



## 39 Indigenous plants

Plant species indigenous to central Europe are usually not spread across the whole region, but rather often found in certain sections. Some are exclusive to particular areas owing to their special abilities. In order to use the plants completely in accordance with their proper landscape, such special origins must be carefully observed to prevent the contamination of flora in critical plantings where plant types foreign to the vegetation are introduced. To this end, special studies of the location are recommended. It should, however, be kept in mind that the centuries of use of the wild species makes it difficult to pinpoint the original boundaries for many species.

Genus/species/variety	Found everywhere	Found in regions	Found in special areas
<b>1. Deciduous trees</b>			
Acer campestre	+		
Acer platanoides	+		
Acer pseudoplatanus	+		
Alnus glutinosa	+		
Alnus incana		+	
Betula pendula	+		
Betula pubescens		+	+
Carpinus betulus	+		
Castanea sativa		+	
Fagus sylvatica	+		
Fraxinus excelsior	+		
Juglans regia			+
Malus sylvestris		+	
Populus canescens		+	
Populus nigra		+	
Populus tremula	+		
Prunus avium	+		
Prunus padus		+	
Pyrus communis		+	
Quercus petraea	+		
Quercus robur	+		
Salix alba	+		
Salix caprea	+		
Salix daphnoides		+	
Salix fragilis	+		
Sorbus aria		+	
Sorbus aucuparia	+		
Sorbus domestica		+	
Sorbus intermedia			+
Sorbus torminalis		+	
Tilia cordata		+	
Tilia europaea		+	
Tilia platyphyllos		+	
Ulmus carpiniifolia		+	
Ulmus glabra	+		
Ulmus laevis			+





## 39 Indigenous plants

Genus/species/variety	Found everywhere	Found in regions	Found in special areas
<b>2. Shrubs</b>			
Amelanchier ovalis		+	
Arctostaphylos uva-ursi			+
Berberis vulgaris		+	
Buxus sempervirens			+
Calluna vulgaris	+		
Colutea arborescens			+
Cornus mas			+
Cornus sanguinea	+		
Corylus avellana	+		
Crataegus laevigata	+		
Crataegus monogyna	+		
Cytisus nigricans		+	
Cytisus scoparius		+	
Daphne cneorum			+
Daphne mezereum		+	
Empetrum nigrum		+	
Erica carnea			+
Erica cinerea			+
Erica tetralix		+	
Euonymus europaeus	+		
Genista sagittalis		+	
Genista tinctoria		+	
Hippophae rhamnoides		+	
Ilex aquifolium		+	
Ledum palustre			+
Ligustrum vulgare		+	
Lonicera caerulea			+
Lonicera xylosteum		+	
Mespilus germanica			+
Myrica gale			+
Prunus mahaleb		+	
Prunus padus		+	
Prunus spinosa	+		
Rhamnus catharticus		+	
Rhamnus frangula	+		
Ribes alpinum		+	
Rosa arvensis		+	
Rosa canina	+	+	
Rosa gallica		+	
Rosa glauca		+	
Rosa pimpinellifolia		+	+
Rosa rubiginosa		+	
Rubus fruticosus	+	+	+
Rubus idaeus	+		
Salix aurita	+		+
Salix cinerea	+		
Salix daphnoides varieties	+		
Salix elaeagnos			

Genus/species/variety	Found everywhere	Found in regions	Found in special areas
Salix purpurea	+		
Salix repens			+
Salix rosmarinifolia			
Salix smithiana		+	
Salix triandra			
Salix viminalis	+		
Sambucus nigra	+		
Sambucus racemosa		+	
Ulex europaeus			+
Vaccinium vitis-idaea		+	
Viburnum lantana		+	
Viburnum opulus	+		
<b>3. Climbers</b>			
Clematis alpina			+
Clematis vitalba		+	
Hedera helix	+		
Lonicera caprifolium		+	
Lonicera periclymenum		+	
Rosa arvensis		+	
Rubus fruticosus	+	+	+
<b>4. Conifers</b>			
Juniperus communis		+	
Juniperus sabina			+
Larix decidua			+
Picea abies		+	
Pinus cembra			+
Pinus mugo			+
Pinus sylvestris		+	
Taxus baccata		+	

## 40 Freely growing indigenous hedges

For natural hedges, both in open landscapes and in settled areas, plants are needed that like light and warmth, tolerate drought and wind, and shoot prolifically. Most of the species named form such a dense canopy of leaves that no weeds can grow under the hedges. Perennials are useful only at the edges where more light enters.





Genus/species/variety	Height	Likes light	Tolerates shade	Thorns/Prickles	Good for birds
<b>1. Deciduous trees</b>					
<i>Acer campestre</i>	8 - 12 m	+	+		+
<i>Carpinus betulus</i>	5 - 20 m	+	+		+
<i>Fraxinus excelsior</i>	20 - 35 m	+			
<i>Malus sylvestris</i>	5 - 10 m	+	+	+	+
<i>Populus tremula</i>	10 - 15 m	+	-		
<i>Prunus avium</i>	15 - 20 m	+			+
<i>Prunus padus</i>	3 - 10 m	+	+		+
<i>Quercus petraea</i>	20 - 35 m	+	+		+
<i>Quercus robur</i>	30 - 35 m	+	+		+
<i>Rhamnus catharticus</i>	2 - 3 m	+	+	+	+
<i>Salix caprea</i>	3 - 8 m	+	-		
<i>Sorbus aucuparia</i>	5 - 10 m	+	+		
<i>Ulmus carpinifolia</i>	25 - 35 m	+			
<b>2. Shrubs</b>					
<i>Amelanchier ovalis</i>	1 - 3 m	+	-		+
<i>Berberis vulgaris</i>	1 - 3 m	+	+	+	+
<i>Cornus mas</i>	3 - 6 m	+	+		+
<i>Cornus sanguinea</i>	1 - 5 m	+	+		+
<i>Corylus avellana</i>	4 - 6 m	+	+		+
<i>Crataegus laevigata</i>	2 - 5 m	+	+	+	+
<i>Crataegus monogyna</i>	2 - 6 m	+	+		+
<i>Euonymus europaeus</i>	2 - 6 m	+	+		+
<i>Ilex aquifolium</i>	2 - 5 m	-	+	+	+
<i>Ligustrum vulgare</i>	2 - 5 m	+	+		+
<i>Lonicera caerulea</i>	0.5 - 1.5 m	-	+		+
<i>Lonicera xylosteum</i>	1 - 2 m		+		+
<i>Prunus mahaleb</i>	3 - 6 m	+			+
<i>Prunus spinosa</i>	1 - 3 m	+	-	+	+
<i>Rhamnus catharticus</i>	2 - 3 m	+	+	+	+
<i>Rhamnus frangula</i>	2 - 5 m	+	+		+
<i>Rosa canina</i>	1 - 3 m	+	+	+	+
<i>Rosa gallica</i>	0.5 - 1 m	+		+	+
<i>Rosa glauca</i>	1 - 3 m	+	-	+	+
<i>Rosa pimpinellifolia</i>	0.5 - 2 m	+	-	+	+
<i>Rosa rubiginosa</i>	2 - 3 m	+	-	+	+
<i>Rubus fruticosus</i>	1 - 2 m	+	+	+	+
<i>Sambucus nigra</i>	2 - 7 m	+	+		+
<i>Viburnum lantana</i>	2 - 4 m	+	+		+
<i>Viburnum opulus</i>	2 - 4 m		+		+
<b>3. Climbers</b>					
<i>Clematis vitalba</i>	5 - 15 m	+	+		+
<i>Lonicera caprifolium</i>	2 - 5 m		+		+
<i>Lonicera periclymenum</i>	1 - 3 m		+		+
<i>Rubus fruticosus</i>	1 - 2 m	+	+	+	+





# 41 Plants for bees

Apicultural plants are good for honey production and feeding the honeybees and wild bees. This list concerns the flower nectar and pollen, but also the honeydew. **See also chapter Insect pastures page 874.**

