivars are grafted, but cuttings with heels meet private needs. Seedlings may show thorns and acidic fruits. Limes are prone to scales, spider mites and mealybugs. Pruning should be done in early spring before flowering. Severe cutting back harms both the appearance and the tree's health, because wounds take a long time to be closed by surrounding bark. If their diameter exceeds 3 cm, the wounds should be sealed with a pruning compound. Frequent pinching out keeps a neat, compact shape.



GENERAL

Origin	: sub-tropical
Vigour	: normal growth rate
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: high

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (1000 ppm)
Hardiness	: 0°C

SHAPE

Type	: tree, shrub
Height	: 3 m-5 m
Spread	: 3 m-5 m
Foliage	: evergreen

FLOWER

Colour	: white
Size	: 1 cm - 2 cm
Period	: March - May
Smell	: scented, strong, leaf, flower, fruit, sweet, fruity

FRUIT

Type of fruit	: berry
Fruit size	: 3 cm - 6 cm
Toxicity	: edible when processed

Sour Seville Orange

GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: normal growth rate
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: high

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (1000 ppm)
Hardiness	: -3°C

SHAPE

Type	: tree, shrub
Height	: 2 m-10 m
Spread	: 2 m-8 m
Foliage	: evergreen

FLOWER

Colour	: white
Size	: 1 cm - 2 cm
Period	: March - May
Smell	: scented, strong, leaf, flower, fruit, sweet, fruity

FRUIT

Type of fruit	: berry
Fruit size	: 5 cm - 8 cm
Toxicity	: edible when processed

Sour Seville Oranges grow on these medium-sized trees that may develop to a maximum height of 10 metres, achieving a round crown. Northeast India, Bangladesh and Myanmar are the presumed homelands of this species. More than 1,000 years ago it was introduced into the Mediterranean and became so popular that its vernacular name honours the Spanish town of Seville. A vigorous grower in Arriyadh, the flowers produce an unsurpassed fragrance for several weeks in spring and are a welcome feature in many gardens. Thorny twigs bear shiny, dark-green leaves that release an aromatic scent when bruised. They measure about 12 × 7 cm. The white flowers are borne in spring and may be harvested to distil perfume. Some cultivars are grown for producing essential oils that is traded as 'neroli oil'. Pollinated blossoms are followed by yellow-orange fruits that measure up to 8 cm across. The acidic, bitter pulp contains a large number of white seeds, and is enclosed by strongly aromatic peel. In orchards, the trees are spaced some 5 metres apart. The plant is tolerant of almost any kind of soil and is therefore sometimes used to bear graftings of more delicate citrus species. Heat is tolerated with appropriate soil humidity. Brief frosts do not harm healthy plants seriously, but soft leaves and non-lignified branches may be damaged. They take severe pruning and even recover from being coppiced. Sour Seville Oranges may be propagated by seeds for ornamental purposes and by grafting if cultivars are to retain certain characteristics.



Lemon

Lemons grow on small evergreen trees originating in southeast Asia. The fruit has been cultivated since ancient times. Often seen on farms in the Arriyadh region, the lemon tree is also a good ornamental tree for the garden, not least because of the excellent fragrance of its blossoms. Trees may be trained to a handsome shape. The bright yellow colour of the fruit contrasts well with the dark-green leaves. Alkaline soil and high salinity may cause chlorosis, which can be cured by applying iron chelate: soil should be well drained and sandy. Seedlings should not be grown because they often exhibit thorny twigs and plenty of water sprouts. Many cultivars may be reproduced by large cuttings, while cash crops are budded to ensure maximum fruit production. Trees should be spaced 7 metres apart. They should be pruned to a compact shape and rejuvenated by severe cutting back after ten years. Weedkillers should not be sprayed, since lemon trees are highly sensitive to herbicides. Commercial growers withhold irrigation in summer for a few weeks until the trees begin to wilt. After heavy watering and high nitrogen fertilisation, an enormous bloom is induced in early autumn. *C. limon* is susceptible to mealybugs and aphids and a citrus virus disease. Terracotta containers with lemon trees have a high ornamental value.



GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: normal growth rate
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out, cuttings, grafting
Maintenance	: high

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (1000 ppm)
Hardiness	: -3°C

SHAPE

Type	: tree, shrub
Height	: 3 m-7 m
Spread	: 3 m-9 m
Foliage	: evergreen

FLOWER

Colour	: white, purple
Size	: 1 cm - 2 cm
Period	: September - October
Smell	: scented, strong, gives freely of its scent, leaf, flower, fruit, sweet, fruity

FRUIT

Type of fruit	: berry
Fruit size	: 7 cm - 12 cm
Toxicity	: edible

Giant Lemon, *trunj*

GENERAL

Origin	: Mediterranean, sub-tropical, tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid
Propagation	: cuttings, grafting
Maintenance	: high

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (1000 ppm)
Hardiness	: +3°C

SHAPE

Type	: tree, shrub
Height	: 3 m-5 m
Spread	: 5 m-7 m
Foliage	: evergreen

FLOWER

Colour	: white
Size	: 2 cm
Period	: September - October
Smell	: fruity

FRUIT

Type of fruit	: berry
Fruit size	: 20 cm
Toxicity	: edible

This variety of the lemon tree is also known locally as *trunj*, and is probably the hybrid named 'Ponderosa': it is often seen on farms in the Arriyadh region. It is, however, relatively frost-tender and the trees may be damaged by drying winds or prolonged cold. Bearing highly ornamental fruit of extraordinary size of more than 20 cm, twigs may be bent down by the weight of many huge lemons. The tree grows fast up to 3 metres high, bears fruit early and has an angular shape with large leaves. It can be trained on a trellis to stabilise the branches and to prevent damage. Young plants are delicate and cannot compete with weeds. 'Trunj' requires a well-drained, sandy and fertile soil, with regular watering until established. Complete NPK fertilisers should be applied in early spring. Citrus trees have the attractive tropical feature of producing flowers and fruit at the same time. The fruit does not have any particular commercial value, but the non-acid lemons have a thick, bumpy rind that can be used for producing jam. The rind is low in essential oils, but gives off an aromatic scent and is sometimes candied or preserved in brine. Pruning should be limited to removing water sprouts, usually the result of severe cutting back of the branches of older trees. Most of these shoots are short-lived anyway and leave unsightly sticks on the branches. Deadwood might be provoked by prolonged drought or waterlogging. Like all citrus, the trees suffer from attacks by mealybugs, aphids and often have mildew.



Tangerine

This is the medium-sized, evergreen tree that bears tangerines: it grows to a height of 5 metres, and up to 7 metres in width. Once native to southeast Asia, *C. reticulata* is now grown in any warm climate in the world. Tangerines are an important cash crop and are easier to peel than other citrus. The open crown is covered with shiny, oval leaves with serrated margins and winged petioles. They are dark green and aromatic when touched or crushed. In spring, pink buds open to white flowers that exude a strong, sweet fragrance. After pollination by honeybees, the tree bears the well-known, tasty fruits with bright orange rind in a flattened, round shape. Many cultivars vary in fruit size, yield, fruit colour, taste and number of seeds. Widespread are 'Clementine', 'Dancy' and 'Fremont', which are usually grafted onto stock that tolerates adverse conditions. The fruit ripens in winter, which makes them highly popular when there are no fruits harvested in cold or temperate climates. Yields vary from heavy crops one year to minimal performance the next year. Full to partial sun is ideal with additional irrigation in summer, but less in winter. The most serious pest to citrus are leaf miners. Mechanical methods to get rid of the larvae that live within the leaf are impossible, and chemical treatment is highly elaborate but often unsuccessful. Prevention is the best way to avoid infestation, so that each new citrus tree must be carefully examined before planting.



GENERAL

Origin	: Mediterranean, sub-tropical
Vigour	: normal growth rate
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: high

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: low (1000 ppm)
Hardiness	: -3°C

SHAPE

Type	: tree, shrub
Height	: 3 m-5 m
Spread	: 3 m-7 m
Foliage	: evergreen

FLOWER

Colour	: white
Size	: 2 cm - 3 cm
Period	: March - May
Smell	: scented, moderate, leaf, flower, fruit, sweet, fruity

FRUIT

Type of fruit	: berry
Fruit size	: 5 cm - 6 cm
Toxicity	: edible

Indian Privet

GENERAL

Origin	: tropical
Vigour	: normal growth rate
Humidity	: semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: high

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: resistant
Irrigation	: high
Salinity/ppm	: very high (8000 ppm)
Hardiness	: 0°C

SHAPE

Type	: shrub
Height	: 1.5 m-9 m
Spread	: 1.5 m-3 m
Foliage	: evergreen

FLOWER

Colour	: white
Size	: 10 cm
Period	: June - September

FRUIT

Type of fruit	: berry
Fruit size	: 0.5 cm

This sprawling and climbing shrub, commonly called Indian Privet, is native to India and is widely seen in Arriyadh owing to its versatility and robustness. Normally a climber which will reach a height of over 9 metres and a spread of up to 3 metres, it is equally at home as a mounding groundcover spreading up to 3 metres. It can also be clipped or hedged into a variety of shapes and trained over fences and pergolas. The shrub has lush, bright-green leaves and small clusters of faintly scented, jasmine-like flowers that bloom throughout the summer. Growing very rapidly, but not very drought-resistant, it tolerates extreme heat, wind and salinity, even performing well in brackish water. *C. inerme* will grow in almost any soil and tolerates poor drainage. Regular irrigation is necessary to keep this shrub looking well. It is propagated by seed and cuttings. Plants are particularly susceptible to tomato hornworms, are often overrun by the parasitic dodder plant and have occasional infestations of white flies. Indian Privet needs frequent pruning, especially when planted as a hedge and older plants become quite woody after a few years, if they have been neglected. Maintenance is relatively intensive because of the required regular pruning to contain the plant. Often, the shrubs have to be removed and a new start made. *C. inerme* is a useful climber on a shade structure or trellis covering a wall. It can also be attached to steel cables. It makes a good plant for roadsides, if irrigation and frequent correct pruning are carried out.



Flaming Glorybower

The Flaming Glorybower, originating in West Africa, is an attractive and easily maintained, vigorous climber which makes a colourful addition to a garden, and is best planted in the shade in Arriyadh, where the light is bright enough for it to grow well. Twining in habit, it has large, up to 15 cm deep-veined, oval leaves arranged in opposite pairs, and bears clusters of bright red flowers. The 2-cm-large, individual flowers vary in shades of purple to scarlet. The flowering period is at its peak at the beginning of winter, and lasts until early summer, but the showy flowers are present throughout the year. It likes acidic, sandy soil, but will do well in most situations. Flaming Glorybower is relatively drought-tolerant once it has established itself, but requires deep watering in summer. It will grow to a height of 5 metres with a spread of 3 metres. This climber spreads rapidly from root suckers, which may appear through paving, but on the whole it is not an aggressive vine and climbs happily with support over trellis and shade structures. Once at the top, its branches go back down again to form a dense wall of leaves and flowers. Without support, *C. splendens* spreads itself flat forming a dense groundcover. Propagation is by seed, hardwood cuttings or splitting off root suckers. Easy to prune, it responds well to shaping or a very hard cut back. A tropical plant, it will be damaged if there are frosts. It is therefore not suitable for unprotected gardens outside Arriyadh, and should be sheltered from cold and hot winds.