Genus/species/variety	Nectar	Pollen	Honeydew
<b>1. Deciduous trees</b>			
Acer campestre	++		*
Acer opalus	++		*
Acer platanoides	++	+	*
Acer pseudoplatanus	+++	+	*
Acer tataricum	+++		
Aesculus hippocastanum	++	+	*
Aesculus carnea	++	+	*
Alnus species		++	*
Betula species		+	*
Carpinus betulus			*
Castanea sativa	++	+	*
Cercis canadensis		++	
Euodia hupehensis	+++		
Fagus sylvatica		++	*
Fraxinus excelsior		+	*
Juglans regia		+	*
Malus species and varieties	+++	+++	
Populus species and varieties		++	*
Prunus species and varieties	+++	+++	*
Pyrus communis	+++	++	
Prunus padus	+	+	
Pyrus species and varieties	+	++	
Quercus petraea		+	*
Quercus robur		++	*
Rhamnus catharticus	+		*
Robinia species and varieties	+++	+	*
Sophora japonica	++	+	
Sorbus aria	+		
Sorbus aucuparia	++	++	
Sorbus domestica	++	++	
Sorbus torminalis	++	++	
Salix species and varieties	+++	+++	
Tilia americana	++		
Tilia cordata	+++		*
Tilia euchlora	++		
Tilia europaea	++		*
Tilia flavescens			
Tilia hennryana	+++		*
Tilia mongolica		++	*
Tilia platyphyllos		++	*
Tilia tomentosa	+++		
Ulmus carpinifolia	++		
Ulmus hybrids		++	*
Ulmus laevis		++	*

Explanation of symbols: +++ = very suitable / ++ = quite suitable / + = recommended / \* = proliferous

Genus/species/variety	Nectar	Pollen	Honeydew
<b>2. Shrubs</b>			
Amelanchier species and varieties	+		
Berberis species and varieties	+		
Buddleja species and varieties	+		
Buxus sempervirens varieties	+		
Calluna vulgaris varieties	+++		
Caryopteris species and varieties	+		
Cornus sanguinea	+		
Cornus mas	++	+	
Corylus species and varieties		++	*
Cotoneaster species and varieties	++		
Crataegus species and varieties	+	+	
Cytisus species and varieties	+	+	
Elaeagnus species and varieties	+		
Erica species and varieties	++	++	
Euonymus europaeus	+		
Ligustrum vulgare	+		
Lonicera xylosteum	+		
Lycium barbarum	+	+	
Malus hybrids varieties	+++	+++	
Mespilus germanica	+		
Prunus species and varieties	+	+	
Rhamnus catharticus	+		
Rhamnus frangula	++	+	
Ribes species	+		
Rosa species and varieties	++		
Rubus fruticosus	++	++	
Rubus idaeus	+++	++	
Salix species and varieties	+++	+++	
Sambucus nigra	+	++	*
Spiraea species and varieties	+		
Viburnum species and varieties	+		

<b>3. Conifers</b>			
Abies species			*
Larix decidua		+	*
Picea abies			*
Pinus sylvestris			*
Taxus baccata		+	





## 42 Plants for birds

Almost all plant fruits are accepted by some type of bird, some by very many (such as *Sambucus nigra* or *Sorbus aucuparia*), others only by one type of bird (such as *Lonicera xylosteum*). The number of visiting birds is not, however, the only criterion for selection. Often, the birds are common and not picky about their feed. Plants that are only frequented by a few types of birds are also indispensable for the overall biological cycle. The plants listed here are very popular among many birds. The thorns and dense branching contribute to the protection of nests. This information is based on many years of observation in the test garden at Weihenstephan near Munich.

Genus/species/variety	Visited often	Thorns/prickles	Preferred for nests
<b>1. Deciduous trees</b>			
Acer species and varieties	+		+
Alnus species and varieties	+		
Amelanchier species and varieties	++		
Betula species and varieties	+		
Broussonetia papyrifera		++	
Carpinus betulus			+
Crataegus species and varieties	+	+	+
Fagus sylvatica	+		
Fagus sylvatica - trimmed			++
Malus species and varieties	+		
Morus species and varieties	+		
Prunus species and varieties	+		
Quercus species	+		
Robinia pseudoacacia		+	
Sorbus species and varieties	++		
Tilia species	+		
<b>2. Shrubs</b>			
Acer campestre - trimmed			++
Amelanchier species and varieties	++		+
Aronia species and varieties	+		
Berberis species and varieties	+	+	+
Carpinus betulus - trimmed			++
Chaenomeles species and varieties	+	+	
Cornus species and varieties	+		+
Corylus species and varieties	+		
Cotoneaster species and varieties	+		
Crataegus species and varieties	+	+	+
Crataegus monogyna - trimmed		+	++
Elaeagnus species and varieties	+	+	
Euonymus species and varieties	+		
Hippophae rhamnoides	+	+	+
Ilex species and varieties		+	+

Explanation of symbols: ++ = visited very frequently / + = visited frequently

Genus/species/variety	Visited often	Thorns/prickles	Preferred for nests
Ligustrum species and varieties	+		+
Lonicera species and varieties	+		+
Lycium barbarum	+	+	
Mahonia species and varieties	+	+	
Malus species and varieties	+		
Photinia villosa	+		
Prunus species and varieties	++		
Prunus spinosa	+	+	++
Pyracantha hybrids varieties	++	+	+
Rhamnus species	+	+	
Ribes species and varieties	+	+	+
Rosa species and varieties	+	+	+
Rubus species and varieties	+	+	++
Sambucus species	++		
Symphoricarpos species and varieties			+
Syringa vulgaris			+
Vaccinium species	+		
Viburnum species and varieties	+		
<b>3. Climbers</b>			
Clematis species and varieties			+
Euonymus fortunei varieties	+		+
Hedera species and varieties	+		+
Lonicera species and varieties	+		+
Parthenocissus species and varieties	+		+
Rosa - Climbing Roses		+	+
Rubus fruticosus	+	+	++
<b>4. Conifers</b>			
Abies species	+		+
Cedrus species and varieties	+		+
Chamaecyparis species and varieties			+
Juniperus species and varieties	+		+
Larix species	+		+
Picea species and varieties	+		+
Pinus species and varieties	+		+
Pseudotsuga menziesii caesia			+
Taxus species and varieties	+		+
Taxus baccata - trimmed			++
Thuja species and varieties			+
Tsuga species	+		+





## 43 Plants to hold soil on embankments and slopes

Plants that hold top soil on embankments and slopes have to have a robust, intense root system, which should also be resistant to mechanical loads. Plants that form many runners are very useful. Incorrectly formed embankments or loose material cannot, however, be held together with plants alone. To do this, additional technical measures have to be taken.

### A In open landscapes

Genus/species/variety	Roots	Runners	Resistance to concurring
<b>1. Deciduous plants</b>			
Acer campestre	intense		moderate
Acer platanoides	intense		moderate
Acer pseudoplatanus	deep		very good
Alnus glutinosa	very intense		very good
Alnus incana	very intense	++	very good
Berberis vulgaris	intense	+	very good
Betula pendula	very intense		sensitive
Carpinus betulus	intense		moderate
Clematis vitalba	intense		good
Cornus mas	intense		
Cornus sanguinea	very intense	+++	moderate
Corylus avellana	intense	+	good
Crataegus laevigata	intense		good
Crataegus monogyna	deep		good
Cytisus scoparius	deep		moderate
Fagus sylvatica	extremely intense		sensitive
Fraxinus excelsior	deep		good
Hedera helix	intense		good
Hippophae rhamnoides	deep	+++	good
Ligustrum vulgare	intense	+	very good
Lonicera xylosteum	intense		moderate
Malus sylvestris	intense	+	moderate
Populus alba varieties	very intense	+++	good
Populus canescens	very intense	+++	good
Populus tremula	very intense	+++	very good
Prunus padus	intense	+++	good
Prunus spinosa	intense	+++	good
Pyrus communis	deep	++	good
Quercus petraea	deep		good
Quercus robur	deep		good
Rhamnus catharticus	deep	+	good
Rhamnus frangula varieties	intense	+	moderate
Rosa arvensis	deep		good
Rosa canina	deep	++	moderate
Rosa glauca	deep		good
Rosa pimpinellifolia	intense	+++	good
Rosa rubiginosa	deep		good
Rubus fruticosus	intense	+	good
Salix alba	intense		very good
Salix caprea	intense		very good
Salix cinerea	intense		very good

Explanation of symbols: +++ = very strong / ++ = strong / + = slight





Genus/species/variety	Roots	Runners	Resistance to covering
Salix elaeagnos	intense		very good
Salix fragilis	very intense		very good
Salix purpurea	deep		very good
Salix triandra	intense		very good
Salix viminalis	intense		very good
Sambucus nigra	intense	+	very good
Sambucus racemosa	intense		very good
Sorbus aucuparia	intense	+	good
Rubus idaeus	intense	++	very good
Tilia cordata	very intense		sensitive
Ulmus carpinifolia	intense	+	moderate
Ulmus glabra	intense		moderate
Viburnum lantana	intense		good
Viburnum opulus	intense	+	good
Vinca major	intense		good
<b>2. Conifers</b>			
Larix decidua	deep		good
Pinus sylvestris	deep		good

The following list is for alternative and complementary beds in urban areas. Basically, indigenous species are preferred for such tasks within settlements. Extreme local conditions that indigenous forest trees and shrubs cannot handle justify resorting to foreign plants.