GENERAL

Origin	: tropical
Vigour	: fairly fast growing
Humidity	: semi-humid, very humid, extremely humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: moderate (1500 ppm)
Hardiness	: 0°C

SHAPE

Type	: climbers
Height	: 1 m-3 m
Spread	: 1 m-3 m
Foliage	: semi-evergreen

FLOWER

Colour	: red, orange, secondary: yellow, secondary: white
Size	: 15 cm
Period	: May - December

FRUIT

Type of fruit	: berry
Fruit size	: 1 cm

Butterfly Pea

GENERAL

Origin	: tropical
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out
Maintenance	: low

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: medium
Salinity/ppm	: moderate (1800 ppm)
Hardiness	: 0°C

SHAPE

Type	: climbers
Height	: 1 m-3 m
Spread	: 2 m-3 m
Foliage	: evergreen

FLOWER

Colour	: dark blue
Size	: 2 cm - 3 cm
Period	: June - September

FRUIT

Type of fruit	: pod
Fruit size	: 7 cm

Butterfly Peas are herbaceous vines from tropical Asia. They grow dull-green, compound leaves, and dangling blue flowers with yellow centres are borne mainly from June to September. It twines rapidly to about 3 metres in height given sufficient nutrients. Ideal locations are in full to partial sun where sandy, well-drained soils are frequently irrigated. Pollination is carried out by bees, so the vine develops downy legumes with seeds that germinate readily. Members of the pea family Fabaceae or Leguminosae host bacteria Rhizobia within so-called nodules. These are able to fix atmospheric nitrogen, making it available to the plant's roots. Both organisms profit from this symbiotic relationship. Young plants require some initial help to start up a trellis or a fence. Butterfly Pea soon recovers from damage caused by frost and drought, and also tolerates grazing. It also does well as annual in containers, window boxes or hanging baskets. 'Pleno' is a cultivar with double, blue flowers. The species' inflorescences are about 3 cm in size. Varieties such as 'Blue Sails' grow flowers of about 5 cm diameter. The same size but in white appears the flowering of 'Alba'. Five petals make an interesting flower with an upright banner and two wings that enclose the boat-shaped keel at the base. Apart from its use as an ornamental climber, the Butterfly Pea is a palatable forage legume and is also used medicinally for its bioactive compounds. Maintenance is relatively low for a vine, and in Arriyadh the plant grows successfully.



Lavender, Trumpet Vine

The Lavender Trumpet Vine, native to Brazil and Argentina, is not often seen in Arriyadh, but certainly has great potential for garden use, as seen in many gardens in arid regions. It is also remarkably frost-tolerant to -7°C , although it will become deciduous and will generally recover, even when frozen to the ground, from its hardy, fleshy roots. It will do best in light shade, and reflected sun should be avoided. This vine will grow up to over 6 m long. The green leaves have two leaflets, and the pinkish-lilac flowers up to 8 cm in diameter have purple veins, appearing from spring to summer. Regular watering is necessary during the growth period and moderate for the rest of the time: overwatering should be avoided. Growing in most garden soils with good drainage, a deep, extensive root system should be encouraged and a general-purpose fertiliser should be applied in early spring, and then again in early summer. Propagation is best by semi-hardwood cuttings in summer, but scarified seed or layering are also possible. The cuttings strike easily. Pruning is best in late winter to control growth or to induce new growth from lower down. Chlorosis can be a problem, especially in spring. Generally pest- and disease-resistant, *C. callistegioides* is a very attractive vine with a tropical look, which will enhance a private garden where it has the space to develop. It grows particularly well over walls and fences: its tendrils attach themselves easily to chain-link fences, for example. It is also very suitable for shade structures.



GENERAL

Origin	: tropical
Vigour	: slow-growing
Humidity	: semi-humid, very humid
Propagation	: sowing and pricking out, cuttings, layer
Maintenance	: high

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: moderate (1500 ppm)
Hardiness	: -6°C

SHAPE

Type	: climbers
Height	: 1 m-6 m
Spread	: 2 m-5 m
Foliage	: evergreen, semi-evergreen

FLOWER

Colour	: lilac, violet, yellow
Size	: 6 cm - 8 cm
Period	: April - July

FRUIT

Type of fruit	: capsule
Fruit size	: 10 cm
Toxicity	: inedible

Croton

GENERAL

Origin	: tropical
Vigour	: normal growth rate
Humidity	: semi-humid, very humid
Propagation	: cuttings, layer
Maintenance	: moderate

CONDITIONS

Urban climate	: vulnerable
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: moderate (1200 ppm)
Hardiness	: +3°C

SHAPE

Type	: shrub
Height	: 0.5 m-2.5 m
Spread	: 0.5 m-2 m
Foliage	: evergreen

FLOWER

Colour	: white
Size	: 0.3 cm
Period	: July - August

FRUIT

Type of fruit	: capsule
Fruit size	: 0.9 cm

Better known as Croton, this evergreen shrub is widespread as a highly ornamental bush for the garden or as a popular indoor plant. It originates from India, Sri Lanka, Malaysia and Indonesia, where heat is accompanied by high atmospheric humidity and rainfall; hence, it demands abundant water. In Arriyadh, it withstands the sun and dry air relatively well, but requires a position sheltered from desiccating winds. The soil must be rich in humus and well drained. Crotons grow their colourful foliage in partial sun. High contents of nutrients and high temperatures may reduce the number of bright spots. Full sun bleaches the colours, while a lack of light results in greener leaves with less yellow or red spots. The intensely mottled foliage is shiny and attracts the eye from far, the major asset of Crotons. Plenty of varieties are bred such as 'Petra', with yellow veins and red shades alternating with green. Its white flowers are insignificant. Favourable conditions let it grow into a V-shaped bush of about 2.5 metres high and up to 2 metres wide. High levels of humus are important, and it should not be exposed to drying winds. Severe cutting back is possible in early spring, if frost has damaged the leaves. It does well in containers, is an ideal indoor plant and makes excellent focal points or colourful hedges. Stressed plants may occasionally be infected by mealybugs or scale. Both cuttings and layering make for strong offspring easily. In public gardens, it may as well be too exotic, but should be restricted to special sites.



Button Mangrove

Button mangrove is a low-branching, multi-trunked, shrubby, evergreen tree, originating in tropical America and the coast of West Africa. Since the mid 1990s (CE), *C. erectus* can be seen everywhere in Arriyadh. Growing to a height of 20 metres with a spread of 8 metres, the tree's crown is uniform and symmetrical and the branches upright, spreading in a vase shape. Growth is remarkably fast, up to 3 metres a year in the early stages. The tree has shiny, lanceolate, leaves and inconspicuous, small, greenish flowers, appearing in spring, followed by reddish-brown fruits. *C. erectus* prefers full sun, tolerates partial shade, but will not grow under taller trees. Very drought-tolerant, it will grow on compacted clay, sand, and loam, alkaline or acidic soils: salt tolerance is high. Not hardy to severe frosts, whole streets of trees have seen frost damage in one single night in Arriyadh. It is also very tolerant of air pollution. Propagation is by cuttings or layering, or partially burying straight, cut branches that root in moist ground. Leaders must be pruned and staked for straight-trunked trees. The laterals and fine roots are weak and brittle, and not aggressive. Button mangrove has little invasive potential in Arriyadh, although a kind of monoculture has developed. It is widely planted in parking lots and streets, and is ideal as an informal or clipped hedge, windbreak, screen or specimen tree. It is good for soil stabilisation, reclamation and sand dune protection. Trees are tough and long-lived in the landscape.



GENERAL

Origin	: tropical
Vigour	: fast growing
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out, layer, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: resistant
Irrigation	: medium
Salinity/ppm	: very high (30000 ppm)
Hardiness	: -3°C

SHAPE

Type	: tree, shrub
Height	: 20 m
Spread	: 8 m
Foliage	: evergreen

FLOWER

Colour	: green
Size	: 0.5 cm
Period	: March - May

FRUIT

Type of fruit	: cones
Fruit size	: 1.5 cm

Button Mangrove

GENERAL

Origin	: tropical
Vigour	: fast growing
Humidity	: semi-arid, semi-humid
Propagation	: sowing and pricking out, layer, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: resistant
Irrigation	: medium
Salinity/ppm	: very high (30000 ppm)
Hardiness	: -6°C