## B In settled areas

Bush layers are used to secure embankments, dams, dumps and slopes. For this purpose, branches of species of woody plants.

Genus/species/variety	Roots	Runners	Resistance to covering
<b>1. Deciduous plants</b>			
Acer negundo	intense		moderate
Acer saccharinum	very intense		good
Ailanthus altissima	intense	+++	good
Alnus cordata	intense		good
Alnus spaethii	intense		good
Amelanchier lamarckii	intense		moderate
Berberis ottawensis varieties	intense		very good
Buddleja davidii varieties	deep		good
Cercis siliquastrum	intense	++	moderate
Chaenomeles hybrids	intense	+	moderate
Caragana arborescens	deep		good
Cornus alba	intense		good
Cornus stolonifera 'Flaviramea'	very intense	++	good
Cotinus coggygria	intense		moderate
Cotoneaster species	intense		good
Crataegus coccinea	deep		good
Crataegus lavalleyi 'Carrierei'	deep		good





## 43 Plants to hold soil on embankments and slopes

Genus/species/variety	Roots	Runners	Resistance to covering
<b>1. Deciduous plants</b>			
Elaeagnus angustifolia	very intense		good
Elaeagnus commutata	very intense	+++	good
Forsythia varieties	intense		very good
Gaultheria shallon	very intense	+++	sensitive
Hypericum calycinum	intense	+++	moderate
Ligustrum ovalifolium	intense		good
Lonicera japonica repens	intense		moderate
Lonicera ledebourii	intense		good
Lycium barbarum	intense		good
Philadelphus coronarius	intense		good
Physocarpus opulifolius	intense		moderate
Platanus acerifolia	very intense		very good
Populus balsamifera	very intense		very good
Populus berolinensis	very intense	++	very good
Populus canadensis	very intense		very good
Potentilla fruticosa	intense		moderate
Prunus serotina	intense		moderate
Pterocarya fraxinifolia	extremely intense	+++	good
Quercus rubra	very intense		sensitive
Ribes divaricatum	intense		good
Robinia pseudoacacia	extremely intense	+++	moderate
Rosa carolina	intense	+++	moderate
Rosa multiflora	intense		good
Rosa nitida	intense	+++	good
Rosa rugosa	intense	+++	good
Rosa rugotida	very intense	+++	good
Symphoricarpos species	very intense	++	good
Syringa vulgaris	very intense	++	good
<b>2. Conifers</b>			
Larix kaempferi	deep		moderate
Metasequoia glyptostroboides	very intense		moderate
Pinus nigra	deep		good

## 44 Plants for biological engineering methods

Layers of bushes are used to secure embankments, dams, and slopes. The branches of strong-shooting plants are introduced.

Layers of hedges are used in similar ways. For this, plants are needed that are known to form adventive roots and known for their obvious resistance to covering with soil. This, however, is often only seen with young plants.

(Literature: M. SCHIECHTL, 1973; U. SCHLÜTER, 1986)

Genus/species/variety	Bush layers	Hedge layers	Cuttings, etc.
<b>1. Trees</b>			
Acer campestre		+	
Acer negundo		+	
Acer pseudoplatanus		+	
Acer saccharinum		+	
Aesculus hippocastanum		+	
Ailanthus altissima			+
Alnus glutinosa		+	
Alnus incana	+	+	+
Betula pendula		+	
Carpinus betulus		+	







**Genus/species/variety**    **Bush layers**    **Hedge layers**    **Cuttings, etc.**

Castanea sativa		+	
Fraxinus excelsior		+	
Fraxinus ornus		+	
Populus alba		+	
Populus canescens		+	
Populus nigra	+	+	+
Populus tremula		+	
Prunus mahaleb		+	
Prunus padus		+	
Prunus serotina		+	
Quercus robur		+	
Quercus rubra		+	
Rhus typhina		+	
Salix alba varieties	+		+
Salix caprea		+	
Salix daphnoides varieties	+		+
Salix fragilis	+	+	+
Sorbus aria		+	
Sorbus aucuparia		+	
Ulmus glabra		+	

**2. Shrubs**

Rosa arvensis		+	
Rosa canina		+	
Rosa rubiginosa		+	
Rosa rugosa		+	
Salix aurita	+	+	+
Salix balsamifera mas	+	+	+
Salix caprea		+	
Salix cinerea	+	+	+
Salix daphnoides varieties	+	+	+
Salix elaeagnos	+	+	+
Salix hastata			+
Salix purpurea varieties	+	+	+
Salix repens varieties	+	+	+
Salix rosmarinifolia	+		+
Salix smithiana		+	+
Salix triandra	+	+	+
Salix viminalis	+	+	+
Sambucus nigra		+	
Sambucus racemosa		+	
Syringa vulgaris		+	
Viburnum lantana		+	
Viburnum opulus		+	

**3. Climbers**

Clematis vitalba		+	
Rosa arvensis		+	
Rubus caesius			+
Rubus fruticosus			+

**45 Nitrogen-collecting plants**

Many plants live symbiotically with bacteria that collect nitrogen (such as Lupine) or actinobacillosis (such as sea buckthorn). The activity of these micro-organisms binds the nitrogen in the air and enriches the soil with the metabolism of the roots of these higher plants. This behaviour is, above all, advantageous in sterile or poor soil for initial planting to facilitate the settlement of other plants later on.

**Note:** Initial fertilisation will lead to the exact opposite effect for the plants listed as the micro-organisms that collect nitrogen become lazy and no longer actively produce nitrogen. Fertilisation may even lead to depressed habits.

The nitrogen compounds produced are not always good for the following plants. The nitrogen produced by robinias, for instance, hampers beeches and birches while it helps elders, nettles, and others.

Genus/species/variety	Local range	
	wide	narrow

**1. Trees**

Alnus species and varieties	+	
Cercis siliquastrum/canadensis	+	
Hippophae rhamnoides	+	
Laburnum species and varieties	+	
Robinia pseudoacacia	+	
Sophora japonica	+	

**2. Shrubs**

Arctostaphylos uva-ursi		+
Caragana arborescens	+	
Ceanothus species and varieties	+	
Cercis siliquastrum		+
Colutea arborescens		
Cytisus species and varieties		+
Elaeagnus species and varieties	+	
Genista species and varieties		+
Hippophae rhamnoides	+	
Laburnum species and varieties	+	
Lespedeza thunbergii		+
Myrica gale		+

**46 Pumping plants**

Pumping plants are used to drain damp areas biologically when the source of the water is local and limited. To do so, trees and shrubs are needed that have high rates of evaporation with usually large leaf laminae and a high water consumption during the vegetation period.

**See table next page**





## 46 Pumping plants

### 1. Trees

Acer negundo  
 Acer platanoides  
 Acer pseudoplatanus  
 Acer saccharinum  
 Aesculus hippocastanum  
 Alnus glutinosa  
 Alnus incana  
 Alnus spaethii  
 Fraxinus excelsior  
 Juglans nigra  
 Populus alba varieties  
 Populus canadensis varieties  
 Populus canescens  
 Populus nigra varieties  
 Prunus padus  
 Salix alba varieties  
 Salix caprea

Salix fragilis  
 Ulmus species and varieties

### 2. Shrubs

Euonymus europaeus  
 Physocarpus opulifolius  
 Prunus padus  
 Rhamnus frangula  
 Salix acutifolia 'Pendulifolia'  
 Salix aurita  
 Salix caprea  
 Salix cinerea  
 Salix smithiana  
 Salix viminalis  
 Sambucus canadensis  
 Sambucus nigra  
 Sorbaria sorbifolia  
 Viburnum opulus

### Genus/species/variety

### Conspicuous flowers

Platanus species  
 Populus alba varieties  
 Populus canescens  
 Populus nigra  
 Prunus avium +  
 Pyrus communis varieties +  
 Quercus petraea  
 Quercus robur  
 Robinia pseudoacacia +  
 Salix alba  
 Salix daphnoides 'Praecox' +  
 Salix fragilis  
 Sorbus aucuparia +  
 Sorbus domestica +  
 Sorbus intermedia +  
 Tilia cordata +  
 Tilia platyphyllos +  
 Tilia europaea +  
 Ulmus carpiniifolia  
 Ulmus laevis

## 47 Village and courtyard trees

A number of central European and naturalised species have long been used in landscapes or settlements with regional and traditional variations and preferences. In the course of the development of the settlement, traditional tree types have been replaced by new tree types. Within the framework of urban renewal projects, the traditional tree types are being used more and more.