SHAPE

Type	: tree, shrub
Height	: 15 m
Spread	: 6 m
Foliage	: evergreen

FLOWER

Colour	: pale yellow
Size	: 0.6 cm
Period	: April - May

FRUIT

Type of fruit	: cones
Fruit size	: 1.5 cm

There is some confusion about the botanical name of this less common relative of *C. erectus*, and it has also been referred to as *C. lanceolatus*, *C. latifolia* and *Anogeissus latifolius*. *C. lancifolius* has a more open habit than *C. erectus*, and its leaves are longer, narrower and grey, rather than lush green. Native to coastal and riverine areas of eastern Africa and Yemen, it is to be found all over the Arabian peninsula, although it is not often seen in Arriyadh. The smell of the fluffy yellow-green flowers in spring and autumn is unpleasant to some people, especially at nighttime, in winter and when damp after rainfall. The tree's wood is dense and suitable for charcoal: goats browse on the young leaves. It is highly salt- and drought-tolerant, and planted in afforestation projects. The *C. lancifolius* tree also plays a role in remediating heavy metal and oil-contaminated soil. It makes an attractive specimen tree and has all of the properties attributed to *C. erectus*. Silver buttonwood (*C. erectus* var. *sericeus*) is a variety that usually grows as a low-branching shrub; under ideal conditions, it will become an attractive tree up to 15 m tall with a spread of 6 metres. The evergreen leaves are oblong to lance-shaped, up to 10 cm long and covered with silky hairs, which gives a beautiful silver-grey colour which sparkles in the sun. It has great ornamental value, and deserves to be seen more often in Arriyadh.



Silvery Convolvulus, *Bush Morning Glory*

The Bush Morning Glory is native to the western Mediterranean basin. In Arriyadh, it requires a sheltered garden location; its relative, *C. mauritanicus*, is a potentially good groundcover, but both plants have a tendency to bare spots, which need replanting every few years. While most other Morning Glories grow twining, this one remains a prostrate, compact bush of some 80 cm in height and at least the same in width. In late spring and early summer, pink buds turn into white, trumpet-shape flowers with yellow throats. They contrast well against the silvery, evergreen foliage. The leaves are lanceolate, hirsute and well protected against desert conditions. Each year, Bush Morning Glories put on an impressive floral display. Flowers are some 4 cm in diameter and grow in panicles. In full bloom, the shrub is almost entirely covered by flowers. This bush revels in heat and full sun, and tolerates poor, sandy soil with good drainage. Clay soils need to be friable, since over-watering kills the plant. Alkalinity and drought are tolerated. Plants are even found growing wild in rock crevices. It makes an area cover in steppe gardens, or looks well as grouped bush in rock gardens when it sprawls over gravel and boulders. Unsightly plants can be renewed by cutting back to the ground in early spring. Sprinkler irrigation may cause powdery mildew. The plants tolerate urban microclimates, frost to about -7°C and some neglect when established. Softwood cuttings root easily in late spring or early summer, and sowing is also possible.



GENERAL

Origin	: sub-Mediterranean, Mediterranean
Vigour	: fairly fast growing
Humidity	: semi-arid, semi-humid
Propagation	: direct sowing, sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: vulnerable
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: moderate (1500 ppm)
Hardiness	: -6°C

SHAPE

Type	: sub-shrub
Height	: 0.3 m-0.8 m
Spread	: 0.7 m-1 m
Foliage	: evergreen

FLOWER

Colour	: white, secondary: pink
Size	: 2 cm - 4.5 cm
Period	: March - October

FRUIT

Type of fruit	: capsule
Fruit size	: 0.5 cm

Bindweed, Oleik, Rukhami, Muded

GENERAL

- Origin : arid, Mediterranean, sub-tropical
- Vigour : slow-growing
- Humidity : very arid, semi-arid, semi-humid
- Propagation : direct sowing, sowing and pricking out, cuttings
- Maintenance : low