### 2. Conifers

Larix decidua  
 Picea abies  
 Pinus sylvestris

### Genus/species/variety

### Conspicuous flowers

### 1. Deciduous trees

Acer platanoides +  
 Acer pseudoplatanus  
 Aesculus hippocastanum +  
 Alnus glutinosa  
 Alnus incana  
 Betula pendula  
 Carpinus betulus  
 Castanea sativa +  
 Crataegus laevigata 'Paul's Scarlet'  
 Fagus sylvatica  
 Fraxinus species  
 Fraxinus excelsior  
 Juglans cinerea  
 Juglans regia  
 Malus varieties +

## 48 Ground-covering plants

Flat-growing plants that spread quickly are used as quick, long-lasting, and low-maintenance greenery for large areas. Ground-covering varieties should not be mixed among themselves, though, as they may suppress each other reciprocally if both are strong competitors. Good varieties are those that spread with layers (shoots above ground that take root upon contact with the ground) or runners (subterranean root sprouts). The larger or denser the leaves, the better the cover. Small or fine-leaf ground-covering plants should not be used for large areas as they require too much care.

If the plan calls for the planting of new shrubs and trees in areas with existing ground-covering plants, the quick development and competitiveness of the plants must be kept in mind. Experience has shown that only large shrubs or trees survive. Small ones are often no match for the ground-covering plants, which smother or cripple them. This is especially true for the "invasive ones", i.e. ground-covering plants such as dwarf bamboo that grow rampantly through the root systems of other plants.

**Note:** The indications of growth rate are taken from comparison with *Cotoneaster dammeri* 'Skogholm', the strongest growing ground-covering plant of all.





Genus/species/variety	Leaves	Runners	Layers	Growth rate Number/m <sup>2</sup>	Genus/species/variety	Leaves	Runners	Layers	Growth rate Number/m <sup>2</sup>
<b>1. Deciduous</b>									
Arctostaphylos uva-ursi	e		+	moderate 3 - 5	Empetrum nigrum	e		+	moderate 5 - 9
Berberis buxifolia 'Nana'	e			slight 6 - 9	Erica carnea varieties	e		+	slight 12 - 16
Berberis candidula	e			slight 3 - 5	Erica vagans varieties	e		+	slight 9 - 12
Berberis frikartii 'Verrucandi'	e			moderate 3 - 5	Euonymus fortunei varieties	e		+	slight 3 - 12
Berberis thunbergii 'Atropurpurea Nana'	sg			slight 6 - 9	Gaultheria procumbens	e	+	+	moderate 9 - 16
Berberis verruculosa	e			moderate 3 - 5	Gaultheria shallon	e	+		strong 4 - 6
Buxus sempervirens arborescens	e			slight 16 - 40	Genista lydia	sg			slight 4 - 6
Calluna vulgaris varieties	e	+	+	slight 9 - 16	Genista radiata	sg			slight 3 - 5
Chaenomeles hybrids varieties	sg	+	+	moderate 1 - 3	Genista sagittalis	sg	+		slight 9 - 16
Cornus canadensis	sg	+		slight 9 - 16	Hedera helix varieties	e		+	slight 3 - 9
Cornus stolonifera 'Kelsey'	sg	+		moderate 3 - 5	Hypericum calycinum	se - e	+		strong 6 - 9
Cotoneaster adpressus	sg		+	slight 6 - 9	Hypericum 'Hidcote'	se - e			moderate 3 - 5
Cotoneaster dammeri varieties	se - e		+	slight/strong 3 - 12	Hypericum moserianum	se			moderate 5 - 6
Cotoneaster horizontalis	sg		+	strong 1 - 3	Illex crenata varieties	e		+	slight/moderate 3 - 6
Cotoneaster microphyllus 'Cochleatus'	e		+	slight 3 - 5	Kerria japonica	sg	+		moderate 3 - 5
Cotoneaster praecox	sg		+	slight 3 - 6	Lavandula angustifolia varieties	e			slight 5 - 9
Cotoneaster salicifolius 'Parkteppich'	se - e		+	moderate 3 - 5	Ledum palustre	e			slight 3 - 5
Cytisus beanii	sg		+	slight 3 - 6	Leucothoe walteri	e	+	+	moderate 3 - 6
Cytisus decumbens	sg		+	slight 5 - 6	Ligustrum vulgare 'Lodense'	se			slight 5 - 8
Cytisus kewensis	sg			slight 5 - 6	Lonicera japonica repens	se - e		+	strong 2 - 4
Cytisus purpureus	sg		+	slight 3 - 6	Lonicera nitida 'Elegant'	se - e			moderate 3 - 5
Daboecia species and varieties	e		+	slight 9 - 12	Lonicera nitida 'Maigrün'	se - e			slight 4 - 6
Daphne cneorum	e		+	slight 4 - 6	Lonicera pileata	se		+	moderate 3 - 5
Deutzia gracilis	sg			slight 3 - 5	Pachysandra terminalis	e	+		moderate 9 - 16
					Pleioblastus pumilis	e	+		strong 1 - 3

Explanation of symbols: sg = summer green / se = semi-evergreen / e = evergreen





## 48 Ground-covering plants

Genus/species/variety	Leaves	Runners	Layers	Growth rate Number/m <sup>2</sup>
<b>1. Deciduous</b>				
Potentilla fruticosa varieties	sg		+	slight/strong 3 - 6
Prunus laurocerasus varieties	e			strong 1
Pyracantha 'Red Cushion'	eg - e			strong 1 - 2
Rhododendron carolinianum var.	e			slight 2 - 4
Rhododendron Azalea hybrids	eg			slight 3 - 5
Rhododendron impeditum var.	e			slight 3 - 6
Rhododendron keleticum	e			slight 4 - 6
Rhododendron 'Radistrotum'	e			slight 6 - 8
Rhododendron Repens hybrids	e			slight 6 - 8
Rhododendron Yakush. hybrids	e			slight 3 - 6
Ribes alpinum 'Schmidt'	sg		+	moderate 3 - 5
Rosa nitida	sg	+		moderate 3 - 6
Rosa rugotida	sg	+		strong 2 - 5
Ground Cover Roses varieties	sg		+	moderate/ strong 1 - 4
Rubus calycinioides	e		+	moderate 5 - 7
Rubus fruticosus	sg - se	+	+	strong 1 - 3
Salix purpurea 'Pendula'	sg		+	strong 1 - 2
Salix repens argentea	sg		+	moderate 3 - 5
Salix rosmarinifolia	sg		+	moderate 2 - 3
Sasa veitchii	e	+		strong 3 - 5
Spiraea betulifolia 'Tor'	sg			slight 3 - 5
Spiraea bumalda varieties	so			moderate 2 - 4
Spiraea decumbens	so		+	slight 9 - 12

Genus/species/variety	Leaves	Runners	Layers	Growth rate Number/m <sup>2</sup>
Spiraea japonica varieties	sg			slight/moderate 3 - 8
Stephanandra incisa 'Crispa'	sg			moderate 4 - 6
Symphoricarpos chenaultii 'Hancock'	sg		+	strong 1 - 3
Vaccinium macrocarpon	e		+	slight 6 - 9
Vaccinium vitis - idaea varieties	e	+		slight 8 - 12
Viburnum davidii	e		+	slight 3 - 5
Vinca major	e		+	strong 5 - 7
Vinca minor varieties	e		+	slight 10 - 15

## 2. Conifers

Juniperus communis 'Hornibrookii'	e			strong 1
Juniperus communis 'Repanda'	e			moderate 1 - 2
Juniperus horizontalis varieties	e		+	moderate 2 - 5
Juniperus sabina 'Tamariscifolia'	e			moderate 3 - 5
Pinus mugo pumilio	e			moderate 2 - 3
Taxus baccata 'Repandens'	e			moderate 1 - 2

## 49 Hedges, espalier and borders

Trimmed hedges and tall hedges take up little space as living fences and borders. Hedges and trained espaliers are used to provide greenery against the facades of buildings instead of, or in addition to, vines and other climbers. Borders bring a geometrical order to farm and front gardens, and cemetery plantings, and can be used to enclose small areas.