CONDITIONS

- Urban climate : resistant
- Dessication : resistant
- Stagnant water : vulnerable
- Irrigation : none
- Salinity/ppm : very high (7000 ppm)
- Hardiness : -6°C

SHAPE

- Type : sub-shrub, perennial
- Height : 0.1 m-0.3 m
- Spread : 0.4 m-0.6 m
- Foliage : semi-evergreen

FLOWER

- Colour : pastel white, pale pink
- Size : 1 cm - 2 cm
- Period : January - April

FRUIT

- Type of fruit : capsule
- Fruit size : 0.3 cm

The Prostrate Bindweed is originated in Egypt, native on the Arabian Peninsula and distributed as well in Pakistan and North India. Close to Riyadh it can be found in the Thumamah Nature Park in dry and sandy soils of open Rowadhs plains. It can be used as fodder for livestock. In former times it was also used as remedy. The Prostrate Bindweed is growing like a sub-shrub with a height of 10 to 30 cm with a woody base but it is prostrating as well, but not too far, 40 to 60 cm. It can be used as groundcover in grouped or massed-planting. This perennial herb flowers in winter. From January to April appear white to pale-pink flowers in a small trumpet shape. The foliage is perfectly adapted to desert conditions with its tomentose to pubescent protection on branches and leaves. The shape of leaves is lanceolate, 1 to 3 cm long and 0.6 cm broad. With its silvery look and the pretty flowers the Bindweed brings interesting aspects in plant displays. The plants are recommendable in Wadi farm gardens, they produce nice scenery in rock and steppe gardens and they are perfect for extensive green and especially for desert restoration projects. The maintenance requirements are low, only in the beginning after planting irrigation is required until they are established, the irrigation can be reduced to none, but little water (5 to 10 mm per day) can certainly extend the fresh look of the herb. Propagation can be done by seeds or by cuttings.



Banbar, *Indian Cherry*

The Indian Cherry or Banbar is native to the eastern Mediterranean basin, extending as far as eastern India. It grows moderately fast to some 5 metres in height and about 6 metres in width. Exceptionally aged trees may reach up to 10 metres in height. Heart-shaped leaves are deciduous, alternate and about 20 cm long on stalks of 5 cm in length. Male and female flowers are borne on different trees. They appear in spring on panicles in white or cream-coloured. The drupes are round and some 3 cm in diameter. At first, they are green, turn yellow and become orange when fully ripened in summer. Trees start flowering at the age of 5 years. Young branches are hirsute and become glabrous later on. They show distinct leaf scars. The bark is light grey and rough. Its spreading roots prevent soil erosion. Thanks to its fleshy, sweet fruit it has been valued and introduced to tropical countries long ago. The kernel, too, is edible. Banbar has some healing properties for coughs and sore throat, and applied externally it alleviates itchy insect bites. Skin diseases may be treated with powdered bark. The foliage can be prepared as a vegetable. Banbar is found in deciduous woodlands, but also along river banks. It may become naturalised, but does not invade intact ecosystems. It tolerates drought, frost and even some shade when young. In summer, ample water should be available. Hard pruning is possible and the tree can even be coppiced. Seedlings show variable yield, and so hardwood cuttings are the preferred method for propagation.



GENERAL

Origin	: tropical
Vigour	: normal growth rate
Humidity	: very arid, semi-arid, semi-humid, very humid
Propagation	: sowing and pricking out, cuttings
Maintenance	: moderate

CONDITIONS

Urban climate	: resistant
Dessication	: resistant
Stagnant water	: vulnerable
Irrigation	: high
Salinity/ppm	: high (5000 ppm)
Hardiness	: 0°C

SHAPE

Type	: tree, shrub
Height	: 3 m-10 m
Spread	: 4 m-10 m
Foliage	: deciduous

FLOWER

Colour	: white
Size	: 0.5 cm
Period	: March - April

FRUIT

Type of fruit	: drupe(fleshy/ juicy)
Fruit size	: 2 cm - 3 cm
Toxicity	: produced for food, edible, fruit