Explanation of symbols: sg = summer green / se = semi-evergreen / e = evergreen





Numbers per linear meter (single row)	Height		Number/per m				
1. Tall hedge	2xv	100 - 125 cm	125 - 150 cm	150 - 175 cm	175 - 200 cm	200 - 250 cm	2 - 3
2. Espalier hedge	2xv	40 - 60 cm	60 - 100 cm				3 - 4
3. Normal hedge	2xv	80 - 100 cm	100 - 125 cm	125 - 150 cm	150 - 175 cm		4 - 5
4. Border - high	2xv	30 - 40 cm	40 - 60 cm	60 - 80 cm	60 - 100 cm	80 - 100 cm	3 - 7
5. Border - low	2xv	15 - 20 cm	20 - 25 cm	25 - 30 cm	30 - 40 cm	40 - 50 cm	5 - 8

Genus/species/variety	Tall hedge	Espalier	Normal	Border	Genus/species/variety	Tall hedge	Espalier	Normal	Border
<b>1. Deciduous trees</b>					<b>2. Deciduous Shrubs</b>				
Acer campestre	+		+		Spiraea bumalda varieties				+
Carpinus betulus	+	+	+		Spiraea japonica varieties				+
Crataegus species and varieties	+		+		Symphoricarpos albus laevigatus			+	
Fagus sylvatica varieties	+		+		Syringa chinensis			+	
Malus species and varieties		+			Syringa hyacinthiflora varieties		+		
Platanus acerifolia	+				Syringa vulgaris			+	
Quercus cerris			+		<b>3. (Semi-) evergreen Shrubs</b>				
Quercus petraea	+		+		Berberis species and varieties			+	+
Quercus robur	+	+	+		Buxus sempervirens varieties	+		+	+
Robinia hispida 'Macrophylla'		+			Ceanothus species and varieties		+		
Sorbus aria		+			Cotoneaster species and varieties		+	+	+
Tilia cordata	+	+	+		Elaeagnus species and varieties		+		
Tilia flavescens 'Glenleven'	+				Euonymus fortunei 'Vegetus'		+	+	+
Tilia platyphyllos	+	+	+		Ilex species and varieties	+		+	+
Tilia europaea	+	+	+		Lavandula angustifolia				+
<b>2. Deciduous Shrubs</b>					Ligustrum species and varieties		+	+	+
Berberis species and varieties			+	+	Lonicera nitida varieties		+	+	+
Buddleja davidii varieties		+			Lonicera pileata				+
Ceanothus species and varieties		+			Mahonia aquifolium			+	+
Chaenomeles species and varieties		+	+		Osmanthus heterophyllus		+	+	
Cornus mas		+			Prunus laurocerasus varieties		+	+	
Cotoneaster species and varieties		+	+	+	Pyracantha hybrids varieties		+	+	+
Crataegus species and varieties			+		Viburnum burkwoodii		+		
Deutzia gracilis				+	Viburnum 'Pragense'		+		
Escallonia species and varieties		+	+		Viburnum rhytidophyllum		+		
Forsythia species and varieties		+	+		Viburnum tinus			+	+
Hydrangea quercifolia		+			<b>4. Conifers</b>				
Ligustrum species and varieties		+		+	Chamaecyparis species and varieties	+		+	
Lonicera tatarica			+		Cupressocyparis leylandii varieties	+		+	
Lonicera xylosteum			+		Ginkgo biloba		+		
Magnolia liliiflora varieties		+			Juniperus chinensis varieties	+		+	
Magnolia soulangeana varieties		+			Juniperus communis varieties			+	
Malus Hybriden varieties		+			Juniperus virginiana			+	
Potentilla fruticosa varieties			+	+	Larix species	+		+	
Prunus cerasifera 'Nigra'		+	+		Metasequoia glyptostroboides	+		+	
Prunus spinosa			+		Picea abies	+		+	
Ribes sanguineum varieties		+			Picea omorika			+	
Ribes species and varieties			+	+	Pinus mugo			+	+
Rosa species and varieties		+							





## 49 Hedges, espalier and borders

Genus/species/variety	Tall hedge	Espalier	Normal	Border
<i>Taxus baccata</i>	+		+	
<i>Thuja occidentalis</i> varieties	+		+	+
<i>Thujopsis dolabrata</i>			+	
<i>Tsuga canadensis</i>			+	

## 50 Climbers

Climbers need support or walls to develop optimally. Dimensions and appearance depend on the shape of the climbing aids. According to the type of climbing, two main groups can be distinguished.

Both groups are further subdivided according to the climbing method.

### Trellis climbers

Genus/species/variety	Leaves	Flowers	Fruit	Height
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### Twining climbers

<i>Actinidia arguta</i>	sg	white	green, sweet	3 - 6 m
<i>Actinidia chinensis</i>	sg	white	brown, sweet	8-10 m
<i>Actinidia kolomikta</i>	sg	white	green	2 - 3 m
<i>Akebia quinata</i>	sg - se	pink	green, sweet	4 - 6 m
<i>Aristolochia macrophylla</i>	sg	brown	green	8 - 10 m
<i>Celastrus orbiculatus</i>	sg	green	yellow-orange	8 - 12 m
<i>Humulus lupulus</i>	sg	green	green	3 - 8 m
<i>Lonicera japonica repens</i>	se - e	white	red	2 - 3 m
<i>Lonicera brownii</i> 'Dropmore Scarlet'	sg	orange	orange	2 - 3 m
<i>Lonicera caprifolium</i>	sg	white	red	2 - 5 m
<i>Lonicera heckrottii</i>	sg	pink	red	2 - 4 m
<i>Lonicera henryi</i>	e	yellow	blue	5 - 7 m
<i>Lonicera periclymenum</i>	sg	white	red	1 - 5 m
<i>Lonicera tellmanniana</i>	sg	yellow	orange	4 - 6 m
<i>Polygonum aubertii</i>	sg	white	white	8 - 15 m
<i>Wisteria floribunda</i>	sg	blue	green	6 - 8 m
<i>Wisteria sinensis</i>	sg	blue	green	6 - 15 m

### Sarmentous plants without suction pads

<i>Clematis alpina</i> varieties	sg	blue	silvery	1 - 2 m
<i>Clematis hybrids</i> varieties	sg	viele	silvery	2 - 4 m
<i>Clematis macropetala</i> varieties	sg	viele	silvery	2 - 3 m
<i>Clematis montana</i> varieties	sg	white	silvery	5 - 8 m
<i>Clematis montana</i> 'Rubens'	sg	pink	silvery	3 - 10 m
<i>Clematis orientalis</i> 'Orange Peel'	sg	yellow	silvery	3 - 5 m
<i>Clematis tangutica</i>	sg	yellow	silvery	4 - 6 m
<i>Clematis texensis</i> varieties	sg	pink	silvery	1 - 1.5 m
<i>Clematis vitalba</i>	sg	white	silvery	10 - 20 m
<i>Clematis viticella</i> varieties	sg	blue	silvery	2 - 5 m
<i>Vitis coignetiae</i>	sg	green	black	6 - 8 m

Explanation of symbols: sg = summer green (no leaves in winter) / se = semi-evergreen / e = evergreen

Genus/species/variety	Leaves	Flowers	Fruit	Height
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### Splayed climbers

<i>Jasminum nudiflorum</i>	sg	yellow		2 - 3 m
<i>Rosa arvensis</i>	sg	white	orange-red	1 - 2 m
Climbing Roses	sg	all		2 - 3 m
<i>Rubus fruticosus</i>	sg - se	white	black	1 - 3 m
<i>Rubus henryi</i>	e	pink	black	2 - 3 m

### Self climbers

Genus/species/variety	Leaves	Flowers	Fruit	Height
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### Plants with suction pads

<i>Parthenocissus quinquefolia</i>	sg	green	black	10 - 15 m
<i>Parthenocissus quinquefolia</i> 'Engelmannii'	sg	green	black	15 - 18 m
<i>Parthenocissus tricuspidata</i> 'Veitchii'	sg	green	black	15 - 18 m

### Climbers with suction roots

<i>Campsis radicans</i>	sg	red	green	6 - 15 m
<i>Campsis radicans</i> 'Flava'	sg	yellow	green	4 - 5 m
<i>Campsis tagliabuana</i> 'Mme. Galen'	sg	red		3 - 5 m
<i>Euonymus fortunei radicans</i>	e			2 - 5 m
<i>Euonymus fortunei</i> 'Vegetus'	e	green	orange	3 - 6 m
<i>Euonymus fortunei</i> varieties	e		orange	1 - 3 m
<i>Hedera colchica</i>	e	yellow	black	6 - 8 m
<i>Hedera helix</i>	e	yellow	black	10 - 20 m
<i>Hedera helix</i> 'Woerner'	e	yellow	black	10 - 15 m
<i>Hedera helix hibernica</i>	e	yellow	black	5 - 20 m
<i>Hydrangea petiolaris</i>	sg	white	brown	8 - 12 m

## 51 Plants for roof garden with good maintenance

This selection is only for roof gardens in unprotected areas exposed to wind.

For a selection of plants for protected roof gardens or courtyards, no special sensitivities need be considered thanks to the protection provided by the building on all sides.

### For a special selection:

1. select plants with several stems as they withstand wind pressure and turbulence better than single-stem plants,,
2. loose crowns that allow air to pass instead of compact trees or shrubs which have great wind resistance,
3. small-leaf varieties are damaged less than large-leaf ones,
4. do not use plants that break easily,
5. do not use plants that have aggressive roots (such as Hippophae) lest they take advantage of errors in the use of insulation sheets,





# Plants for roof garden with good maintenance 51

6. do not set up a luxurious supply of nutrients for the higher the soil moisture and amount of nutrients, the flatter the roots and the more luxurious the parts above ground will be.

**Note:** The habit sizes and limitations listed here concern the response of the plants to roof gardens and are not identical to behaviour on level ground! Almost all climbers are useless on roof gardens as they are too sensitive to wind. Usually they do not accept the supports, but rather wind their way into other plants. Climbing aids should be very stable. Climbing plants that have fallen down have to be cut back hard to further new shoots as old shoots no longer climb. The base of the plant has to be in the shade.

(For further information, see publications by KIERMEIER, P., KOLB/SCHWARZ, KRUPKA, B., LIESECKE/LÖSKEN etc., various editions)

Genus/species/variety	Height	Limitations
<b>1. Deciduous trees and large Shrubs</b>		
Acer campestre	3 - 10 m	
Acer ginnala	3 - 6 m	
Acer neglectum 'Annae'	6 - 10 m	may be too big
Amelanchier laevis	3 - 5 m	flowers not wind resistant
Amelanchier lamarckii varieties	3 - 5 m	
Cornus mas	3 - 6 m	
Corylus avellana	3 - 5 m	sensitive when exposed to wind
Crataegus lavalleyi 'Carrierei'	5 - 8 m	
Crataegus coccinea	5 - 7 m	
Crataegus crus galli	5 - 7 m	
Fraxinus ornus varieties	4 - 8 m	very sensitive to frost, flowers not wind resistant
Philadelphus inodorus grandiflorus var.	3 - 4 m	flowers not wind resistant, needs thinning out
Physocarpus opulifolius	3 - 4 m	
Prunus mahaleb	3 - 6 m	many seedlings
Prunus serotina	5 - 10 m	troublesome seedlings
Pyrus salicifolia	4 - 6 m	sensitive to frost, flowers not wind resistant
Salix acutifolia 'Pendulifolia'	4 - 6 m	break easily, needs thinning out
Salix caprea	3 - 6 m	leaves brown from July on during droughts
Sorbus aria varieties	5 - 8 m	
Sorbus aucuparia	5 - 8 m	during droughts loses its leaves
Sorbus hybrida 'Gibbsii'	4 - 6 m	leaf loss due stagnant dampness
Sorbus intermedia	8 - 10 m	maybe too big

Genus/species/variety	Height	Limitations
<b>2. Medium to large Shrubs</b>		
Berberis ottawensis 'Superba'	2 - 4 m	
Berberis thunbergii varieties	0.5 - 2 m	loses its leaves early during droughts
Buddleja alternifolia	2 - 3 m	very overhanging, sensitive to frost
Buddleja davidii varieties	1 - 2 m	sensitive to frost, cut back yearly
Buxus sempervirens 'Bullata'	1 - 2 m	occasionally sensitive to frost
Chaenomeles species and varieties	1 - 2 m	flowers not wind resistant
Cornus alba	2 - 3 m	
Cornus alba 'Sibirica'	1 - 2 m	
Cornus stolonifera 'Kelsey'	0.5 - 1 m	not in hot, dry areas
Cotinus coggygia	2 - 3 m	sensitive to frost
Cotoneaster bullatus	2 - 3 m	occasionally sensitive to frost
Cotoneaster dielsianus	1 - 2 m	
Cotoneaster divaricatus	1 - 2 m	
Cotoneaster acutifolius	1 - 2 m	
Cotoneaster multiflorus	1 - 2 m	occasionally sensitive to frost
Cotoneaster praecox	1 - 1.5 m	occasionally sensitive to frost
Deutzia species and varieties	0.5 - 2 m	not in hot, dry areas
Euonymus alatus	0.2 - 2 m	not in hot, dry areas
Hypericum 'Hidcote'	0.5 - 1 m	sensitive to frost, cut back yearly
Hypericum patulum henryi	0.5 - 1 m	sensitive to frost, cut back yearly
Ilex meserveae varieties	1 - 2 m	sensitive to frost, may lose all their leaves
Kerria japonica varieties	1 - 2 m	sensitive to frost
Kolkwitzia amabilis	2 - 3 m	age quickly, thin out often
Ligustrum obtusifolium regelianum	1 - 2 m	
Ligustrum ovalifolium	2 - 3 m	sensitive to frost
Ligustrum vulgare varieties	2 - 3 m	
Lonicera ledebourii	2 - 3 m	not in dry areas
Lonicera tatarica	2 - 3 m	cut back occasionally
Lonicera xylosteoides 'Clavey's Dwarf'	2 - 3 m	
Lonicera xylosteum	1 - 2 m	not in hot, dry areas
Lycium barbarum	2 - 3 m	very overhanging
Perovskia abrotanoides	1 - 1.5 m	cut yearly
Philadelphus coronarius	2 - 3 m	cut back occasionally
Philadelphus hybrids	1 - 2 m	flowers not wind resistant, thin out often
Potentilla fruticosa varieties	0.5 - 1.3 m	alle all varieties are sometimes sensitive to frost, thin out
Potentilla 'Goldteppich'	0.5 - 1 m	avoid planting too closely
Potentilla 'Sommerflor'	0.5 - 1 m	
Prunus laurocerasus 'Otto Luyken'	1 - 2 m	many vein weevils on humic substrates, then hard to control! Occasionally sensitive to frost
Prunus laurocerasus 'Zabeliana'	1 - 2 m	
Prunus tenella	0.5 - 1.5 m	flowers not wind resistant, cut yearly
Pyracantha 'Red Cushion'	0.5 - 1 m	sensitive to frost, turn back when cold





# 51 Plants for roof garden with good maintenance

Genus/species/variety	Height	Limitations
<b>2. Medium to large Shrubs</b>		
Pyracantha 'Red Column'	2 - 3 m	sensitive to frost, moderate amount of fruits
Pyracantha 'Soleil d'Or'	1 - 2 m	sensitive to frost
Ribes alpinum 'Schmidt'	0.5 - 1 m	not in hot, dry areas
Ribes aureum	1 - 2 m	falls apart, not in hot, dry areas
Ribes divaricatum	2 - 3 m	not in hot, dry areas
Rosa glauca	1 - 2 m	no competition, loses first leaves starting in August
Rosa multiflora	1 - 2 m	
Rosa rubiginosa	1 - 2 m	somewhat sensitive to wind
Rosa varieties	0.5 - 1 m	yearly care, sensitive to frost
Salix species and varieties		as a rule unsuitable as they lose their leaves early
Salix purpurea 'Pendula'	0.5 - 1 m	slow-growing, prostrate
Salix rosmarinifolia	1 - 1.5 m	not in hot, dry areas
Spiraea bumalda varieties	0.5 - 1 m	cut back often
Spiraea japonica varieties	0.3 - 0.5 m	cut back often
Spiraea vanhouttei	1 - 2 m	flowers sensitive to wind, sensitive to drought
Symphoricarpos albus laevigatus	1 - 2 m	troublesome runners
Symphoricarpos chenaultii	1 - 1.5 m	occasionally sensitive to frost
Symphoricarpos orbiculatus	1 - 1.5 m	occasionally sensitive to frost
Syringa chinensis	2 - 3 m	can shoot from below graft
Syringa microphylla 'Superba'	1 - 1.5 m	
Tamarix species	2 - 3 m	sensitive to frost, cut back frequently
Viburnum farreri	2 - 3 m	flowers sensitive to frost, need thinning out
Viburnum lantana	2 - 3 m	occasionally stripped bare by birds
Weigela hybrids varieties	1 - 2 m	thin out regularly, not in hot, dry areas
<b>3. Small and dwarf shrubs, ground-cover plant</b>		
Cornus stolonifera 'Kelsey'	0.5 - 1 m	not in hot, dry areas
Cotoneaster adpressus	0.2 - 0.5 m	very low-growing
Cotoneaster dammeri varieties	0.2 - 1.2 m	sensitive to frost, froze when cold
Cotoneaster salicifolius 'Parkteppich'	0.3 - 1 m	sensitive to frost
Euonymus fortunei varieties	0.3 - 1 m	sensitive to frost, not for hot, dry extreme areas (colourful varieties susceptible) many fir tree weevils in humid substrates, then hard to stop
Hypericum calycinum	0.2 - 0.3 m	sensitive to frost
Hypericum moserianum	0.3 - 0.5 m	sensitive to frost
Ilex crenata varieties	0.3 - 1.5 m	sensitive to frost, not good in hot, dry areas

Genus/species/variety	Height	Limitations
Ligustrum vulgare 'Lodense'	0.5 - 0.7 m	very low-growing, froze when cold
Lonicera nitida 'Maigrün'	0.5 - 0.8 m	sensitive to frost
Lonicera pileata	0.5 - 1 m	sensitive to frost
Mahonia aquifolium 'Apollo'	0.5 - 1 m	sensitive to frost, avoid sun
Philadelphus 'Erectus'	0.5 - 1 m	flowers not wind resistant
Potentilla 'Goldteppich'	0.5 - 1 m	avoid planting too closely
Potentilla 'Sommerflor'	0.5 - 1 m	
Pyracantha 'Red Cushion'	0.5 - 1 m	sensitive to frost
Rosa - Groud Cover Roses	0.3 - 1.2 m	occasionally sensitive to frost, sensitive to wind, sometimes roots shoot, year round attention
Symphoricarpos chenaultii 'Hancock'	0.8 - 1.2 m	occasionally sensitive to frost
<b>4. Climbers</b>		
Clematis montana 'Rubens'	2 - 5 m	sensitive to frost, flowers sensitive to wind
Clematis tangutica	2 - 3 m	
Euonymus fortunei radicans	1 - 3 m	sensitive to frost, not in hot, dry areas
Hedera helix	3 - 8 m	does not always climb, sensitive to frost
<b>5. Conifers</b>		
Juniperus communis 'Hornibrookii'	0.5 - 1 m	
Juniperus communis 'Repanda'	0.3 - 0.5 m	
Juniperus horizontalis 'Wiltonii'	0.2 - 0.3 m	
Juniperus sabina 'Tamariscifolia'	0.5 - 0.8 m	
Picea abies 'Nidiformis'	1 - 1.5 m	only in shady areas
Picea abies 'Pumila Glauca'	0.3 - 0.5 m	only in shady areas
Pinus leucodermis	4 - 6 m	sensitive to stagnant water
Pinus mugo varieties	1 - 2 m	
Pinus parviflora 'Glauca'	4 - 6 m	may be too big
Pinus parviflora 'Negishi'	1 - 1.5 m	
Pinus sylvestris 'Watereri'	3 - 5 m	
Taxus baccata varieties		many vein weevils on humid substrates, hard to control!
Taxus baccata 'Dovostoniana'	2 - 4 m	may be too big
Taxus baccata 'Nissens Corona'	1 - 3 m	see above
Taxus baccata 'Nissens Präsident'	2 - 3 m	see above
Taxus baccata 'Repandens'	0.5 - 0.7 m	see above
Taxus cuspidata 'Nana'	1 - 2 m	see above







## 52 Low-maintenance roof gardens

Lignifying plants are not recommended for low-maintenance roof gardens as the strong layers of the substrate (approx. 3-8 cm) are too shallow. With low-maintenance roof gardens, the plants are neither watered nor regularly fertilised; both of these processes are, however, necessary for large lignifying plants to live long lives.

Lignifying plants for simple, high-maintenance roof gardens

To minimise the requirements of maintenance, plants that need great care, such as regular pruning, should not be selected. The thickness of the layers should be increased – “piled up” – as needed, with approx. 1 m<sup>2</sup> is planned for each plant. As a rule, the plants should not be larger than 0.8-1.0 m for simple intensive greenery in order to avoid frequent watering or fertilisation. For the growth rates, keep in mind that the average ultimate sizes cannot be reached on roofs. Only about 2/3 of the usual height can be expected, accompanied by loose leaves and fewer flowers.

The selection of plants corresponds to the high-maintenance roof gardens in section 3 (small and dwarf plants) and section 5 (conifers), though all plants taller than 1 m should be avoided.

## 53 Trees for shady courtyards

The opening of inner-city courtyards for residents requires new considerations in the selection of plants. In most narrow, shady quads, large trees can rarely be planted as they could cast the courts into greater darkness than they already have. In such court situations where direct light seldom shines or only does so for brief periods, the trees rarely reach their optimal height. Often, they grow towards the light (crooked), or characteristic crown shapes are lost due to the lack of light. In addition, leaves, fruits and flowers are less plentiful. Problems also occur when the ground is paved too close to the stems of the trees as most varieties lift the pavement.

### 1. Deciduous trees

- Acer campestre varieties
- Acer neglectum ‘Annae’
- Acer palmatum
- Acer pensylvanicum
- (Acer platanoides green-leaf varieties)
- Acer rufinerve
- (Amelanchier lamarckii varieties)
- Carpinus betulus varieties
- (Cercidiphyllum japonicum)
- Cornus alternifolia
- Cornus controversa

- Cornus florida varieties
- Cornus kousa varieties
- (Cornus mas)
- Crataegus laevigata
- Crataegus lavallei ‘Carrierei’
- Crataegus monogyna
- Crataegus coccinea
- Fagus sylvatica green-leaf varieties
- (Fraxinus excelsior)
- Ilex aquifolium varieties
- (Malus Hybriden green-leaf varieties)
- Ostrya carpinifolia

- (Parrotia persica)
- Prunus padus
- (Quercus petraea)
- (Quercus robur)
- Sorbus aria varieties
- Sorbus arnoldiana varieties
- Sorbus aucuparia varieties
- (Sorbus intermedia varieties)
- (Sorbus torminalis)
- (Tilia americana varieties)

- (Tilia cordata varieties)
- (Tilia europaea varieties)
- Ulmus carpinifolia
- Ulmus hollandica ‘Lobel’

### 2. Conifers

- Chamaecyparis species and varieties
- Taxus species and varieties
- Thuja species and varieties





## 54 Heath gardens

“Heaths” are not only understood to be endless heath meadows with Junipers and white, shimmering birches, but also include dwarf shrub formations in areas with high humidity on substrates with little nutrition, which do not necessarily have to be on acidic sandy soil. The most conspicuous heaths are primarily small-leaf Ericaceae, dwarf and rod shrubs such as broom and related varieties, and numerous conifers shrubs and trees such as common hawthorn and birches also grow on heaths. As these plants suppress the herbaceous heaths, they must be used carefully. Heaths do not withstand autumn leaf loss or large amounts of shade. Thus, the herbaceous heaths generally occur around conifers as the needles do not damage them. They should not, however, be used for ground cover under trees and shrubs; rather, use other shade-tolerant Ericaceae such as the *Vaccinium* species.

### A Heaths near coasts

Genus/species/variety	Needs light	Tolerates shade
<b>Deciduous plants</b>		
<i>Betula pendula</i> varieties	+	
<i>Betula pubescens</i>	+	
<i>Cytisus scoparius</i> varieties	+	
<i>Crataegus monogyna</i>		+
<i>Empetrum nigrum</i>	+	
<i>Genista sagittalis</i>	+	
<i>Genista tinctoria</i> varieties	+	
<i>Myrica gale</i>	+	
<i>Rhamnus frangula</i>		+
<i>Salix repens argentea</i>	+	
<i>Sorbus aucuparia</i> varieties		+
<i>Ulex europaeus</i>	+	
<b>Varieties of Ericaceae</b>		
<i>Calluna vulgaris</i> varieties	+	
<i>Erica cinerea</i>	+	
<i>Erica tetralix</i>	+	
<i>Erica vagans</i> varieties	+	
<i>Vaccinium vitis-idaea</i> varieties		+
<b>Conifers</b>		
<i>Juniperus communis</i> varieties	+	
<i>Pinus sylvestris</i> varieties	+	

#### Note:

Broad-leaf plants should not be used in true heaths. Rather, slender-leaf species – especially grasses – are ideal complements. The recommended varieties are *Deschampsia flexuosa*, *Festuca ovina*, *Festuca tenuifolia* and *Molinia caerulea*. In shady areas, ferns can also be used. For more, see planting tips for perennials, list of heath plants.

### B Alpine rose heaths

Heaths in mountainous regions are similar to those in plains, though the species usually differ.

Genus/species/variety	Needs light	Tolerates shade
<b>Deciduous plants</b>		
<i>Clematis alpina</i>		+
<i>Crataegus monogyna</i>		+
<i>Cytisus purpureus</i>	+	
<i>Daphne cneorum</i>	+	
<i>Lonicera caerulea</i>		+
<i>Ribes alpinum</i>		+

### Varieties of Ericaceae

<i>Arctostaphylos uva-ursi</i>	+	
<i>Empetrum nigrum</i>	+	
<i>Erica carnea</i> varieties	+	
<i>Rhododendron ferrugineum</i>		+
<i>Rhododendron hirsutum</i>		+
<i>Vaccinium vitis-idaea</i> varieties		+

### Conifers

<i>Juniperus communis</i> varieties	+	
<i>Larix decidua</i>	+	
<i>Picea abies</i> varieties		+
<i>Pinus cembra</i>	+	
<i>Pinus mugo</i> varieties	+	
<i>Pinus nigra</i> varieties	+	
<i>Pinus sylvestris</i> varieties		

### C Heath-like formations from foreign countries

Genus/species/variety	Needs light	Tolerates shade
<b>Deciduous plants</b>		
<i>Aronia</i> species and varieties		+
<i>Betula</i> species and varieties	+	
<i>Clethra alnifolia</i>		+
<i>Cornus canadensis</i>		+
<i>Cornus stolonifera</i> ‘Kelsey’s’		+
<i>Cytisus</i> species and varieties	+	
<i>Daboecia</i> species and varieties		+
<i>Elaeagnus pungens</i> varieties		+
<i>Fothergilla gardenii</i>		+
<i>Genista</i> species and varieties	+	
<i>Hebe</i> species and varieties	+	
<i>Ilex crenata</i> varieties		+





Genus/species/variety	Needs light	Tolerates shade
Ilex meserveae varieties		+
Ilex verticillata	+	
Rubus calycinoides	+	
Skimmia japonica varieties		+
Sorbus species and varieties	+	
Spiraea betulifolia		+
Spiraea prunifolia	+	

## Ericaceae varieties

Gaultheria procumbens		+
Gaultheria shallon		+
Kalmia angustifolia 'Rubra'		+
Kalmia latifolia varieties		+
Leucothoe walteri		+
Pernettya mucronata varieties		+
Pieris floribunda		+
Pieris japonica varieties		+
Rhododendron Wild varieties		+
Rhododendron impeditum varieties	+	
Rhododendron keleticum	+	
Rhododendron minus		+
Rhododendron 'Radistrotum'		+
Rhododendron Azalea hybrids		+
Vaccinium macrocarpon	+	

## Conifers

Juniperus species and varieties	+	
Larix kaempferi	+	
Pinus contorta	+	
Pinus densiflora 'Umbraculifera'	+	
Pinus leucodermis	+	
Pinus parviflora 'Glauca'	+	
Pinus pumila 'Glauca'	+	
Thuja standishii	+	
Tsuga diversifolia		+
Tsuga mertensiana		+

## 55 Plants for tubs and pots

As attractive as potted plants are, they need a lot of care in the final analysis. It does not suffice to set up decorative pots in pedestrian zones, atriums, squares or terraces. A main problem is the surplus of organic material in most substrates that results in a decrease in the mass of the soil between 30-50%. The plants lose their stability and even starve. Plants that need humus thus are rarely good in pots. It is extremely necessary to add material that stabilises the structure and to calculate for 10-20% loss from the outset. Many potted plants are clearly stymied after the first year if they only live in root ball material and no nutrients are added. Slow-release fertilisers are recommended. Regular watering is a primary requirement for the survival of the plants. Plants sensitive to frost

are more so in a pot than in a bed. Thus, the location has to be selected with care. The size of the pot depends on the size of the plants and their number. Too many plants or plants that are too big will cramp each other and gradually become gaunt.

As a rule, the diameter of the pot should be at least one third of the mean diameter of the largest plant selected with a minimum substrate depth of 40-60 cm. The more the better, as less soil means more maintenance.

## 1. Deciduous trees

Acer ginnala  
 Acer japonicum 'Aconitifolium'  
 Acer rufrinerve  
 Amelanchier lamarckii  
 Berberis ottawensis varieties  
 Berberis thunbergii 'Atropurpurea Nana'  
 Catalpa bignonioides 'Nana'  
 Clerodendron trichotomum fargesii  
 Cotinus coggygria varieties  
 Cotoneaster species and varieties  
 Crataegus lavalley 'Carrierei'  
 Crataegus coccinea  
 Cytisus species and varieties  
 Elaeagnus species and varieties  
 Enkianthus perulatus  
 Genista species and varieties  
 Hydrangea arborescens varieties  
 Lonicera tatarica varieties  
 Mahonia aquifolium varieties  
 Malus 'Red Jade' and other Varieties  
 Nothofagus antarctica  
 Perovskia abrotanoides  
 Philadelphus 'Erectus'  
 Potentilla fruticosa varieties  
 Prunus fruticosa 'Globosa'  
 Ptelea trifoliata  
 Pyrus salicifolia  
 Quercus pontica  
 Rhodotypos scandens  
 Robinia 'Casque Rouge'  
 Robinia hispida varieties  
 Rosa glauca  
 Salix purpurea 'Pendula'  
 Sorbus serotina  
 Sorbus thuringiaca 'Fastigiata'  
 Spiraea betulifolia varieties  
 Spiraea bumalda  
 Spiraea decumbens  
 Spiraea japonica varieties  
 Spiraea nipponica varieties  
 Staphylea colchica

Stephanandra incisa 'Crispa'  
 Symphoricarpos chenaultii 'Hancock'  
 Syringa meyeri 'Palibin'  
 Syringa microphylla 'Superba'  
 Syringa patula 'Miss Kim'  
 Tamarix parviflora

## 2. Evergreen broad-leaf shrubs

Berberis buxifolia 'Nana'  
 Berberis candidula  
 Berberis frikartii varieties  
 Berberis gagnepainii varieties  
 Berberis media varieties  
 Berberis verruculosa  
 Buxus sempervirens varieties  
 Cotoneaster species and varieties  
 Daphne cneorum  
 Elaeagnus species and varieties  
 Erica carnea varieties  
 Hedera colchica varieties  
 Hedera helix varieties  
 Hypericum species and varieties  
 Ilex species and varieties  
 Lavandula angustifolia varieties  
 Ligustrum delavayanum  
 Ligustrum ovalifolium 'Aureum'  
 Lonicera nitida varieties  
 Lonicera pileata  
 Osmanthus heterophyllus  
 Prunus laurocerasus varieties  
 Pyracantha hybrids varieties  
 Rhododendron Azalea hybrids  
 Rhododendron impeditum varieties  
 Rhododendron keleticum  
 Rhododendron 'Radistrotum'  
 Rubus henryi  
 Skimmia japonica varieties  
 Viburnum davidii  
 Viburnum tinus  
 Vinca major





## 55 Plants for tubs and pots

### 3. Conifers

Chamaecyparis obtusa 'Nana Gracilis'    Pinus densiflora 'Umbraculifera'  
Juniperus communis 'Repanda'    Pinus mugo varieties  
Juniperus horizontalis varieties    Pinus nigra varieties  
Juniperus sabina varieties    Pinus parviflora varieties  
Microbiota decussata    Pinus sylvestris 'Watereri'  
Picea abies 'Nidiformis'    Taxus species and varieties  
Picea abies 'Pumila Glauca'

